From: **Sierra Yoho** sierra@strivefunds.com
Subject: Re: Visit Today
Date: June 15, 2022 at 9:46 AM
To: Ronda Stegmann rondas@mosers.org

SY

This email originated from outside of MOSERS

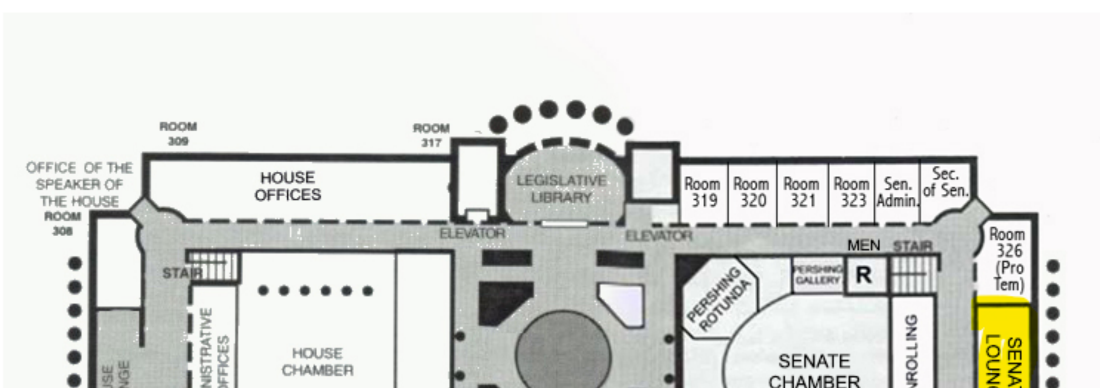
I think just a meal for him and Patrick Feeley, his accompanying assistant

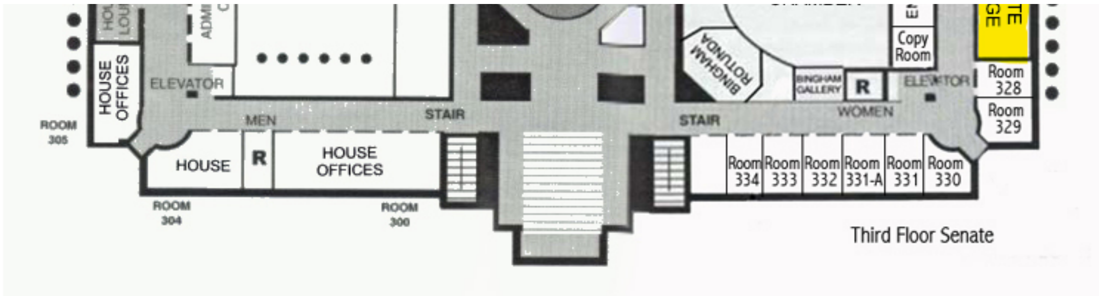
On Wed, Jun 15, 2022 at 9:44 AM Ronda Stegmann <rondas@mosers.org> wrote:

> I believe it is just a metal detector. So should be fine. Do we need to order lunch for you? I know we have Mr. Ramaswamy's menu choice but didn't want to leave you out. Thanks.
>
> > On Jun 15, 2022, at 8:28 AM, Sierra Yoho <sierra@strivefunds.com> wrote:
> >
> > ## This email originated from outside of MOSERS
> >
> > Hey Ronda-
> >
> > Just realized I don't have my ID with me and we're already on the plane. Hopefully it's just the metal detector!
> >
> > On Wed, Jun 15, 2022 at 9:03 AM Ronda Stegmann <rondas@mosers.org> wrote:
> >
> > > Sounds good. Thanks.
> > >
> > > > On Jun 15, 2022, at 7:02 AM, Sierra Yoho <sierra@strivefunds.com> wrote:
> > > >
> > > > ## This email originated from outside of MOSERS
> > > >
> > > > Thanks so much for your reply!
> > > >
> > > > Should be good to go but have your cell just in case!
> > > >
> > > > On Wed, Jun 15, 2022 at 8:00 AM Ronda Stegmann <rondas@mosers.org> wrote:
> > > >
> > > > > Good morning Sierra – I am assuming you saw the email I sent last week (below).
> > > > >
> > > > > The lunch is in the basement of the Capitol Building on the West side. Really can't miss it. It's the only cafeteria in the building.
> > > > >
> > > > > The security process is going through a metal detector at the entrance under the carriage tunnel on the south side of the building (across the street from the Supreme Court building.
> > > > >
> > > > > You are welcome to call me on my cell at 573-230-1116 at any time. I may have to step out of the meeting but all good.
> > > > >
> > > > > Thanks very much,
> > > > >
> > > > > Ronda
> > > > >
> > > > > Next week, on Wednesday, June 15th, the Board will hold its annual educational conference. This meeting is designed to assist the Board in meeting the governance-required 6 hours of annual education. This meeting will be held in the State Capitol building in the Senate Lounge. The Senate Lounge is located on the 3rd floor on the east side of the building (map below). The physical address of the building is 201 W. Capitol Ave, Jefferson City, MO.

Missouri State Senate

Map of the Third Floor of the State Capitol





We will have a full day of education beginning at 9:00 a.m. with presentations from Cavanaugh Macdonald, Verus, Vivek Ramaswamy with Strive Asset Management, and staff. We expect the day to end around 5:00 p.m.

Some things you need to know for **Wednesday, June 15th**:

- We have received 10 parking spaces in the Senate garage in **spaces 3 through 16** (you are welcome to use any of those spaces). These spaces are for Board members and consultants. Staff will work to consolidate in a few vehicles to ensure parking for all. The Senate garage is the circular garage on the Missouri River side of the Capitol building.
- It is important to note that if you do not have an ID badge that allows for access into the Capitol building, *you will need to go through the Security process* which is located at that entrance to the building, under the carriage tunnel on the Supreme Court side of the Capitol, so please allow a few extra minutes for that process.
- We will be having lunch in the restaurant in the basement of the Capitol. Melissa will get with you for your choice of lunch options.
- We are working to have time to take the Board into the Senate Chamber and to the Whispering Gallery/ top of the outside of the dome, if anyone is interested.
- We will have an "on your own" informal dinner for anyone who is interested at the Canterbury Hill Restaurant and Winery – located at 1707 S Summit Drive in Holts Summit.

On Thursday, June 16th, we will conduct the 2nd Quarter Meeting of the Board at the MOSERS Office Building. We will begin the meeting at 9:00 a.m.

We are looking forward to seeing everyone! If you have any questions between now and Wednesday, do not hesitate to contact me on my cell at 573-230-1116 at any time.

Thanks very much,

Ronda

Success is a TEAM sport!

Ronda Stegmann

Executive Director | *MOSERS*

573-632-6110

rondas@mosers.org

From: Sierra Yoho <sierra@strivefunds.com>
Sent: Wednesday, June 15, 2022 6:43 AM
To: Ronda Stegmann <rondas@mosers.org>
Subject: Re: Visit Today

This email originated from outside of MOSERS

Also-

Will we need to go through the security process? If so can I get some more details on that?

Thanks so much!

On Wed, Jun 15, 2022 at 7:25 AM Sierra Yoho <sierra@strivefunds.com> wrote:

> Hi Ronda!
>
> I am Vivek Ramaswamy's assistant. Which room is the lunch in for today?
>
> Checking where I need to get him upon our arrival of at the Capitol building.
>
> If you have a cell to provide we can text if easier!
>
> Best

Best,

Sierra

614-867-7171

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From: Ronda Stegmann rondas@mosers.org
Subject: MOSERS Board Education & 2nd Qtr Meeting
Date: June 10, 2022 at 12:53 PM
To: Ronda Stegmann rondas@mosers.org
Cc: Abby Spieler abbys@mosers.org, TJ Carlson tjcarlson@mosers.org

RS

Next week, on Wednesday, June 15th, the Board will hold its annual educational conference. This meeting is designed to assist the Board in meeting the governance-required 6 hours of annual education. This meeting will be held in the State Capitol building in the Senate Lounge. The Senate Lounge is located on the 3rd floor on the east side of the building (map below). The physical address of the building is 201 W. Capitol Ave, Jefferson City, MO.

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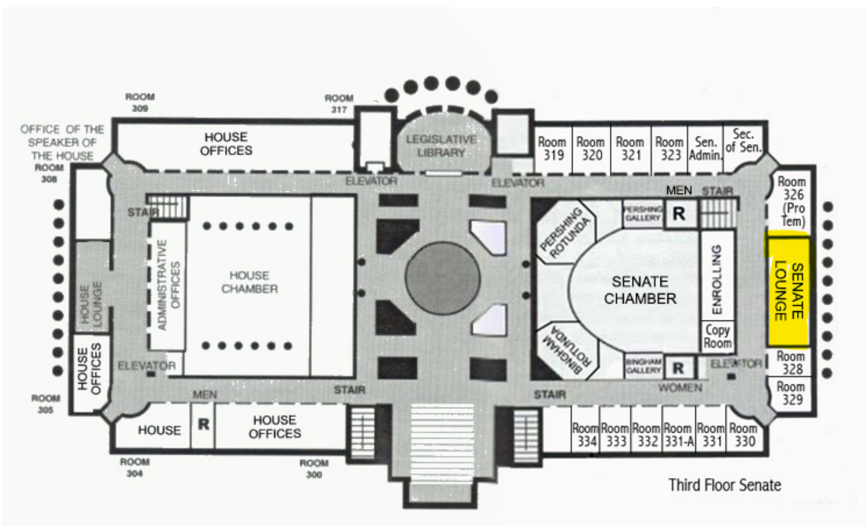
Map of the Third Floor of the State Capitol



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Thanks very much,
Ronda
Success is a TEAM sport!

Ronda Stegmann
Executive Director | *MOSERS*

573-632-6110 rondas@mosers.org

From: **TJ Carlson** tjcarlson@mosers.org
Subject: Accepted: TJ Carlson <> Strive
Date: July 8, 2022 at 6:19 PM
To: matt.cole@strivefunds.com

Mail Attachment

From: **Ronda Stegmann** rondas@mosers.org
Subject: AGENDA 2022 Board Education Program - DRAFT RS.doc
Date: June 9, 2022 at 6:08 PM
To: Melissa Johnson melissaj@mosers.org
Cc: Abby Spieler abbys@mosers.org

RS

AGENDA 2022
Board...RS.doc

Missouri State Employees' Retirement System
2022 Board of Trustees Education Program
Missouri State Capitol Building, Senate Lounge, Jefferson City, MO
www.gotomeeting.com, Meeting ID
June 15, 2022 – 9:00 a.m.
Agenda

Open Session

9:00 a.m. – 10:00 a.m.	ASOP 4 Overview *Pat Beckham & Bryan Hoge, Cavanaugh Macdonald Consulting*
10:00 a.m. – 10:15 a.m.	Break
10:15 a.m. – 11:30 a.m.	Asset Allocation *Eileen Neill, Verus Investments*
11:30 a.m. – 12:15 p.m.	Lunch
12:15 p.m. – 1:00 p.m.	Environmental, Social, and Governance (ESG) *Vivek Ramaswamy, Strive Asset Management*
1:00 p.m. – 2:30 p.m.	Environmental, Social, Governance (ESG) (continued) *TJ Carlson, MOSERS* *Abby Spieler, MOSERS* Proxy Voting Discussion *TJ Carlson, MOSERS* *Abby Spieler, MOSERS*
2:30 p.m. – 2:45 p.m.	Total Compensation – The Value of Benefits *Ronda Stegmann, MOSERS*
2:45 p.m. – 3:30 p.m.	Senate Chamber Tour/Whispering Gallery
3:30 p.m. – 4:30 p.m.	DC Annual Report *Cindy Rehmeier, MOSERS*

InvestmentNews

NEWS

Mutual Funds & ETFs

Anti-ESG movement spawns new fund in battle against industry giants

Fledgling ETF provider Strive Asset Management hopes to compete with BlackRock, Vanguard and State Street for proxy voting power.

August 10, 2022

By Jeff Benjamin

Strive Asset Management is entering the ETF space with the goal of taking on industry giants BlackRock, Vanguard and State Street, which combine to represent more than $20 trillion worth of ETF assets.

The three-month-old Columbus, Ohio-based startup, which launched its first ETF this week, is betting on a growing investor backlash against the ESG-focused proxy voting patterns among the largest players in the ETF space.

The Strive US Energy ETF (DRLL) is a straightforward, passive energy-sector fund that investors can already find elsewhere. But the difference, according to Strive's head of product and investing Matt Cole, is how the fund will vote on shareholder proposals.

"We will unlock shareholder value through shareholder advocacy, voice and votes," he said. "We see what's happening in the industry through ESG-friendly asset managers."

Cole cited a 2021 Chevron shareholder vote as an example of the way the largest ETF providers can influence corporate actions. The shareholder resolution required Chevron to monitor and reduce the carbon footprint of every company in its supply chain.

Though Chevron's board of directors described the proposal as overly burdensome and didn't support the proposal, it passed after all the major ETF providers managing funds that include shares of Chevron stock voted in favor.

"We say, U.S energy companies should evaluate all future and current investments as well as alternative energy projects exclusively based on a financially measurable return on investment, regardless of any other social, political, cultural or environmental goals," Cole said. "They might be noble and important conversations, but the right place is through the political process, where everybody has one vote."

Nate Geraci, president of The ETF Store, said that the reaction among investors is real and growing, and that Strive is not the first ETF provider to jump on the "anti-ESG" bandwagon.

“There seems to be growing backlash to ESG investing, which has been crammed down investors’ throats by fund companies and the media,” Geraci said. “Strive’s ETF entrance adds to the list of new issuers seeking to capitalize on that ESG backlash. What’s unique about Strive’s approach compared to recently launched anti-ESG ETFs is that they’re seeking to drive change in corporate boardrooms through proxy voting, as opposed to simply owning anti-ESG stocks.”

One example of the anti-ESG theme is the BAD ETF (BAD) that was launched in December with a focus on the types of companies that rarely make the ESG cut.

So far, the fund has grown to just $7.8 million and is down 16% this year, which compares to a 13% drop by the S&P 500 Index over the same period.

Another example is the God Bless America ETF (YALL), which was filed with the Securities and Exchange Commission last month but has not yet been launched.

YALL’s strategy is to invest in companies that create American jobs and screen out companies that stress political activism.

Eric Balchunas, ETF analyst at Bloomberg Intelligence, puts Strive generally in the same camp as the so-called anti-woke funds, but said going after shareholder voting power is “super ambitious.”

“If you’re going to put out beta exposures, you’re now in direct competition with BlackRock and Vanguard,” he said. “This will be an interesting experiment. We’re going to see, if all else is equal, will investors go with cheap beta without the ESG voting block that BlackRock and Vanguard can put out there.”

Based on the initial trading volume of DRLL, Balchunas said the fund could reach $50 million in its first week, “which is way high for an independent ETF.”

“Most ETFs that are launched by independents are lucky to have $50 million after the first six months,” he said.

While Strive might be climbing the steep side of the mountain by trying to build enough proxy voting momentum to go up against the ETF industry giants, the strategy has struck a nerve on the ESG side of the fence.

A day before the new ETF started trading, The Sunrise Project sent out a press release denouncing the fund and its backers as “climate denialism.”

“In May, biotech multi-millionaire Vivek Ramaswamy founded an asset management firm, Strive, with the declared goal of competing against industry leaders BlackRock, Vanguard, and State Street,” the release reads. **“**Today, at EnerCom in Denver, Ramaswamy is set to announce pro-fossil fuel shareholder proposals.”

Danielle Fugere, president of As You Sow, also took issue with the new ETF provider.

“Our concern is less about the fund and more about the theatrics surrounding it,” she said. “Woke capitalism is an absurdity on its face. ESG is a framework accounting for risk, calling it woke capitalism is egregious.”

Cole said Strive plans to launch a new ETF every month for the rest of the year, and funds in the filing pipeline offer exposure to the S&P 500, semiconductor sector, technology, and emerging markets.

“We will put forward our own shareholder proposals,” he said.

Those proposals, according to Fugere, will go against the grain of where the market is heading.

“You’re getting proxy voting that supports the status quo, which bodes poorly for the economy over time,” she said. “I don’t think that will sell well to more than a minority of investors, and I would say those investors are more politically oriented than investment oriented.”

From: **Gary Findlay** garywfindlay@gmail.com
Subject: Apple and Disney face new pressure from the right
Date: September 20, 2022 at 7:33 AM
To: Ronda Stegmann rondas@mosers.org, Abby Spieler abbys@mosers.org, TJ Carlson tjcarlson@mosers.org

GF

The New York Times
DealBook/
With Andrew Ross Sorkin
September 20, 2022

Vivek Ramaswamy's anti-E.S.G. efforts are escalating. Brian Snyder/Reuters

Apple and Disney face new pressure from the right

right

A conservative investor, with backing from Peter Thiel and Bill Ackman, has two new targets in his anti-E.S.G. campaign. Yesterday, Vivek Ramaswamy sent letters to the C.E.O.s of Apple and Disney, urging them to refrain from making political statements on behalf of their companies, or hiring decisions based on race, sex or political beliefs.

Ramaswamy has emerged as one of Wall Street's most prominent critics of the environmental, social and governance investing movement. Earlier this year, the investor, who is the author of "Woke, Inc.," launched Strive Asset Management, which he says will combat pressure on companies to consider liberal politics before bottom lines. Its first exchange-traded fund, which is focused on energy, launched last month and already has roughly $320 million in assets. Its ticker symbol, which echoes Ramaswamy's prescription for the energy industry, is DRLL.

Strive's second fund, the Strive 500 E.T.F., which invests in large public companies, launches today. Ramaswamy's plan is to use the power of shareholder votes to refocus large companies on maximizing profit, a goal from which Ramaswamy says boardrooms have strayed. One of the first issues it's tackling is hiring policies; Apple, Ramaswamy says, is a prime example of the problem.

Ramaswamy is urging Apple to halt its "racial equity audit" and to remove diversity considerations from its hiring and compensation policies. His letter hints that if Apple doesn't change its policies, Strive will try to raise the issue at its next shareholder meeting. In his letter to Disney, Ramaswamy says the company has hurt its brand by speaking out against government policies that do not directly affect its business, namely Florida's recent law that limits the discussion of sexuality and gender in the classroom. “We would be best served to have an honest debate about why we need E.S.G.,” Ramaswamy told DealBook. “You can make the argument that companies have a social responsibility that goes above and beyond profits, but to retrofit E.S.G. to say that it’s about long-term profit maximization, well, that glove doesn’t fit.”

It’s part of a growing debate over the influence of E.S.G. investors. Critics say the managers of such funds are limiting companies’ profits and ability to compete. E.S.G. proponents say looking at the long-term impact of corporate decisions on the environment and society might sacrifice short-term gains, but will lead to higher profits and more sustainable firms. In an essay this weekend, Martin Lipton, the prominent corporate attorney and founding partner of Wachtell, Lipton, Rosen & Katz, argued that companies have a legal responsibility to consider those longer-term questions. “We continue to believe it is essential that boards operate under a governance model that permits consideration of E.S.G. principles and sustainable investment strategies,” he wrote.

HERE’S WHAT’S HAPPENING

Chamath Palihapitiya winds down two of his SPACs. The financier said this morning that he would return their funds to investors, after failing to find suitable merger targets for either. Palihapitiya, who became a serial SPAC mogul during the pandemic, said he considers such funds “just one of many tools” to invest.

Supply-chain issues cost Ford dearly. Shares in the carmaker were down nearly 5 percent premarket after it said it would pay $1 billion more for parts this quarter. Ford blamed inflation and shortages.

New York City faces a fiscal crisis. City officials expect tax revenue — including from businesses and personal income taxes — to drop, leading to what New York State’s comptroller estimates will be a $10 billion budget shortfall in 2026. That could result in drastic reductions in city services, including garbage pickups and policing.

House Republicans reportedly consider investigating the U.S. Chamber of Commerce. G.O.P. lawmakers may begin inquiries into the lobbying group and some of its largest members if they retake the House this fall, according to The Intercept. Behind the drive: Republican opposition to the Chamber's support for E.S.G.

The Biden administration's bid to block a UnitedHealth deal is denied. A federal judge rejected the Justice Department's lawsuit to prevent the health insurer from buying Change Healthcare. It was the latest setback for the administration's more aggressive approach to antitrust enforcement.

Exclusive: Theragun's parent company raises $165 million

Therabody, the maker of the Theragun hand-held massage device, a cult favorite among athletes, has raised $165 million, DealBook is first to report. The fund-raising round, which was led by the private equity firm North Castle Partners, comes as wellness businesses seek to regain their footing as the pandemic recedes.

During the height of the pandemic, money poured into home fitness. Sales of Peloton and Tonal workout equipment skyrocketed. While companies like Peloton are scaling back as demand falters, Therabody's C.E.O., Benjamin Nazarian, says the pandemic highlighted a need to take care of your body. "Whether it's a recession or not, your body is the most valuable thing you have in your life," he said. Last year, Therabody's revenues reached $396 million, up from $224 million in 2020.

Executives did not disclose the valuation of the latest fund-raising round. "The idea of having products for recovery in your home — we still think is a fairly young concept," said Jon Canarick, a managing partner at North Castle, whose investments include Barry's Bootcamp and HydroMassage.

Theragun will use the money to invest in digital content and acquisitions. It's also announcing eight new products today, including smart goggles to help relieve facial tension and headaches as well as a new mini Theragun. The financing includes investment from a broad array of celebrities, including the comedian Kevin Hart's Hartbeat Ventures and the model Karlie Kloss. "I had been a consumer and a superfan for a while," Kloss told DealBook. She did not disclose the size of her investment.

Fending off copycats will be key. Therabody has settled with more than 15 companies over I.P. infringement. Still, it continues to see competitors offering massage guns cheaper than its $400 Theragun Elite. People "think that the low price point is going to take the entire market — and that is probably a very naïve understanding of I would say any consumer business," Nazarian told DealBook. "Tell me one industry where there is no premium brand."

A mine in Quebec could help solve the lithium shortage

A Canadian lithium mine owned by the Australian company Sayona Mining could produce the raw materials needed to advance the Biden administration's climate goals and rival China's dominance of the battery supply chain. If it opens on schedule early next year, it will be the second North American source of lithium. But the mine has had several owners, some of whom have filed for bankruptcy, and mining the materials needed for electric vehicles is an arduous process, writes The Times's Jack Ewing.

The price of lithium has soared fivefold since mid-2021, pushing the cost of electric vehicles out of reach for many drivers. (Last year, the average new electric car in the U.S. cost about $66,000 — just a few thousand dollars less than the median household income.) Dozens of lithium mines are in various stages of development in North America, and Canada is determined to become a major source of raw materials and components for E.V.s. But most projects are years from production. Even if they raise the billions of dollars needed to get going, there is no guarantee they will yield enough lithium to meet the continent's needs.

needs.

The stakes are rising for the auto industry. The Inflation Reduction Act, which was passed in August, provides incentives and subsidies for car buyers and automakers. But to qualify for the savings, which are worth a total of $10,000 or more per electric vehicle, battery makers must use raw materials from North America or a country with which the U.S. has a trade agreement. Whether there will be enough lithium to meet soaring demand for electric vehicles is another question. "Those of us in the industry are quite confident that lithium will be in short supply for the next decade," said Keith Phillips, chief executive of Piedmont Lithium, which owns 25 percent of the Sayona's Quebec project. He added, "Others are taking a contrarian view."

"That was totally against what I was bargaining for. I wanted to be the chief executive officer in terms of leading the company and making public statements."

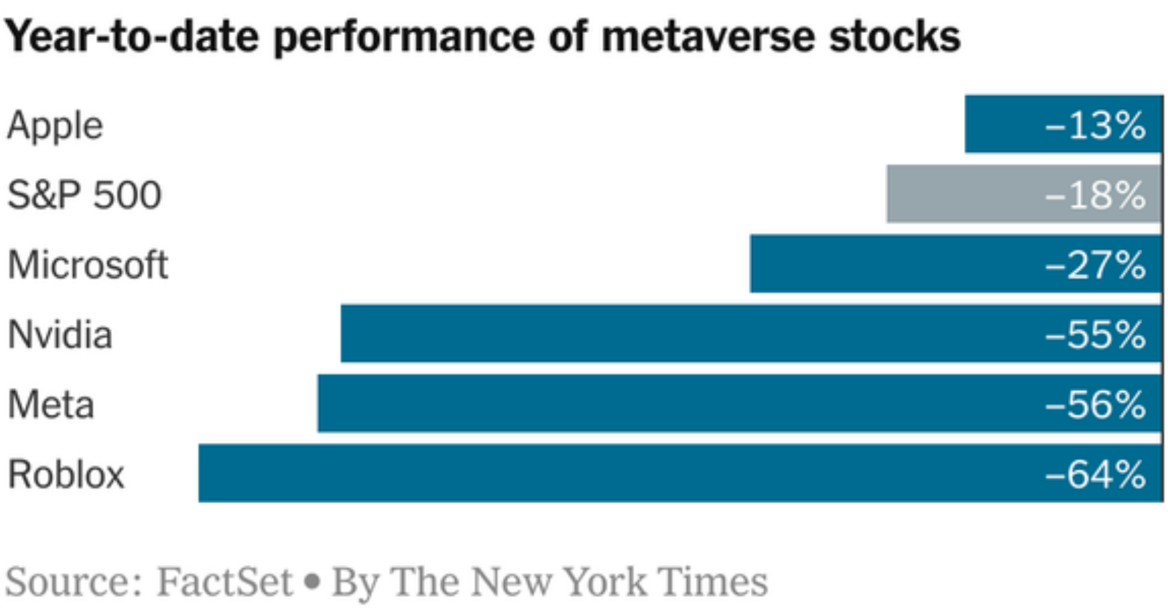
— Mark Russell, the outgoing C.E.O. of the electric vehicle maker Nikola, testifying at the securities fraud trial of the company's founder, Trevor Milton. Russell said he opposed Milton becoming executive chairman and maintaining power.

A costly reality check for the metaverse

The rout in metaverse stocks is having a tangible effect on shareholders big and small. Exhibit A: Mark Zuckerberg, the founder of Meta, has seen his personal fortune shrink by $71 billion this year, according to the Bloomberg Billionaires Index.

Tech is one of the worst-performing sectors on the S&P 500 this year, and within that blur of red is the smaller subset of so-called metaverse stocks, or tech companies that are building virtual worlds for gaming, socializing and work. The investor Cathie Wood and Goldman Sachs were among those who heralded the metaverse as the biggest breakthrough in consumer tech since the introduction of the iPhone. They predicted the metaverse would be worth trillions by the end of the decade.

Zuckerberg changed his company's name to Meta from Facebook last autumn, and has committed billions of dollars in investments to make his metaverse vision a reality. But investor appetite for tech companies embarking on ambitious, capital-intensive projects has sunk as interest rates soar. This has hurt metaverse stocks of all stripes. Exhibit B: The Metaverse E.T.F. is down 46.7 percent since its inception last year. Here are its top five holdings, benchmarked against the S&P 500:



The New York Times

The lousy share price performance isn't just because of the metaverse. A slowing global economy, soaring energy prices and the bear market in crypto assets is also weighing down many of these stocks.

THE SPEED READ

Deals

- Instacart reportedly plans to sell mostly employees' shares in its I.P.O. and won't raise much new capital for itself. (WSJ)

- Calpers said that putting its private equity investments on hold from 2009 to 2018 cost it up to $18 billion in potential returns. (FT)
- A Chinese company's expensive luxury-brand buying spree, a bid to become the next LVMH, is unraveling. (Bloomberg)

Policy

- Elon Musk's Starlink satellite-internet company will seek exemptions from sanctions on Iran to provide data services there, the billionaire tweeted. (Insider)
- Prime Minister Liz Truss of Britain conceded that a trade deal with the U.S. was off the table for now, leaving a hole in the U.K.'s post-Brexit trade strategy. (FT)
- Companies including Amazon, Hilton and Pfizer pledged yesterday to hire 20,000 refugees over the next three years. (WSJ)

Best of the rest

- Santander is said to have investigated executives' visit to a London strip club; one manager was disciplined. (FT)
- The C.O.O. of Beyond Meat, Doug Ramsey, was arrested after being accused of biting another man on the nose after a college-football game. (Bloomberg)
- Movie stars like Tom Cruise and Sandra Bullock are reportedly protesting Paramount's streaming deal with Epix over lost revenue. (Bloomberg)
- A judge vacated the conviction of Adnan Syed, whose case was chronicled in the podcast "Serial," 23 years after he was accused of murdering his ex-girlfriend. (NYT)

Thanks for reading! We'll see you tomorrow.

Andrew Ross Sorkin, Founder/Editor-at-Large, New York
@andrewrsorkin

Bernhard Warner, Senior Editor, New York
@BernhardWarner

Vivian Giang, Deputy Editor, New York
@vivian_giang

Sarah Kessler, Deputy Editor, Chicago
@sarahfkessler

Stephen Gandel, News Editor, New York
@stephengandel

Michael J. de la Merced, Reporter, London
@m_delamerced

Lauren Hirsch, Reporter, New York
@LaurenSHirsch

Ephrat Livni, Reporter, Washington D.C.
@el72champs

Wall Street Journal

OPINION

THE WEEKEND INTERVIEW

How Woke Capital Politicized Your Retirement Account

BlackRock and other giant firms use your money to advance ESG ideas you may not agree with, even if you own index funds. Vivek Ramaswamy has brought an alternative to the market.

By *James Taranto*

Aug. 9, 2022 2:23 pm ET

Are you looking to make a political statement as you invest your family nest egg? You have plenty of options, at least if you support fashionable "environmental, social and governance" causes like climate and diversity. If you lean unstylishly to the right, you can buy into niche mutual funds that choose stocks with free-market or religious principles in mind. But what if you want to *avoid* politics? That's easier said than done.

The standard advice to retail investors is to buy passively managed index funds, which invest in the stocks of a broad range of companies. That's an excellent way to balance risk and return, to ride waves of economic growth and offset losses from individual companies that sink beneath them. But Vivek Ramaswamy, a newly minted investment-fund executive, says that politics have quickly come to dominate index funds too. He has an ambitious plan that aims to break its grip.

The problem arises from what's known as "the separation of ownership from ownership." When you invest in, say, a BlackRock fund, you own shares in the fund, which in turn owns stocks or other underlying assets. Formal ownership of a company share gives BlackRock a vote in elections for the board of directors and on resolutions governing corporate policy. Multiply that share by hundreds of millions, and it adds up to real clout.

The three biggest fund managers—BlackRock, Vanguard and State Street—manage a combined total of some $20 trillion in assets. Their holdings of Exxon Mobil Corp., to take a prominent example, totaled more than 890 million shares, or about 21% of the company, as of March 31. When they vote as a bloc, that can easily tip the balance, as it did in 2021 when the big three backed a slate of Exxon Mobil directors put forth by the tiny activist fund manager Engine No. 1, which held fewer than a million shares.

"It was an accident of this investment structure that gave that much voting power to that concentrated group of actors with an unprecedented aggregation of capital," Mr. Ramaswamy says in a Zoom interview from his home office in Columbus, Ohio. The big fund managers began only a few years ago "to exercise that voting power to advance social and political agendas."

When you buy an index fund that's managed in this fashion, you're promoting ESG objectives whether you want to or not. "The index-fund industry was based on the premise that these asset managers weren't smart enough to pick stocks," Mr. Ramaswamy says. Are we supposed to believe they're "enlightened enough to know how to design an entire society"?

But never mind society, what about your retirement fund? Engine No. 1 describes its goal as helping companies "transform their businesses to be more sustainable." Its website proudly features a July 2022 Journal news story with the headline "After Defeating Exxon, Engine No. 1 Works With Oil Giants on Emissions." If you want to avoid politics, this obviously isn't the fund manager for you. But neither is any other firm that would join an effort to "defeat" a company in which it has invested your capital.

When a fund manager uses your money "to advance agendas that do not serve the capital owner's interest," Mr. Ramaswamy says, "that represents a large-scale fiduciary breach." But what can you do about it? Litigation is prohibitively expensive, and regulatory solutions are unpromising with an ESG-friendly administration in Washington. Buying stocks directly and voting them yourself is a high-risk investment, not to mention a labor-intensive one, and for a nonbillionaire the return in recovered voting power is trivial. Besides, pursuing any of these possible remedies would take you down a political rabbit hole, exactly what you're trying to avoid.

Enter Mr. Ramaswamy, a 37-year-old wunderkind. He founded a biotech investment firm in 2014, at 28, then left it in 2021 and published two books, "Woke, Inc.: Inside Corporate America's Social Justice Scam" last August and "Nation of Victims: Identity Politics, the Death of Merit, and the Path Back to Excellence," forthcoming next month. "I enjoyed writing the books," he says. "I thought I was going to keep going at it."

Instead he decided that "problems in our culture, created in the market, . . . needed to be solved through the market," and Strive Asset Management was born, with Mr. Ramaswamy as executive chairman. Its first offering, the Strive U.S. Energy ETF (ticker symbol DRLL), began trading this week on the New York Stock Exchange, where Mr. Ramaswamy will ring the closing bell on Wednesday.

Strive is an activist investment manager. "Our mission," its website declares, "is to restore the voices of everyday citizens in the American economy by leading companies to focus on excellence over politics." The firm won't do this, Mr. Ramaswamy emphasizes, by selecting stocks in accord with "right-wing values" the way ESG funds promote left-wing values.

Instead its first few funds, including DRLL, will be managed passively, and subsequent ones actively, for profit, not politics. As an investment vehicle, DRLL is effectively identical to BlackRock's iShares U.S. Energy ETF (IYE). It will own shares in the same companies in virtually the same proportions, rebalanced each quarter according to the same rules, and charge the same management fee (0.41%). That means any benefit to shareholders from Strive's efforts will accrue equally to investors in IYE.

But Strive seeks to beat the big fund managers at their own shareholder-activism game. That presents an obvious difficulty, akin to the challenge of starting a third political party: Even if your views are far more popular than the incumbents', you're starting from zero. How do you overcome their massive advantage in money, loyalty and voting power?

The Engine No. 1 saga points to one answer: by using the power to introduce resolutions and board candidates and inducing the big funds to vote your way. Mr. Ramaswamy's strategy entails heightening ESG's contradictions by crafting resolutions that "call the bluff of the doublespeak," by which he means the claim that fund mangers are simultaneously "using capital to address shared global challenges like systemic racism and global climate change" *and* "exclusively looking after the financial interests of their clients."

Thus, he says Strive might introduce or support a resolution stating: "All current and future investments shall be evaluated exclusively through the lens of financially measurable return on investment." A "no" vote from an ostensibly apolitical investment fund would amount to a disavowal of its fiduciary duty to its clients. But if the resolution passes, Mr. Ramaswamy says, it would "govern over any other prior shareholder resolution" and thereby direct management to pursue profit regardless of political objectives.

Under such a resolution, Chevron Corp., for instance, could disregard the 2021 shareholder-approved measure directing it to reduce "Scope 3 emissions"—i.e., carbon dioxide produced by others up and down its supply chain. Mr. Ramaswamy sees that policy as especially pernicious, a way for asset managers to "deputize" the company "to also affect the behaviors of smaller players in its supply chains—family-owned businesses, private companies, etc."—that "otherwise should and would have been insulated from the politicized shareholder demands."

Another example of the ESG "bluff" is this statement from BlackRock CEO Larry Fink's 2021 letter to CEOs: "We expect companies . . . to have a talent strategy that allows them to draw on the fullest set of talent possible. As you issue sustainability reports, we ask that your disclosures on talent strategy fully reflect your long-term plans to improve diversity, equity, and inclusion."

Mr. Ramaswamy suggests this counterresolution: "All hiring at every level, including executive and board hiring, shall be based exclusively on job qualifications, without regard to race, sex, sexual orientation or political belief." If DEI aims merely "to draw on the fullest set of talent possible," how could BlackRock justify a vote against directing managers to refrain from illegal or politically based employment discrimination?

"That might sound pretty simple," Mr. Ramaswamy says. But this March Apple, the world's biggest company by market capitalization, "over the recommendation of management, adopted a 'racial equity audit' shareholder proposal," which BlackRock supported.

Between annual shareholder meetings, Strive will employ "shareholder engagement"—lobbying managers and directors on behalf of its profit-seeking agenda. "Shareholder engagement means letters, private meetings, public meetings, etc., exercising your voice and delivering that shareholder mandate," Mr. Ramaswamy says. "As BlackRock, State Street and Vanguard do today, Strive will do in a different way. I will be the chief ambassador for delivering those messages. And the greater capital we have in DRLL, the more weight shareholder engagement will carry with the boards and management teams of U.S. energy companies."

The firm's choice of the energy industry for its debut fund is a strategic one. "It is, first of all, probably the sector that has suffered the greatest . . . economic damage inflicted by the ESG movement," Mr. Ramaswamy says. "Most people who work in the energy industry don't work there because they think oil and gas is contributing to global catastrophe, but because they think it contributes to global prosperity."

The Exxon Mobil board changes and the Chevron Scope 3 resolution were both approved over the opposition of management. Energy executives and lower-level employees alike are "looking for an off-ramp from the shareholder mandates that they can see firsthand have actually destroyed value in their sector," Mr. Ramaswamy says. "Our corporate engagement effectively opens up the post-ESG mandate for the sector."

Another advantage: Energy funds have been out of favor with investors, giving Strive an opportunity to grab attention with DRLL. The fund's BlackRock counterpart, IYE, has only some $2.5 billion in assets under management, roughly 1/4,000th of the firm's total. If Strive can exceed that with DRLL, Mr. Ramaswamy says, "that will be the event that I think sends seismic shock waves across the sector," even though the big funds' total investment in any given company will still dwarf Strive's. "Is that achievable?" Mr. Ramaswamy asks. "I can't comment on that on the record." But he sounds confident.

Mr. Ramaswamy sees enormous growth potential in energy stocks. "The capital-market investment consensus was there is no oil and gas business after 2030—this line of business disappears," he says. ESG constraints promise to make that a self-fulfilling prophecy. Meanwhile, low interest rates accelerated a flight of capital from energy and toward technology companies that expect high future returns. When cash is cheap, "the opportunity cost of capital in the present is lower, so you value the future more highly," Mr. Ramaswamy says. Higher interest rates and an unshackling from ESG could bring "a great reversal of fortunes between the U.S. tech sector and the U.S. energy sector."

Over the long run, Mr. Ramaswamy aspires to build Strive into a serious competitor to the big funds across a wide range of investments. He thinks that's possible because the giants will have a hard time disentangling themselves from ESG.

"When you listen to BlackRock and State Street and Vanguard say, 'This is what our clients want,' there's a certain sense in which they're not wrong," he says. "Some of their clients, and especially their institutional clients"—he cites the California Public Employees' Retirement System and its New York counterpart—"are demanding that they behave this way." (The capital these pension funds manage ultimately belongs to government employees and retirees, another degree of separation of ownership from ownership.)

When the funds' biggest clients make such demands, it limits the investment menu for everyone, including red-state pension funds as well as retail investors. If Strive offers a viable alternative, Mr. Ramaswamy says, its larger competitors will "have to choose which lunch they're going to eat, and they're going to leave another one on the table. The one they've left on the table is the one that we're stepping up to pursue ourselves."

Mr. Taranto is the Journal's editorial features editor.

Correction
Vanguard voted against the proposal for a racial-equity audit at Apple. This was misstated in an earlier version.

The New York Times

DealBook/

With Andrew Ross Sorkin
September 8, 2022

Good morning. It's decision day in Europe. In less than an hour, the European Central Bank is expected to raise interest rates by 75 basis points, its biggest increase. Also in Europe, Queen Elizabeth II has been placed under medical supervision, and doctors are "concerned" about her health, Buckingham Palace said. (Was this newsletter forwarded to you? Sign up here.)

E.S.G. is about profit, not politics, BlackRock argues.

What E.S.G. really means

BlackRock wants to clear the air on "woke" investing.

Yesterday, the world's largest money manager published a letter pushing back on one it received last month from 19 Republican state attorneys general who accused BlackRock of putting its "climate agenda" ahead of clients, collaborating with climate activists and boycotting energy companies. Tensions between BlackRock and Texas in particular came to a head last month when the state accused BlackRock of boycotting energy companies, violating a 2021 law that aims to protect the energy industry from the growing popularity of climate-minded investing. As a result, BlackRock could be blackballed from managing the billions in retirement funds of Texas government employees.

BlackRock says it's looking to correct "misconceptions" and "inaccurate statements" about its climate position. In its letter, BlackRock says that the firm has never dictated specific emission targets to any company, and that it doesn't coordinate its investment decisions or shareholder votes with others on climate issues, as the attorneys general claimed. Far from boycotting, BlackRock says it has invested "hundreds of billions of dollars" in energy companies.

The firm is following a broad trend of policymakers and research when it comes to climate issues, BlackRock says. "Your letter makes several inaccurate statements about BlackRock's motive for participating in various ESG-related initiatives," BlackRock writes in the letter, which is signed by the firm's head of external affairs, Dalia Blass. (E.S.G., or environmental, social and governance, is the latest term for socially conscious investing.) Instead, BlackRock says its shareholder votes and investment decisions reflect that, generally, its investment professionals believe that climate change poses real risks and opportunities for investors. The firm's belief is "by no means unique," BlackRock writes.

BlackRock's tussle with state officials comes at a time when corporate social policies are becoming a campaign issue. Republican legislators in Texas and elsewhere have looked to punish companies that try to reduce the sales of guns, or help their employees gain access to abortions. At the urging of Gov. Ron DeSantis, Republican of Florida, an oversight board voted to ban the consideration of "social, political or ideological interests" when making investment decisions about the state's pension fund.

Yet fund managers in many red states appear to be backing E.S.G. measures anyway. A recent study from the fund research firm Morningstar found that pension funds in those states had an average support rate of 80 percent for shareholders' proposals that encourage companies to consider environmental, social and governance issues as well as their bottom lines. For instance, this year, Texas' Employees Retirement System, the state's second-largest public pension fund, voted for shareholder proposals that urged big banks to cut off lending to fossil fuel companies.

"Do a lot of red states have the same problem that they point out is an issue among large E.S.G.-promoting asset managers in their own backyards?" Vivek Ramaswamy, the author of "Woke, Inc.", asks DealBook. "The answer is yes." He recently started his own fund firm, Strive, which promises to prioritize profit considerations in its investment decisions.

From: **Gary Findlay** garywfindlay@gmail.com
Subject: BlackRock wants to clear the air on "woke" investing.
Date: September 8, 2022 at 10:40 AM
To: Ronda Stegmann rondas@mosers.org, Abby Spieler abbys@mosers.org, TJ Carlson tjcarlson@mosers.org

GF

This email originated from outside of MOSERS

PDF

BlackRock wants t...ing.pdf

From: **Matt Cole** matt.cole@strivefunds.com
Subject: Re: Follow-up call
Date: July 12, 2022 at 6:06 PM
To: TJ Carlson tjcarlson@mosers.org

MC

This email originated from outside of MOSERS

TJ,

Do you have the availability to move our July 27th call Friday July 29th? If so, we're available all day, let us know a time that works for you.

Thanks,
Matt

On Fri, Jul 8, 2022 at 4:30 PM TJ Carlson <tjcarlson@mosers.org> wrote:

> Enjoyed the conversation as well, talk soon.
>
> TJ
>
> ---
>
> **From:** Vivek Ramaswamy <vivek@strivefunds.com>
> **Sent:** Friday, July 8, 2022 3:28 PM
> **To:** TJ Carlson <tjcarlson@mosers.org>
> **Cc:** Matt Cole <matt.cole@strivefunds.com>
> **Subject:** Follow-up call
>
> ## This email originated from outside of MOSERS
>
> TJ, great speaking with you. I am copying Matt who joined our call just now. We look forward to a follow-up discussion on July 27 at 3pm CT / 4pm ET. Thanks and talk soon.
>
> Regards,
>
> Vivek
>
> ---
>
>

From: **Vivek Ramaswamy** vivek@strive.com
Subject: Re: Catch-up
Date: August 28, 2022 at 2:40 PM
To: TJ Carlson tjcarlson@mosers.org
Cc: Matt Cole matt.cole@strive.com

VR

This email originated from outside of MOSERS

TJ, just wanted to make sure you received the message below. We wanted to share our concept with you, relating to shareholder engagement and proxy voting, should this be of interest to you. Hope you are well and happy to catch up this week.

Warm regards,
Vivek

On Wed, Aug 24, 2022 at 6:32 PM Vivek Ramaswamy <vivek@strive.com> wrote:

> Dear TJ,
>
> Hope you have been well since we last spoke. Matt Cole debriefed me on your most recent conversation with him - we appreciated you taking time with him.
>
> Since that time, we have been in dialogue with certain other states about a potential collaboration to assist them with their proxy voting and shareholder engagement needs, without the need to actually move assets. This offers a potentially more rapid path to addressing the "fiduciary gap" without the obstacles of actually evaluating or selecting new managers.
>
> I would love the opportunity to hear your thoughts briefly if you are available for a call later this week or next. Kindly let me know your thoughts.
>
> Warm regards,
> Vivek

From: **Vivek Ramaswamy** vivek@strive.com
Subject: Catch-up
Date: August 24, 2022 at 6:33 PM
To: TJ Carlson tjcarlson@mosers.org
Cc: Matt Cole matt.cole@strive.com

VR

This email originated from outside of MOSERS

Dear TJ,

Hope you have been well since we last spoke. Matt Cole debriefed me on your most recent conversation with him - we appreciated you taking time with him.

Since that time, we have been in dialogue with certain other states about a potential collaboration to assist them with their proxy voting and shareholder engagement needs, without the need to actually move assets. This offers a potentially more rapid path to addressing the "fiduciary gap" without the obstacles of actually evaluating or selecting new managers.

I would love the opportunity to hear your thoughts briefly if you are available for a call later this week or next. Kindly let me know your thoughts.

Warm regards,
Vivek

From: **Vivek Ramaswamy** vivek@strivefunds.com
Subject: Catch-up
Date: July 7, 2022 at 10:54 AM
To: TJ Carlson tjcarlson@mosers.org
Cc: DiAnn Hamilton diann.hamilton@strivefunds.com

VR

This email originated from outside of MOSERS

Dear TJ,

Hope you had a happy 4th! We welcomed our new baby who (thankfully) appears to be doing well. I would be glad to catch up with you following our exchange. If you're free for a Zoom tomorrow or else next week, kindly let me know. I'd also be glad to loop in another colleague from our team who you may enjoy meeting as well. I was interested in discussing a few ideas relevant to our conversation in Jefferson City.

Take care and talk soon.

Warm regards,
Vivek

From: **Vivek Ramaswamy** vivek@strive.com
Subject: Catch-up
Date: August 24, 2022 at 6:33 PM
To: TJ Carlson tjcarlson@mosers.org
Cc: Matt Cole matt.cole@strive.com

VR

This email originated from outside of MOSERS

Dear TJ,

Hope you have been well since we last spoke. Matt Cole debriefed me on your most recent conversation with him - we appreciated you taking time with him.

Since that time, we have been in dialogue with certain other states about a potential collaboration to assist them with their proxy voting and shareholder engagement needs, without the need to actually move assets. This offers a potentially more rapid path to addressing the "fiduciary gap" without the obstacles of actually evaluating or selecting new managers.

I would love the opportunity to hear your thoughts briefly if you are available for a call later this week or next. Kindly let me know your thoughts.

Warm regards,
Vivek

Chief Investment Officer

August 15, 2022

NY Common to Review Net-Zero Readiness of Oil and Gas Firms

Previous energy sector reviews have so far led the $272 billion pension fund to divest from 55 companies.

The New York State Common Retirement Fund is evaluating 28 publicly traded oil and gas companies to determine if they are ready to transition to a low-carbon economy, according to a release from the state comptroller's office.

The $272.1 billion pension fund is asking each company, which includes energy giants BP, Chevron, Exxon Mobil and Shell, to provide information on how prepared it is to transition to a net-zero economy.

"Oil and gas companies face significant and complex economic, environmental and regulatory challenges in the years to come," New York State Comptroller Thomas DiNapoli, the pension fund's trustee, said in a statement. "While energy companies are currently making record profits driven by high prices, their long-term prospects are far less certain. As investors, we will carefully review these companies and may restrict investments in those that do not have viable plans to adapt."

DiNapoli said the pension fund is targeting companies that engage in all aspects of the oil and gas business, including exploration and production, transportation, refinement and retail sales. The move is part of DiNapoli's Climate Action Plan, which aims to reduce climate change related investment risks and help the fund's portfolio transition to net-zero greenhouse gas emissions by 2040.

The assessment of the pension fund's integrated oil and gas holdings is part of its broader review of energy sector investments that it believes face significant climate risk. When DiNapoli announced in late 2020 that the pension fund would transition its portfolio to net-zero by 2040, he said the process would include completing a review of energy sector investments within four years to assess transition readiness, as well as a divestment of companies that don't meet its climate-related investment risk standards.

Less than two years into that review process, which has so far included an evaluation of shale oil and gas, oil sands and coal companies, the pension fund has decided to divest from 55 firms that it determined were not prepared to transition to a net-zero economy.

According to a recent progress report on its climate action plan, in the past year the pension fund completed a review of shale oil and gas companies, which led it to restrict investments in or divest from 21 companies. The report also says that the value of the NYCRF's holdings in fossil fuel producers totaled approximately $3.4 billion in its public equity and corporate fixed-income portfolios as of the end of 2021.

Related Stories:

New York State Pension Fund Aims to Be Carbon Net Zero by 2040

New York City Takes 'Major Next Step' on Fossil Fuel Divestments

New York Comptroller Aims to Double Pension Plan's ESG Funding

By Michael Katz

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- Class of 2022 NextGens
- Don't Call It a Comeback: Plan Sponsors Could Thaw Frozen Defined Benefit Plans
- San Diego Pension Fund Names Carina Coleman CIO

From: FundFire news@fundfire.com
Subject: Eleven Firms to Pay $1.8B over Staff Messaging on Personal Devices
Date: September 28, 2022 at 8:06 AM
To: Ronda Stegmann rondas@mosers.org

F

This email originated from outside of MOSERS

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FUNDfire

September 28, 2022

Eleven Firms to Pay $1.8B over Staff Messaging on Personal Devices

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Goldman Closes Latest Buyout Fund at $9.7B

Ex-Credit Suisse Chair Horta-OsÃ³rio Snags Cerberus Advisor Gig: Report

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On FinancialTimes.com

Vivek Ramaswamy: The Self-Styled Scourge of 'Woke'

MANDATEWIRE SEARCH AND HIRE

Recent mandate activities over $150 million from large public institutions managing over $1 billion in assets. **View More**

Investor	Asset Class	Size	Consultant	Activity
Michigan Retirement Systems Sep. 27, 2022	Other (Absolute Returns)	$225.00M	Aon	Hire
Michigan Retirement Systems Sep. 27, 2022	Other (Absolute Returns)	$250.00M	Aon	Hire
Michigan Retirement Systems Sep. 27, 2022	Other (Absolute Returns)	$300.00M	Aon	Hire
Michigan Retirement	Other (Absolute			

Systems Sep. 27, 2022	Other (Absolute Returns)	$500.00M	Aon	Hire
Michigan Retirement Systems Sep. 27, 2022	Alternatives (Property)	$200.00M	Aon	Hire
TMRS (Texas Municipal Retirement System) Sep. 23, 2022	Alternatives (Property: Core)	$200.00M	RVK, Inc.	Hire

Junior Trader	Easterly Asset Management	Beverly, MA
Experienced Wholesaler/Sales Person	Water Island Capital	Remote
Advisor Consultant - Iowa territory	Hartford Funds	Iowa
Chief Investment Officer	NDTrustLands	Bismarck, ND
National Accounts Associate	TCW	CA-Los Angeles
Senior Compliance Officer	Water Island Capital	NYC
Senior Relationship Manager / Client Success Executive	Vanguard	Malvern, PA. Scottsdale, AZ.
VP National Sales, Defined Contribution and Retirement Channels Sales	Resolute Investment Managers	Remote
Product Management Specialist	Resolute Investment Managers	Hybrid
ETF Capital Markets Specialist	Resolute Investment Managers	Hybrid
Regional VP, Great Lakes Region Sales	Resolute Investment Managers	Remote
Regional VP, Heartland Region Sales	Resolute Investment Managers	Remote
Associate Director, DCIO - Internal Sales	John Hancock Investment Management	Boston, MA
Regional VP, Midwest Region Sales	Resolute Investment Managers	Remote
	Duff & Phelps	

Portfolio & Data Analytics Specialist	Investment Management	Chicago, IL
Senior RFP Alternative Investments Writer (Remote or Chicago/NYC)	GCM Grosvenor	Chicago and USA Remote
Relationship Associate - Internal Wholesaler	Polen Capital Management	Boca Raton, FL
Chief Risk Officer	ND Retirement & Investment Office	Telecommute - Bismarck, ND
Wire Sales Specialist - Midwest Division	John Hancock	Illinois, Remote
ETF Specialist	Morgan Stanley	New York, NY or Boston, MA

Confidential Information for Executive Session

Please note the information enclosed is confidential and should not be distributed in any manner.
Bring this information with you to the board meeting.

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Missouri State Employees' Retirement System
Board of Trustees Meeting
MOSERS Office Building, 907 Wildwood Drive, Jefferson City, MO
www.gotomeeting.com, Meeting ID 729-609-221
September 22, 2022 – 9:00 a.m.
Agenda

		Page
Executive Session		
Closed session per RSMo 610.021 (1), (3), & (13)		
• Approval of Minutes (Action)	Wessing	1
○ June 16, 2022 Board of Trustees Meeting		
○ July 18, 2022 Board of Trustees Special Meeting		
• Legal/Litigation Update	Spieler	5
• Personnel	Stegmann	

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
BOARD OF TRUSTEES MEETING
EXECUTIVE SESSION MINUTES
MOSERS OFFICE, 907 WILDWOOD DRIVE, JEFFERSON CITY, MO
WITH OPTIONAL CONFERENCE CALL
JUNE 16, 2022 – 9:00 A.M.

Ms. Crystal Wessing, Mr. Gary Findlay, Mr. Joe Keifer, Mr. Gary Metzger, Ms. Jenny Jacobs, Commissioner Ken Zellers, Treasurer Scott Fitzpatrick, and Sen. Paul Wieland attended in person. Rep. Rusty Black and Rep. John Wiemann attended via telephone. Mr. Mike Price, designee of the Treasurer, attended the meeting via telephone as a guest. Ms. Stacy Neal, designee of the Commissioner, attended the meeting in person as a guest.

Attending from MOSERS: Ronda Stegmann, Executive Director; Abby Spieler, Deputy Executive Director/General Counsel; TJ Carlson, Chief Investment Officer; Tyson Rehfeld, Deputy Chief Investment Officer; Pettina Duenckel, Executive Project Coordinator; and Melissa Johnson, Board Administrator. Nicki Russell, Chief Auditor; Patrick Morgan, Legal and Compliance Counsel; Shelby Murdock-Kempf, Associate Counsel, attended via telephone.

Tom Litz, Thompson Coburn, attended in person. Dave Grable and Jack Baumann, Quinn Emanuel attended via telephone.

Mr. Metzger moved to approve the executive session minutes from the February 18, 2022 Board meeting. Ms. Jacobs seconded. A roll call vote was taken. Rep. Black, Mr. Findlay, Treasurer Fitzpatrick, Ms. Jacobs, Mr. Keifer, Mr. Metzger, Sen. Wieland, Ms. Wessing, and Commissioner Zellers voted in favor of the motion. Motion carried.

Rep. Wiemann joined the executive session via telephone.

Mr. Grable and Mr. Baumann provided an update regarding litigation between MOSERS and Catalyst Capital Group.

Mr. Grable, Mr. Baumann, Mr. Morgan, Mr. Carlson, and Mr. Rehfeld excused themselves for the remainder of the executive session.

Ms. Spieler provided the legal/litigation report.

Ms. Stegmann provided an update on Board appointed Service Provider contracts.

Ms. Murdock-Kempf, Ms. Duenckel, Ms. Spieler, and Ms. Russell excused themselves from the remainder of the executive session.

Ms. Stegmann discussed personnel matters.

Rep. Black, Mr. Keifer, and Sen. Wieland excused themselves from the remainder of the executive session.

Mr. Metzger moved to return to open session. Mr. Findlay seconded. A roll call vote was taken. Mr. Findlay, Treasurer Fitzpatrick, Ms. Jacobs, Mr. Metzger, Rep. Wiemann, Ms. Wessing, and Commissioner Zellers voted in favor of the motion. Motion carried.

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Crystal Wessing, Chairwoman

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
BOARD OF TRUSTEES MEETING
EXECUTIVE SESSION MINUTES
MOSERS OFFICE, 907 WILDWOOD DRIVE, JEFFERSON CITY, MO
WITH OPTIONAL CONFERENCE CALL
JULY 18, 2022 – 12:30 p.M.

Ms. Crystal Wessing, Mr. Gary Findlay, Mr. Gary Metzger, Ms. Jenny Jacobs, and Commissioner Ken Zellers attended in person. Rep. Rusty Black, Sen. John Rizzo, Treasurer Scott Fitzpatrick, and Mr. Joe Keifer attended the meeting via telephone. Mr. Mike Price, designee of the Treasurer, attended in person as a guest.

Attending from MOSERS: Ronda Stegmann, Executive Director; and Melissa Johnson, Board Administrator.

Tom Litz, Thompson Coburn, attended in person.

Ms. Wessing stated the purpose of the special Board meeting was to conduct interviews for the Executive Director position which will be vacant beginning January 1, 2023.

Treasurer Fitzpatrick joined the executive session.

After Board discussion, Mr. Keifer moved to offer the executive director position to Abby Spieler with a salary of $240,000, effective January 1, 2023. Treasurer Fitzpatrick seconded. A roll call vote was taken. Mr. Findlay, Treasurer Fitzpatrick, Ms. Jacobs, Mr. Keifer, Mr. Metzger, Ms. Wessing, and Commissioner Zellers voted in favor of the motion. Motion carried.

Rep. Black and Sen. Rizzo left the executive session prior to the vote.

Mr. Metzger moved to return to open session. Ms. Jacobs seconded. A roll call vote was taken. Mr. Findlay, Treasurer Fitzpatrick, Ms. Jacobs, Mr. Keifer, Mr. Metzger, Ms. Wessing, and Commissioner Zellers voted in favor of the motion. Motion carried.

____

Crystal Wessing, Chairwoman

Legal / Litigation Report

September 22, 2022

Item Type: **Information - Confidential**

Executive Summary:
Per MOSERS Governance Policy Manual, the General Counsel will keep the Board apprised of all potential and actual litigation in conjunction with outside counsel.

Included in the packet are updates on the following:

- Missouri State Employees' Retirement System v The Catalyst Capital Group, Inc., et al
- Katherine Chisom v. Missouri State Employees' Retirement System
- Overpayment of retirement benefits after the death of retiree Bernice Y. Bonner

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MOSERS
MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Missouri State Employees' Retirement System
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CONFIDENTIAL ATTORNEY CLIENT COMMUNICATION

MEMORANDUM

TO: BOARD OF TRUSTEES

FROM: Abby Spieler
General Counsel

SUBJECT: Litigation Report

DATE: September 16, 2022

1. **Missouri State Employees' Retirement System v The Catalyst Capital Group, Inc., et al.**

   Status:

   An update on *Missouri State Employees' Retirement System v. The Catalyst Capital Group, Inc., et al.*, will be provided at the September 22, 2022 board meeting.

2. **Katherine Chisom v Missouri State Employees' Retirement System**

   Status:

   On July 29th, Judge Beetem cancelled the August 2-3, 2022 trial date and set a status hearing for August 26th.

   Prior to the August 26th status hearing, opposing counsel withdrew his subpoenas of the board members, except for Gary Findlay. All other board members will not be required to participate in the proceedings.

   At the status hearing, Judge Beetem set a hearing for September 23rd to decide if Mr. Findlay must testify. Also at the hearing, Judge Beetem set a tentative trial date for November 2-3, 2022.

Background:

On August 26, 2019, Ms. Katherine Chisom filed a petition in Cole County Circuit Court contending (1) breach of fiduciary duty (2) fraudulent misrepresentation and (3) negligent misrepresentation by MOSERS. These claims stem from Ms. Chisom's allegations that she was not provided with an adequate written comparison of MSEP and MSEP 2000 prior to her retirement election of MSEP 2000.

Among other things, Ms. Chisom is asking the Court to allow her to switch from the MSEP 2000 to MSEP and award her compensatory and exemplary damages.

MOSERS filed a motion to dismiss relative to all counts, except Count VI plaintiff's request for review. Plaintiff filed (1) a memorandum in opposition to MOSERS' motion to dismiss and (2) a motion for leave to amend plaintiff's original petition. On January 6, 2020, Judge Beetem heard oral arguments relative to the above motions and took them under advisement.

On February 14, 2020, MOSERS filed objections and responses to the Plaintiff's first set of interrogatories and request for production. On March 31, 2020, Judge Beetem granted MOSERS motion to dismiss relative to Plaintiff's claims of breach of fiduciary duty, fraudulent misrepresentation, negligent misrepresentation and request for injunctive relief. All that remains is Plaintiff's request for judicial review. Judge Beetem also ruled against Plaintiff's request to amend plaintiff's original petition to individually name members of the Board and Staff.

The Judge held three additional status hearings during 2020. The defendant requested more time at each. On October 7, 2020, Plaintiff filed a motion to compel production of documents. Plaintiff argued MOSERS did not comply with the Plaintiff's request for production. On November 16, 2020, Judge Beetem denied the motion.

On March 30 and 31, the depositions of MOSERS' staff members Andrea Binkley, Ryan Toebben, Candy Smith, and Abby Spieler were taken by Plaintiff's counsel. Plaintiff's counsel also took the deposition of former MOSERS staff member, Thania Fitzgerald. Director Stegmann's deposition was conducted on June 10, 2021. MOSERS' counsel took Ms. Chisom's deposition on June 11, 2021.

3. Overpayment of retirement benefits after the death of retiree Bernice Y. Bonner.

Status:

After receiving information that Mr. Bonner relocated to St. Louis, Thompson Coburn registered our Indiana Default Judgement in the St. Louis County Circuit Court. Thompson Coburn has started the collection effort.

Additionally, staff provided the Department of Revenue (DOR) with information to participate in Debt Offset Program. DOR will let us know if Mr. Bonner has an overpayment on his taxes.

Background:

In March 2019, Staff discovered through a death audit that retiree Bernice Y. Bonner died in June 2012. Her retirement annuity did not provide for the payment of any benefits after her death. Staff immediately stopped her benefit and successfully reclaimed $23,705.39, a portion of the benefits paid into her bank account after her death. The outstanding overpayment balance is $99,166.98. Staff subpoenaed bank records related to Ms. Bonner's bank account. Staff worked with the Missouri Attorney General's office ("AGO") to identify the individual(s) with access to the overpayment money at Chase Bank and possible steps for collecting the overpayment. In response to a subpoena, Chase Bank has produced documents related to Ms. Bonner's account during the overpayment period. However, from these documents, we are unable to identify the individual(s) with access to Ms. Bonner's account during the overpayment period. From information in the bank records, MOSERS issued subpoenas to GM Financial, Progressive Casualty Insurance Company, and T-Mobile USA, Inc. requesting records related to transactions listed in the bank statements. From these subpoenas, Staff believes Ms. Bonner's son, Charles Bonner Jr., had access to Ms. Bonner's account.

Staff worked in consultation with the AGO to locate Ms. Bonner's son and to identify his assets. To date, we have not been able to locate Mr. Bonner. Mr. Bonner does not appear to own any real property and any personal property associated with his name appear to have priority liens.

At the February 2020 board meeting, Staff informed the Board that the AGO had declined the referral of this case and were not going pursue any action on MOSERS behalf. This came in response to MOSERS' request to pursue a judgment against Mr. Bonner in Indiana. The AGO stated that they were declining the referral because it appears Mr. Bonner does not have any assets. Staff, via the Treasurer's office, has continued communication with the AGO in an effort to have them reconsider their decision to decline the referral. From the continued discussions with the AGO, Staff recently learned that Mr. Bonner has filed for bankruptcy twice in Indiana. Based on some research, we do not believe our claim has been discharged in either proceeding. With the bankruptcy information, the AGO believes that a likely outcome is that Mr.

Bonner will file bankruptcy on the debt as he has done twice before. Consequently, the AGO is not going to pursue any further action.

At the June 2020 board meeting, the Board directed Staff to engage a local Indiana collection law firm. After soliciting fee estimates from three firms, Staff engaged Burke Costanza & Carberry located in Merrillville, IN.

MOSERS' local counsel in Indiana filed a petition against Mr. Charles Bonner Jr. on September 15, 2020. The petition alleges fraud and deception and asks for actual and treble damages. Mr. Bonner was served on October 16, 2020. Mr. Bonner has not responded to the petition to date.

On December 19, 2020, the Court ordered that Mr. Bonner appear on March 3, 2021. This hearing was moved to May 5, 2021.

A hearing was held on May 5, 2021. Mr. Bonner failed to appear. The Court will not allow MOSERS to request a bench warrant due to the COVID-19 pandemic.

The Court entered a default judgment against Mr. Bonner in November 2020. However, the Court will not allow MOSERS to request a bench warrant due to the COVID-19 pandemic.

Indiana counsel has not been able to locate any assets associated with the Mr. Bonner.

From: **Candy Smith** CANDYS@mosers.org
Subject: FW: Google Alert - TJ Carlson, Abby Spieler
Date: June 22, 2022 at 3:15 PM
To: TJ Carlson tjcarlson@mosers.org, Abby Spieler abbys@mosers.org
Cc: Ronda Stegmann rondas@mosers.org

CS

FYI, here is the paragraph from the article that mentions you. See below for link to full article.

A Board of Trustees agenda posted to the MOSERS website for last week's meeting showed Vivek Ramaswamy of Strive Asset Management was presenting on "Environmental, Social and Governance (ESG)" and TJ Carlson, MOSERS Chief Investment Officer and Abby Spieler, MOSERS general counsel, were scheduled to speak on ESG and a discussion on proxy voting. Ramaswamy's book, "Woke, Inc.: Inside Corporate America's Social Justice Scam," was a bestseller.

Candace Albers Smith

Communications Manager & Public Information Officer | *MOSERS*

573-632-6130 candys@mosers.org

From: Google Alerts <googlealerts-noreply@google.com>
Sent: Wednesday, June 22, 2022 9:02 AM
To: MOSERS.Retire@gmail.com
Subject: Google Alert - TJ Carlson

This email originated from outside of MOSERS

Google Alerts

TJ Carlson

NEWS

Missouri retirement system targets investors leveraging state as proxy | National News

KPVI

... Social and Governance (ESG)" and **TJ Carlson**, MOSERS Chief Investment Officer and Abby Spieler, MOSERS general counsel, were scheduled to speak ...

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From: **Gary Findlay** garywfindlay@gmail.com
Subject: FW: Proxy Voting Discussion
Date: August 19, 2022 at 7:18 AM
To: Ronda Stegmann rondas@mosers.org, Abby Spieler abbys@mosers.org, TJ Carlson tjcarlson@mosers.org

GF

This email originated from outside of MOSERS

FYI

From: garywfindlay@gmail.com <garywfindlay@gmail.com>
Sent: Friday, August 19, 2022 6:16 AM
To: 'Mike Price' <Mike.Price@treasurer.mo.gov>
Subject: Proxy Voting Discussion

Mike,

If your schedule permits, I would like to talk to you after 2:00 on Monday or anytime on Tuesday. Please let me know if there is a time that would work for you and, if so, a number where I can reach you.

You may already have these attachments and the link below but, if not, I think you will find them interesting. (These do not exhaust what is available but I think they are representative of what I'm seeing.)

The Intergovernmental Panel on Climate Change

I did not include anything about them but I suspect you are also aware of the net-zero initiatives of Ameren, GM and Ford.

Gary

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NYT Guest Essay -...ste.pdf

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CIO - NY Comm...ms.pdf

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Texas Fought Agains...ost.pdf

PDF
How Woke Capital...unt.pdf

From: **Gary Findlay** garywfindlay@gmail.com
Subject: GOP Attorneys General Raise Fiduciary, Antitrust Concerns in Letter to BlackRock
Date: August 10, 2022 at 8:11 AM
To: Ronda Stegmann rondas@mosers.org, Abby Spieler abbys@mosers.org, TJ Carlson tjcarlson@mosers.org, Patrick Morgan patrickm@mosers.org
Cc: Litz, Thomas TLITZ@thompsoncoburn.com

This email originated from outside of MOSERS

PLANSPONSOR

INVESTING August 9, 2022

GOP Attorneys General Raise Fiduciary, Antitrust Concerns in Letter to BlackRock

August 4 letter to CEO Larry Fink seeks 'clarification on actions that appear to have been motivated by interests other than maximizing financial return.'

Reported by AMY RESNICK

A group of 19 Republican state attorneys general have written a letter to BlackRock stating that the asset manager is using state pension fund assets in environmental, social and governance investments that "force the phase-out of fossil fuels, increase energy prices, drive inflation and weaken the national security of the United States."

The eight-page letter outlines how the group believes BlackRock is using "the hard-earned money of our states' citizens to circumvent the best possible return on investment."

"Our states will not idly stand for our pensioners' retirements to be sacrificed for BlackRock's climate agenda. The time has come for BlackRock to come clean on whether it actually values our states' most valuable stakeholders, our current and future retirees, or risk losses even more significant than those caused by BlackRock's quixotic climate agenda," the letter says.

The attorneys general asked BlackRock to respond by August 19.

BlackRock, in a statement, said that it manages money on behalf of its clients and helps them navigate investment risks.

"The money we manage is not our own," a BlackRock spokesperson said in a statement. "It belongs to our clients, many of whom make their own asset allocation and portfolio construction decisions. We offer a range of products and strategies to achieve their desired outcomes…Many of our clients are choosing to invest in a mix of traditional energy companies, natural gas infrastructure, renewables and new decarbonization technologies because of the investment opportunities stemming from their crucial role in the economy."

"Earlier this year, we further expanded client choice by offering interested institutional clients, including all US public pension clients, the ability to directly vote their shares. Clients entrusting us with $530 billion, more than a quarter of our institutional clients' equity index assets, have taken this option," the spokesman added.

Texas Attorney General Ken Paxton, in a statement about the letter, said "'ESG' goals, while ostensibly well-intentioned, make little economic sense, and have a direct adverse effect on Texas's oil and gas economy and state pension fund performance. BlackRock's actions may also violate state and federal law."

In their letter, the attorneys general outline their belief that BlackRock's claimed neutrality

In their letter, the attorneys general outline their belief that BlackRock's claimed neutrality on energy investments "differs considerably" from the asset manager's public commitments to organizations like the Net Zero Managers Alliance and the goals of the 2015 Paris Agreement on climate change.

"Accelerating and delivering the goals of the Paris Agreement across all assets under management through an escalation and voting strategy is a far cry from neutrality," the letter states.

The letter also outlines several areas where the attorneys general question whether BlackRock may be in violation of state laws on maximizing financial returns to investors, including the fiduciary duties of loyalty and care.

"The stated reasons for your actions around promoting net zero, the Paris Agreement, or taking action on climate change indicate rampant violations of this duty, otherwise known as acting with 'mixed motives,'" the letter states.

The letter also suggests that BlackRock's content raises "antitrust concerns."

"BlackRock's actions appear to intentionally restrain and harm the competitiveness of the energy markets," the letter says. "These antitrust concerns are especially acute because BlackRock and other asset managers affirmatively tout their market dominance."

In addition to Paxton of Texas, signatories include attorneys general from Arizona, Nebraska, Alabama, Arkansas, Georgia, Idaho, Indiana, Kansas, Kentucky, Louisiana, Mississippi, Missouri, Montana, Ohio, Oklahoma, South Carolina, Utah and West Virginia.

PDF

How Woke Capital...unt.pdf

Wall Street Journal

OPINION

THE WEEKEND INTERVIEW

How Woke Capital Politicized Your Retirement Account

BlackRock and other giant firms use your money to advance ESG ideas you may not agree with, even if you own index funds. Vivek Ramaswamy has brought an alternative to the market.

By *James Taranto*

Aug. 9, 2022 2:23 pm ET

Are you looking to make a political statement as you invest your family nest egg? You have plenty of options, at least if you support fashionable "environmental, social and governance" causes like climate and diversity. If you lean unstylishly to the right, you can buy into niche mutual funds that choose stocks with free-market or religious principles in mind. But what if you want to *avoid* politics? That's easier said than done.

The standard advice to retail investors is to buy passively managed index funds, which invest in the stocks of a broad range of companies. That's an excellent way to balance risk and return, to ride waves of economic growth and offset losses from individual companies that sink beneath them. But Vivek Ramaswamy, a newly minted investment-fund executive, says that politics have quickly come to dominate index funds too. He has an ambitious plan that aims to break its grip.

The problem arises from what's known as "the separation of ownership from ownership." When you invest in, say, a BlackRock fund, you own shares in the fund, which in turn owns stocks or other underlying assets. Formal ownership of a company share gives BlackRock a vote in elections for the board of directors and on resolutions governing corporate policy. Multiply that share by hundreds of millions, and it adds up to real clout.

The three biggest fund managers—BlackRock, Vanguard and State Street—manage a combined total of some $20 trillion in assets. Their holdings of Exxon Mobil Corp., to take a prominent example, totaled more than 890 million shares, or about 21% of the company, as of March 31. When they vote as a bloc, that can easily tip the balance, as it did in 2021 when the big three backed a slate of Exxon Mobil directors put forth by the tiny activist fund manager Engine No. 1, which held fewer than a million shares.

"It was an accident of this investment structure that gave that much voting power to that concentrated group of actors with an unprecedented aggregation of capital," Mr. Ramaswamy says in a Zoom interview from his home office in Columbus, Ohio. The big fund managers began only a few years ago "to exercise that voting power to advance social and political agendas."

When you buy an index fund that's managed in this fashion, you're promoting ESG objectives whether you want to or not. "The index-fund industry was based on the premise that these asset managers weren't smart enough to pick stocks," Mr. Ramaswamy says. Are we supposed to believe they're "enlightened enough to know how to design an entire society"?

But never mind society, what about your retirement fund? Engine No. 1 describes its goal as helping companies "transform their businesses to be more sustainable." Its website proudly features a July 2022 Journal news story with the headline "After Defeating Exxon, Engine No. 1 Works With Oil Giants on Emissions." If you want to avoid politics, this obviously isn't the fund manager for you. But neither is any other firm that would join an effort to "defeat" a company in which it has invested your capital.

When a fund manager uses your money "to advance agendas that do not serve the capital owner's interest," Mr. Ramaswamy says, "that represents a large-scale fiduciary breach." But what can you do about it? Litigation is prohibitively expensive, and regulatory solutions are unpromising with an ESG-friendly administration in Washington. Buying stocks directly and voting them yourself is a high-risk investment, not to mention a labor-intensive one, and for a nonbillionaire the return in recovered voting power is trivial. Besides, pursuing any of these possible remedies would take you down a political rabbit hole, exactly what you're trying to avoid.

Enter Mr. Ramaswamy, a 37-year-old wunderkind. He founded a biotech investment firm in 2014, at 28, then left it in 2021 and published two books, "Woke, Inc.: Inside Corporate America's Social Justice Scam" last August and "Nation of Victims: Identity Politics, the Death of Merit, and the Path Back to Excellence," forthcoming next month. "I enjoyed writing the books," he says. "I thought I was going to keep going at it."

Instead he decided that "problems in our culture, created in the market, . . . needed to be solved through the market," and Strive Asset Management was born, with Mr. Ramaswamy as executive chairman. Its first offering, the Strive U.S. Energy ETF (ticker symbol DRLL), began trading this week on the New York Stock Exchange, where Mr. Ramaswamy will ring the closing bell on Wednesday.

Strive is an activist investment manager. "Our mission," its website declares, "is to restore the voices of everyday citizens in the American economy by leading companies to focus on excellence over politics." The firm won't do this, Mr. Ramaswamy emphasizes, by selecting stocks in accord with "right-wing values" the way ESG funds promote left-wing values.

Instead its first few funds, including DRLL, will be managed passively, and subsequent ones actively, for profit, not politics. As an investment vehicle, DRLL is effectively identical to BlackRock's iShares U.S. Energy ETF (IYE). It will own shares in the same companies in virtually the same proportions, rebalanced each quarter according to the same rules, and charge the same management fee (0.41%). That means any benefit to shareholders from Strive's efforts will accrue equally to investors in IYE.

But Strive seeks to beat the big fund managers at their own shareholder-activism game. That presents an obvious difficulty, akin to the challenge of starting a third political party: Even if your views are far more popular than the incumbents', you're starting from zero. How do you overcome their massive advantage in money, loyalty and voting power?

The Engine No. 1 saga points to one answer: by using the power to introduce resolutions and board candidates and inducing the big funds to vote your way. Mr. Ramaswamy's strategy entails heightening ESG's contradictions by crafting resolutions that "call the bluff of the doublespeak," by which he means the claim that fund mangers are simultaneously "using capital to address shared global challenges like systemic racism and global climate change" *and* "exclusively looking after the financial interests of their clients."

Thus, he says Strive might introduce or support a resolution stating: "All current and future investments shall be evaluated exclusively through the lens of financially measurable return on investment." A "no" vote from an ostensibly apolitical investment fund would amount to a disavowal of its fiduciary duty to its clients. But if the resolution passes, Mr. Ramaswamy says, it would "govern over any other prior shareholder resolution" and thereby direct management to pursue profit regardless of political objectives.

Under such a resolution, Chevron Corp., for instance, could disregard the 2021 shareholder-approved measure directing it to reduce "Scope 3 emissions"—i.e., carbon dioxide produced by others up and down its supply chain. Mr. Ramaswamy sees that policy as especially pernicious, a way for asset managers to "deputize" the company "to also affect the behaviors of smaller players in its supply chains—family-owned businesses, private companies, etc."—that "otherwise should and would have been insulated from the politicized shareholder demands."

Another example of the ESG "bluff" is this statement from BlackRock CEO Larry Fink's 2021 letter to CEOs: "We expect companies . . . to have a talent strategy that allows them to draw on the fullest set of talent possible. As you issue sustainability reports, we ask that your disclosures on talent strategy fully reflect your long-term plans to improve diversity, equity, and inclusion."

Mr. Ramaswamy suggests this counterresolution: "All hiring at every level, including executive and board hiring, shall be based exclusively on job qualifications, without regard to race, sex, sexual orientation or political belief." If DEI aims merely "to draw on the fullest set of talent possible," how could BlackRock justify a vote against directing managers to refrain from illegal or politically based employment discrimination?

"That might sound pretty simple," Mr. Ramaswamy says. But this March Apple, the world's biggest company by market capitalization, "over the recommendation of management, adopted a 'racial equity audit' shareholder proposal," which BlackRock supported.

Between annual shareholder meetings, Strive will employ "shareholder engagement"—lobbying managers and directors on behalf of its profit-seeking agenda. "Shareholder engagement means letters, private meetings, public meetings, etc., exercising your voice and delivering that shareholder mandate," Mr. Ramaswamy says. "As BlackRock, State Street and Vanguard do today, Strive will do in a different way. I will be the chief ambassador for delivering those messages. And the greater capital we have in DRLL, the more weight shareholder engagement will carry with the boards and management teams of U.S. energy companies."

The firm's choice of the energy industry for its debut fund is a strategic one. "It is, first of all, probably the sector that has suffered the greatest . . . economic damage inflicted by the ESG movement," Mr. Ramaswamy says. "Most people who work in the energy industry don't work there because they think oil and gas is contributing to global catastrophe, but because they think it contributes to global prosperity."

The Exxon Mobil board changes and the Chevron Scope 3 resolution were both approved over the opposition of management. Energy executives and lower-level employees alike are "looking for an off-ramp from the shareholder mandates that they can see firsthand have actually destroyed value in their sector," Mr. Ramaswamy says. "Our corporate engagement effectively opens up the post-ESG mandate for the sector."

Another advantage: Energy funds have been out of favor with investors, giving Strive an opportunity to grab attention with DRLL. The fund's BlackRock counterpart, IYE, has only some $2.5 billion in assets under management, roughly 1/4,000th of the firm's total. If Strive can exceed that with DRLL, Mr. Ramaswamy says, "that will be the event that I think sends seismic shock waves across the sector," even though the big funds' total investment in any given company will still dwarf Strive's. "Is that achievable?" Mr. Ramaswamy asks. "I can't comment on that on the record." But he sounds confident.

Mr. Ramaswamy sees enormous growth potential in energy stocks. "The capital-market investment consensus was there is no oil and gas business after 2030—this line of business disappears," he says. ESG constraints promise to make that a self-fulfilling prophecy. Meanwhile, low interest rates accelerated a flight of capital from energy and toward technology companies that expect high future returns. When cash is cheap, "the opportunity cost of capital in the present is lower, so you value the future more highly," Mr. Ramaswamy says. Higher interest rates and an unshackling from ESG could bring "a great reversal of fortunes between the U.S. tech sector and the U.S. energy sector."

Over the long run, Mr. Ramaswamy aspires to build Strive into a serious competitor to the big funds across a wide range of investments. He thinks that's possible because the giants will have a hard time disentangling themselves from ESG.

"When you listen to BlackRock and State Street and Vanguard say, 'This is what our clients want,' there's a certain sense in which they're not wrong," he says. "Some of their clients, and especially their institutional clients"—he cites the California Public Employees' Retirement System and its New York counterpart—"are demanding that they behave this way." (The capital these pension funds manage ultimately belongs to government employees and retirees, another degree of separation of ownership from ownership.)

When the funds' biggest clients make such demands, it limits the investment menu for everyone, including red-state pension funds as well as retail investors. If Strive offers a viable alternative, Mr. Ramaswamy says, its larger competitors will "have to choose which lunch they're going to eat, and they're going to leave another one on the table. The one they've left on the table is the one that we're stepping up to pursue ourselves."

Mr. Taranto is the Journal's editorial features editor.

Correction
Vanguard voted against the proposal for a racial-equity audit at Apple. This was misstated in an earlier version.

Pensions & Investments

August 12, 2022

Managers treading lightly as ESG scrutiny grows

SOPHIE BAKER HAZEL BRADFORD

Increased scrutiny over just how green investment strategies are has market players worried.

The U.S. Securities and Exchange Commission, European regulators and investors are piling pressure onto money management firms over greenwashing, with the phrase hitting headlines more recently due in part to **high-profile allegations made against DWS Group** and other firms. As a result, managers are taking a careful look at how they have classified their strategies, with some firms already downgrading their ESG credentials to play it safe and an expectation of more changes to come, sources said.

Increased regulation in Europe has come in the form of the **Sustainable Finance Disclosures Regulation**, which came into play in March 2021 and was updated with further rules last month. Under SFDR, European Union-licensed money managers must categorize their strategies into one of three classifications: Article 6 — where there are no ESG risks relevant to investment decisions or returns; Article 8 — which promote environmental or social characteristics; or Article 9 funds, which name sustainable investment as their objective.

On top of Europe's regulatory focus is pending information from the Financial Conduct Authority, the U.K.'s financial watchdog, as to how similar rules will be implemented in the U.K. under its Sustainable Disclosure Requirements.

Meanwhile, in the U.S., **the SEC has proposed rules that would establish disclosure requirements** for funds that are marketed as being ESG-focused.

"At the issuer level and at the fund level, there is more regulation everywhere," said Hortense Bioy, London-based global director of sustainability research for Morningstar Inc. Beyond Europe to places like Hong Kong and Australia, "regulators want to bring greater clarity to the space," she said.

And adding to the regulatory focus is the ongoing investigation into DWS Group, **which reached a climax in May with a police raid of the firm's Frankfurt offices over greenwashing allegations**. The following day, June 1, CEO Asoka Woehrmann resigned over the allegations, which he said in a statement had become a burden for the €902 billion ($922.2 billion) money manager, himself and his family.

Growing scrutiny

The difficulty is that having an ESG product has become something of an expectation. A money manager without an ESG strategy would probably be skipped over by potential clients, sources said.

"There's been this massive knee-jerk response over the last couple of years that's required asset managers to step up and provide a product" that's labeled as ESG, said Cara Williams, global ESG strategy lead, wealth management and multinational client lead for wealth at **Mercer** LLC in London. "They don't want to miss out. So it doesn't surprise me that, all of a sudden, you've got products that are not as ESG as they're supposed to be or are simply being misrepresented. In this case, the cart was put a little bit before the horse for some shops," Ms. Williams said.

While having those magic three letters — ESG — somewhere in the investment prospectus of a money manager's funds is a basic requirement for some institutional investor clients, increased demands from regulators and differing implementation rules within regions is adding to managers' stress levels and making some question just how they can keep everyone happy but at the same time keep out of trouble with regulators, sources said.

"It's becoming increasingly difficult to operate effectively in multiple jurisdictions," said Jonathan Doolan, Paris-based managing partner at asset management strategy adviser Indefi Group. "There is SFDR initial taxonomy, Articles 6, 8 and 9 … but (managers are) realizing they can be 8 and 9 (compliant) but cannot promote their funds in certain countries throughout Europe as they have more stringent expectations or qualifications. It's creating a lot of concern and consternation around how can we truly not be accused of greenwashing in some way because at some point there is an element of subjectivity tied to what matters and what doesn't" in certain countries, Mr. Doolan said.

Concern over getting the classification of strategies correct is leading to particular "caution" among money managers, said Chris Redmond, London-based head of manager research at Willis Towers Watson PLC.

"There's a debate around, we've got a fund, it has positive impact, is it Article 8 or 9? I think there is a growing resistance to sign up to Article 9 as people feel they are putting themselves in the spotlight. The unintended consequence of that is Article 8 has become a catch-all for lots of stuff. (It) has become quite watered down and broad — and I think we got there through some of the fears around greenwashing," he said.

Sources agreed that the increased regulatory focus plus allegations of greenwashing are causing money managers to revisit their self-appointed green credentials.

"I think there's a bit of quietness oriented around the fact that everybody is going back to their lawyers or compliance and asking, 'what is our potential risk?'" Indefi's Mr. Doolan said.

That's manifested in some cases as a manager reclassification of funds to Article 8 — so-called "light green" — from Article 9, known as "dark green" for being the most strict category.

Morningstar's second-quarter data show that 16 strategies were downgraded to Article 8 from Article 9 over the three months ended June 30. The firm identified no downgrades to Article 6 from Articles 8 or 9.

Strategies are still being upgraded across the three classifications, Ms. Bioy said, but added that "we can expect more downgrades, more likely from (Article) 9 to 8."

"We have also seen a handful of funds that removed ESG from the name. It is indicative of asset managers wanting to be more cautious given the current regulatory environment. More than ever now, asset managers are cautious about the name they have given their funds," Ms. Bioy said.

The changes have not gone unnoticed across the industry. "When (Articles) 8 and 9 regulation came out, a lot of managers went for 8," said Matthias Fawer, Zurich-based senior ESG and impact analyst at **Vontobel Asset Management**. "When greenwashing allegations started popping up, more managers were saying, take it back to an Article 6 fund, and let's see how this evolves. I've heard of some fund managers deleting the 'ESG' or 'sustainability' from their fund name" and waiting to see what happens with further rules, Mr. Fawer said. "There's a separation of managers that feel comfortable and others that say it's too delicate and too difficult."

Making moves

Vontobel, which runs two impact funds that are both registered as Article 9 under SFDR, has made further, recent moves to integrate ESG throughout the firm. In January, Tadas Zukas joined as global lead, senior legal counsel sustainability/ESG. He is "a specialized legal counsel with regulatory expertise and experience in ESG and tackling greenwashing," Mr. Fawer said.

One of Mr. Zukas's first contributions to the firm was to run ESG-awareness training, "covering greenwashing risk and how to communicate ESG. That brings us to another level in terms of trust and reputation. I just went through it and it was really helpful for me, even as an ESG specialist," Mr. Fawer said.

Regarding the reason for hiring Mr. Zukas, Mr. Fawer said executives "have to be aware of what's going on and what we can state in our prospectus and marketing material, and what we really do. We have lots of experience with ESG, but now with (SFDR), it's really all about walking the talk and to be honest with clients and tell them what you do in a transparent way," Mr. Fawer said.

Vontobel AM had 118.3 billion Swiss francs ($123.9 billion) in AUM as of June 30.

Pensions & Investments

August 12, 2022

Managers treading lightly as ESG scrutiny grows

SOPHIE BAKER HAZEL BRADFORD

Increased scrutiny over just how green investment strategies are has market players worried.

The U.S. Securities and Exchange Commission, European regulators and investors are piling pressure onto money management firms over greenwashing, with the phrase hitting headlines more recently due in part to **high-profile allegations made against DWS Group** and other firms. As a result, managers are taking a careful look at how they have classified their strategies, with some firms already downgrading their ESG credentials to play it safe and an expectation of more changes to come, sources said.

Increased regulation in Europe has come in the form of the **Sustainable Finance Disclosures Regulation**, which came into play in March 2021 and was updated with further rules last month. Under SFDR, European Union-licensed money managers must categorize their strategies into one of three classifications: Article 6 — where there are no ESG risks relevant to investment decisions or returns; Article 8 — which promote environmental or social characteristics; or Article 9 funds, which name sustainable investment as their objective.

On top of Europe's regulatory focus is pending information from the Financial Conduct Authority, the U.K.'s financial watchdog, as to how similar rules will be implemented in the U.K. under its Sustainable Disclosure Requirements.

Meanwhile, in the U.S., **the SEC has proposed rules that would establish disclosure requirements** for funds that are marketed as being ESG-focused.

"At the issuer level and at the fund level, there is more regulation everywhere," said Hortense Bioy, London-based global director of sustainability research for Morningstar Inc. Beyond Europe to places like Hong Kong and Australia, "regulators want to bring greater clarity to the space," she said.

And adding to the regulatory focus is the ongoing investigation into DWS Group, **which reached a climax in May with a police raid of the firm's Frankfurt offices over greenwashing allegations**. The following day, June 1, CEO Asoka Woehrmann resigned over the allegations, which he said in a statement had become a burden for the €902 billion ($922.2 billion) money manager, himself and his family.

Growing scrutiny

The difficulty is that having an ESG product has become something of an expectation. A money manager without an ESG strategy would probably be skipped over by potential clients, sources said.

"There's been this massive knee-jerk response over the last couple of years that's required asset managers to step up and provide a product" that's labeled as ESG, said Cara Williams, global ESG strategy lead, wealth management and multinational client lead for wealth at **Mercer** LLC in London. "They don't want to miss out. So it doesn't surprise me that, all of a sudden, you've got products that are not as ESG as they're supposed to be or are simply being misrepresented. In this case, the cart was put a little bit before the horse for some shops," Ms. Williams said.

While having those magic three letters — ESG — somewhere in the investment prospectus of a money manager's funds is a basic requirement for some institutional investor clients, increased demands from regulators and differing implementation rules within regions is adding to managers' stress levels and making some question just how they can keep everyone happy but at the same time keep out of trouble with regulators, sources said.

"It's becoming increasingly difficult to operate effectively in multiple jurisdictions," said Jonathan Doolan, Paris-based managing partner at asset management strategy adviser Indefi Group. "There is SFDR initial taxonomy, Articles 6, 8 and 9 … but (managers are) realizing they can be 8 and 9 (compliant) but cannot promote their funds in certain countries throughout Europe as they have more stringent expectations or qualifications. It's creating a lot of concern and consternation around how can we truly not be accused of greenwashing in some way because at some point there is an element of subjectivity tied to what matters and what doesn't" in certain countries, Mr. Doolan said.

Concern over getting the classification of strategies correct is leading to particular "caution" among money managers, said Chris Redmond, London-based head of manager research at Willis Towers Watson PLC.

"There's a debate around, we've got a fund, it has positive impact, is it Article 8 or 9? I think there is a growing resistance to sign up to Article 9 as people feel they are putting themselves in the spotlight. The unintended consequence of that is Article 8 has become a catch-all for lots of stuff. (It) has become quite watered down and broad — and I think we got there through some of the fears around greenwashing," he said.

Sources agreed that the increased regulatory focus plus allegations of greenwashing are causing money managers to revisit their self-appointed green credentials.

"I think there's a bit of quietness oriented around the fact that everybody is going back to their lawyers or compliance and asking, 'what is our potential risk?'" Indefi's Mr. Doolan said.

That's manifested in some cases as a manager reclassification of funds to Article 8 — so-called "light green" — from Article 9, known as "dark green" for being the most strict category.

Morningstar's second-quarter data show that 16 strategies were downgraded to Article 8 from Article 9 over the three months ended June 30. The firm identified no downgrades to Article 6 from Articles 8 or 9.

Strategies are still being upgraded across the three classifications, Ms. Bioy said, but added that "we can expect more downgrades, more likely from (Article) 9 to 8."

"We have also seen a handful of funds that removed ESG from the name. It is indicative of asset managers wanting to be more cautious given the current regulatory environment. More than ever now, asset managers are cautious about the name they have given their funds," Ms. Bioy said.

The changes have not gone unnoticed across the industry. "When (Articles) 8 and 9 regulation came out, a lot of managers went for 8," said Matthias Fawer, Zurich-based senior ESG and impact analyst at **Vontobel Asset Management**. "When greenwashing allegations started popping up, more managers were saying, take it back to an Article 6 fund, and let's see how this evolves. I've heard of some fund managers deleting the 'ESG' or 'sustainability' from their fund name" and waiting to see what happens with further rules, Mr. Fawer said. "There's a separation of managers that feel comfortable and others that say it's too delicate and too difficult."

Making moves

Vontobel, which runs two impact funds that are both registered as Article 9 under SFDR, has made further, recent moves to integrate ESG throughout the firm. In January, Tadas Zukas joined as global lead, senior legal counsel sustainability/ESG. He is "a specialized legal counsel with regulatory expertise and experience in ESG and tackling greenwashing," Mr. Fawer said.

One of Mr. Zukas's first contributions to the firm was to run ESG-awareness training, "covering greenwashing risk and how to communicate ESG. That brings us to another level in terms of trust and reputation. I just went through it and it was really helpful for me, even as an ESG specialist," Mr. Fawer said.

Regarding the reason for hiring Mr. Zukas, Mr. Fawer said executives "have to be aware of what's going on and what we can state in our prospectus and marketing material, and what we really do. We have lots of experience with ESG, but now with (SFDR), it's really all about walking the talk and to be honest with clients and tell them what you do in a transparent way," Mr. Fawer said.

Vontobel AM had 118.3 billion Swiss francs ($123.9 billion) in AUM as of June 30.

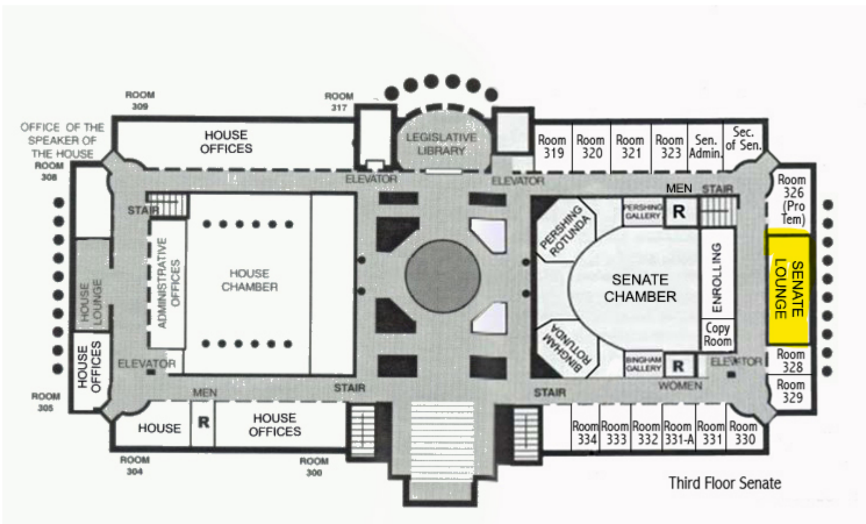
From: Ronda Stegmann rondas@mosers.org
Subject: MOSERS Board Education & 2nd Qtr Meeting
Date: June 10, 2022 at 12:53 PM
To: Ronda Stegmann rondas@mosers.org
Cc: Abby Spieler abbys@mosers.org, TJ Carlson tjcarlson@mosers.org

RS

Next week, on Wednesday, June 15th, the Board will hold its annual educational conference. This meeting is designed to assist the Board in meeting the governance-required 6 hours of annual education. This meeting will be held in the State Capitol building in the Senate Lounge. The Senate Lounge is located on the 3rd floor on the east side of the building (map below). The physical address of the building is 201 W. Capitol Ave, Jefferson City, MO.

Missouri State Senate

Map of the Third Floor of the State Capitol



We will have a full day of education beginning at 9:00 a.m. with presentations from Cavanaugh Macdonald, Verus, Vivek Ramaswamy with Strive Asset Management, and staff. We expect the day to end around 5:00 p.m.

Some things you need to know for **Wednesday, June 15th**:

- We have received 10 parking spaces in the Senate garage in **spaces 3 through 16** (you are welcome to use any of those spaces). These spaces are for Board members and consultants. Staff will work to consolidate in a few vehicles to ensure parking for all. The Senate garage is the circular garage on the Missouri River side of the Capitol building.
- It is important to note that if you do not have an ID badge that allows for access into the Capitol building, *you will need to go through the Security process* which is located at that entrance to the building, under the carriage tunnel on the Supreme Court side of the Capitol, so please allow a few extra minutes for that process.
- We will be having lunch in the restaurant in the basement of the Capitol. Melissa will get with you for your choice of lunch options.
- We are working to have time to take the Board into the Senate Chamber and to the Whispering Gallery/ top of the outside of the dome, if anyone is interested.
- We will have an "on your own" informal dinner for anyone who is interested at the Canterbury Hill Restaurant and Winery – located at 1707 S Summit Drive in Holts Summit.

On Thursday, June 16th, we will conduct the 2nd Quarter Meeting of the Board at the MOSERS Office Building. We will begin the meeting at 9:00 a.m.

We are looking forward to seeing everyone! If you have any questions between now and

Wednesday, do not hesitate to contact me on my cell at 573-230-1116 at any time.
Thanks very much,
Ronda
Success is a TEAM sport!

Ronda Stegmann

Executive Director | *MOSERS*

573-632-6110 rondas@mosers.org

From: **Melissa Johnson** melissaj@mosers.org
Subject: MOSERS Board Educational Conference Packet
Date: June 13, 2022 at 10:22 AM
To: Melissa Johnson melissaj@mosers.org

MJ

Good Morning All,
Attached please find the packet for the Board Educational Conference scheduled for Wednesday, June 15, 2022. The meeting login information is at the top of the agenda. If you have any questions, please let me know.
Thanks,
Melissa

Melissa Johnson
Board Administrator
Missouri State Employees' Retirement System (MOSERS)
573-632-6193
www.mosers.org
WE ARE HERE FOR YOUR BENEFIT

PDF

REG SESSION Board...nic.pdf

From: **Ronda Stegmann** rondas@mosers.org
Subject: MOSERS follow up
Date: June 9, 2022 at 3:13 PM
To: vivek@strivefunds.com
Cc: Melissa Johnson melissaj@mosers.org

RS

Mr. Ramaswamy – This email is to confirm that we have discussed your attendance at the MOSERS Board of Trustees Annual Educational Conference on June 15, 2022. As mentioned, we will be having lunch in the Capitol building at approximately 11:30 a.m. CDT and you are welcome to join us. After lunch, we will be on the topic of ESG with you being the first presenter to speak. I will include you on an email communication to the Board members regarding logistics of the meeting.
Melissa Johnson, our Board Administrator, will include you on any lunch-related communication as well.
Please let me know that you have received this email. Appreciate it.
Looking forward to meeting you next week,
Ronda
Success is a TEAM sport!

Ronda Stegmann
Executive Director | *MOSERS*

573-632-6110 rondas@mosers.org

ENABLING VOTING CHOICE

Operational Setup for Separate Accounts

Operational Setup for Pooled Funds

POOLED ACCOUNTS
OWN YOUR OWN VOTING

MOSERS
vote their own shares, utilizing their policy and processes (e.g., policy, proxy voting vendor).

LEGEND | SETUP VOTING

Estimated time to implement: ***5-6 weeks***

	PROCESS	OWNER
1	Establishes their internal proxy voting policies and procedures including contracting with a proxy vendor	**MOSERS**
2	Communicates their interest in voting their pro-rata positions in pooled funds and provides their internal proxy voting policies and procedures to BlackRock	**MOSERS**
3	Reviews the client's policy, determines eligibility, and implements the required contract and operational changes based on the client's directed voting	**BlackRock**
4	Submits a Letter of Authorization to their proxy vendor using a BlackRock provided account number	**MOSERS**
5	Instructs Broadridge to send proxy ballots to the client's proxy vendor	**BlackRock**
6	Aladdin is configured to create proxy ballots representing the client's pro-rata portion of their investments in pooled funds	**BlackRock**
7	Proxy ballots for the client's pro-rata positions are sent to the client's proxy vendor to be instructed according to the client's policies and procedures	**MOSERS**
8	Maintains oversight of voting activity via regular certifications and vote record and policy reviews	**BlackRock**

First ballots expected within ***60 days*** *of setup completion*

POOLED ACCOUNTS
CHOOSE FROM A MENU OF THIRD PARTY PROXY VOTING POLICIES

MOSERS select from a policy menu offered by ISS and use BlackRock's processes to vote.

LEGEND | SETUP VOTING

Estimated time to implement: ***3–4 weeks***

	PROCESS	OWNER
1	Selects their preferred voting option from menu of 'off the shelf' voting policies from ISS	**MOSERS**
2	Confirms client's preferred voting policy through the 'Pooled Fund Voting Scope Form*' and configures the client for proxy voting based on preferred option	**BlackRock**
3	Agreements between BlackRock and the client are finalized to proceed with selected voting choice option	**MOSERS**
4	New account is created on ISS that represents the client's pro-rata positions in the pooled fund; BlackRock works with Custodian, Broadridge, and ISS to enable new account for voting using selected policy	**BlackRock**
5	Proxy ballots for the client's pro-rata positions are sent to ISS to be instructed according to the selected policy	**BlackRock**
6	If requested, regular proxy voting reports are delivered to the client	**BlackRock**

First ballots expected within ***60 days*** *of setup completion*

**Refer to Appendix D for sample form.*

From: **NASRA** alex@nasra.org
Subject: NASRA News Clips
Date: July 20, 2022 at 10:11 AM
To: Ronda Stegmann rondas@mosers.org

N

This email originated from outside of MOSERS

NASRA News Clips

July 20, 2022

In the Media

Hawaii Governor signs legislation establishing retirement program for uncovered private sector employees

The Hawaii Retirement Savings Program will be a state-facilitated payroll-deduction retirement savings plan. Through the program, for each enrolled employee a Roth IRA will be established into which contributions deducted from an employee's payroll will be deposited. Employees will own the contributions to, and earnings on, the amounts contributed to their IRAs under the program. In order to participate in the program, employees will have to opt in. And unlike any other state so far, one of the members of the board that will administer the program will be a retiree living in Hawaii, to represent retirees.

ASPPA News

Tweet of the Week

The BLS identifies **about 19.4 million employees** of state and local government as of June 2022. Local governments, which include most school districts, account for nearly three-quarters of total state and local employment, with state governments accounting for around one-quarter of the total. State and local employment accounts for approximately 13 percent of the nation's workforce.

NASRA
@PensionDialog

...

Studies & Reports

NASRA updates hybrid plans issue brief

This update includes the latest characteristics of statewide cash balance and combination (DB+DC) hybrid plans. Additionally, the brief includes an update to the graphic presentation of hybrid plan coverage identifying the approximate percentage of public employees who participate in a hybrid plan in each state that provides one as a mandatory or optional primary retirement plan.

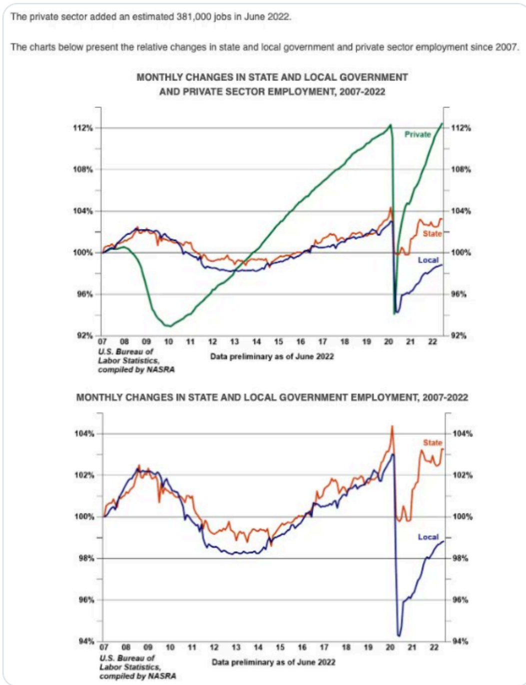
Issue Briefs, Papers & Analysis

North Dakota PERS Board lowers investment return assumption from 7.0 to 6.5 percent

The system's actuary, GRS Consulting, recommends that the investment return assumption be monitored for continued appropriateness between full experience reviews, and additionally following any changes in target asset allocations. The GRS analysis of the North Dakota PERS investment return assumption is based on forward-looking measures of expected investment return outcomes for the asset classes in the System's current investment policy, relying on the capital market assumptions from 12 nationally recognized firms. GRS calculates that the probability of PERS achieving the assumed rate of investment return over a 10-year period improves from 34 to 39 percent at the lower return assumption of 6.5 percent.

GRS Analysis
Latest Return Assumptions@NASRA.org

6/22 marks the 8th consecutive month of state & local employment growth. State & local employment increased in all but one of the last eighteen months; since peaking in 2/20, state & local govts shed nearly 656,000 jobs, or approxi. 3.3%. buff.ly/2FHAZm9 #muniland



Federal Focus

Treasury releases inter-agency and international framework on digital assets

The Secretary of the Treasury, in consultation with the Secretary of State, the Secretary of Commerce, the Administrator of the U.S. Agency for International Development, released a framework for interagency engagement with foreign counterparts to address the risks and benefits of digital assets. Treasury committed to continue working within several key intergovernmental organizations, including the G7, G20, and the Organization for Economic Cooperation and Development. The framework also directs the administration to promote development of digital asset and central bank digital currencies (CBDC).

Bloomberg
Treasury Fact Sheet

Forecast for 2023 IRS retirement plan limits and Social Security COLA

With only three months remaining for federal fiscal year 2022, the forecast for 2023 IRS limits will most

BoardSmart: Conduct the Business of the Board

Effective governance is essential to organizational adaptation, survival, and success. This is the second in a series of six articles about how to improve board effectiveness through the exercise of the powers reserved exclusively for the board of a public retirement system. In this article, we discuss nine leading practices to help the board improve the way it conducts its business.

Funston Advisory Services, second in a series
Governance@NASRA.org

Equable publishes State of Pensions 2022 report

Equable estimates the aggregate 2022 funded ratio will decline to 77.9% and aggregate unfunded liabilities will increase to $1.4 trillion – the largest single-year decline in funded ratio since the Great Recession.

Summary and full report

Study finds private equity to be the best returning asset class in public pension portfolios

The study, conducted by the American Investment Council, analyzed 178 U.S public pension funds which represent nearly 34 million public sector workers and retirees. 85 percent of public pensions in the sample had some exposure to private equity. On a dollar weighted basis, private equity makes up 9 percent of public pension portfolios.

American Investment Council

People

New Mexico PERA appoints new CIO

[Michael] Shackelford has almost 30 years of investment management experience, where he has served as a chief investment officer for over a decade. Most recently, Shackelford served as Director of Investments for the North Dakota State Department of Trust Lands since 2019 where he managed the state's sovereign wealth fund totaling likely set the record for a one-year increase, in terms of both dollars and percentage. It is highly likely that for 2023, the compensation limit will increase by at least $30,000 to $335,000, the individual elective contributions limit will increase by at least $2000 to $22,500, the catch-up contribution limit will increase by at least $1000 to $7,500, and the defined benefit limit will increase by at least $20,000 to $265,000. With regard to Social Security, if current inflationary trends continue, next year's Social Security cost-of-living adjustment could boost benefits by 10% or more — the largest annual increase in 41 years.

Milliman
Investment News

Perspectives

Proposed Department of Labor regulation would encourage consideration of ESG over traditional investment factors

The rule states not only that ESG factors can be considered, but that prudent investing "may often require" it. The proposed regulation thus transforms ESG from one factor that may be considered when it has a material effect on the investment to a factor that should be considered in all instances. But the result is a plain violation of fiduciary duty, allowing politicians and fund managers to substitute their investment goals for those of American retirees. Washington should remember that the law governing retirement accounts already spells out the ESG goal that fiduciaries must honor: "Providing a secure retirement for American workers is the paramount and eminently worthy social goal of ERISA plans." The Labor Department should scrap the rule now.

Vivek Ramaswamy and Alex Acosta in the Wall Street Journal

$7.0 billion in assets.

Press release

Job Postings

- Director of Retirement Readiness, CalSTRS
- Private Equity Investment Officer, CalSTRS
- Deputy Director, Minnesota State Retirement System
- External Retirement Counseling Manager, Minnesota State Retirement System
- Member Services Benefit Analyst, Orange County ERS

For details on open positions, visit
Job Search@NASRA.org

National Association of State Retirement Administrators

www.nasra.org

202.624.1418

NASRA | 449 Lewis Hargett Circle, Suite 290 , Lexington, KY 40503-3590

The New York Times
Opinion Today

August 18, 2022

By Chris Conway

Senior Staff Editor, Opinion

Passing substantive legislation can be messy, especially in a Congress as narrowly divided as America's is today. As Brad Plumer and Lisa Friedman reported recently in The Times, Senator Joe Manchin of West Virginia, who has accepted more campaign contributions from the oil and gas industry than any of his colleagues, exerted his influence in return for his pivotal vote in favor of the Inflation Reduction Act.

One win for Manchin was a significant expansion of tax credits for carbon capture and storage, known as C.C.S. This technology captures carbon dioxide, the main culprit in the warming of the planet, before it leaves industrial smokestacks, then pumps it underground where it remains sequestered. Sounds good, right?

Except that every dollar spent on this climate technology is a waste, two scientists with long experience in C.C.S. argue in a guest essay this week.

Charles Harvey and Kurt House write that what the technology also does "is allow for the continued production of oil and natural gas at a time when the world should be ending its dependence on fossil fuels." They argue, moreover, that "every dollar invested in renewable energy — instead of C.C.S. power — will eliminate far more carbon emissions."

The authors are not casual observers. They were involved in a start-up more than a decade ago to commercialize C.C.S. technology with a vision of creating an industry. They have published widely in science journals about C.C.S.

But it turned out that the world was changing faster than they anticipated. The cost of renewable energy fell and fell, to the point where renewable power now is cheaper than coal-fired power without C.C.S. When you "add the cost of the energy required to couple C.C.S. with fossil fuel power," they add, "it becomes hopelessly uncompetitive."

It's a fascinating read about an arcane but important technology as the world struggles to rein in its fossil fuel emissions. Consider one irony of what is widely endorsed as a climate solution: Carbon dioxide captured from natural gas processing facilities — where C.C.S. is now most widely applied — is used to extract hard-to-get oil from fields where it otherwise would remain underground.

The New York Times

Opinion – Guest Essay

Every Dollar Spent on This Climate Technology Is a Waste

Aug. 16, 2022

By Charles Harvey and Kurt House

Dr. Harvey is a professor of environmental engineering at the Massachusetts Institute of Technology. Dr. House is the chief executive officer of KoBold Metals, a metals exploration company.

The technology called carbon capture and storage is aptly named. It is supposed to capture carbon dioxide emissions from industrial sources and pump them deep underground. It was a big winner in the climate provisions of the Inflation Reduction Act passed by Congress last week and signed into law by President Biden on Tuesday.

What the technology, known as C.C.S., also does is allow for the continued production of oil and natural gas at a time when the world should be ending its dependence on fossil fuels.

The Inflation Reduction Act does more to cut fossil fuel use and fight climate change than any previous legislation by expanding renewable energy, electric cars, heat pumps and more. But the law also contains a counterproductive waste of money, backed by the fossil fuel industry, to subsidize C.C.S.

Fifteen years ago, before the cost of renewable energy plummeted, carbon capture seemed like a good idea. We should know: When we began a start-up 14 years ago — the first privately funded company to make use of C.C.S. in the United States — the idea was that the technology could compete as a way to produce carbon-free electricity by capturing the carbon dioxide emissions emitted from power plants and burying them. But now it's clear that we were wrong, and that every dollar invested in renewable energy — instead of C.C.S. power — will eliminate far more carbon emissions.

Even so, this technology has broad political support, including from Senator Joe Manchin of West Virginia, an ally of the coal industry, because it enables the continued extraction and burning of fossil fuels while also preventing the resulting carbon dioxide from entering the atmosphere. Industry campaigns such as "Clean Coal" have also promoted the technology as something that could ramp up quickly to bridge the gap to the deployment of large-scale renewable energy. But by promoting C.C.S., the fossil fuel industry is slowing the transition away from fossil fuels.

Under the Inflation Reduction Act, facilities using this technology will be eligible for generous tax credits provided they break ground by the end of 2032 — an extension of the current deadline of 2025. Those benefits come on top of $12 billion in government investments in

C.C.S., as well as in technology that would pull carbon dioxide directly from the air, which were included in the infrastructure bill signed by President Biden last fall.

C.C.S. is seen as a solution to the emissions problem for a range of industries, from electricity generating plants powered by fossil fuel to industrial facilities that produce cement, steel, iron, chemicals and fertilizer.

Where C.C.S. has been most widely used in the United States and elsewhere, however, is in the production of oil and natural gas. Here's how: Natural gas processing facilities separate carbon dioxide from methane to purify the methane for sale. These facilities then sometimes pipe the "captured" carbon dioxide to what are known as enhanced oil recovery projects, where it is injected into oil fields to extract additional oil that would otherwise be trapped underground.

Of the 12 commercial C.C.S. projects in operation in 2021, more than 90 percent were engaged in enhanced oil recovery, using carbon dioxide emitted from natural gas processing facilities or from fertilizer, hydrogen or ethanol plants, according to an industry report. That is why we consider these ventures oil or natural gas projects, or both, masquerading as climate change solutions.

The projects are responsible for most of the carbon dioxide now sequestered underground in the United States. Four projects that do both enhanced oil recovery and natural gas processing account for two-thirds to three-quarters of all estimated carbon sequestered in the United States, with two plants storing the most. But the net effect is hardly climate friendly. This process produces more natural gas and oil, increases carbon dioxide emissions and transfers carbon dioxide that was naturally locked away underground in one place to another one elsewhere.

In an effort to capture and store carbon dioxide from fossil-fuel-burning power plants, the Department of Energy has allocated billions of dollars for failed C.C.S. demonstration projects. The bankruptcy of many of these hugely subsidized undertakings makes plain the failure of C.C.S. to reduce emissions economically.

The Kemper Power Project in Mississippi spent $7.5 billion on a coal C.C.S. plant before giving up on C.C.S. in 2017 and shifting to a gas-powered plant without C.C.S. The plant was partially demolished in October 2021, less than six weeks before President Biden signed the infrastructure bill with its billions of taxpayer money for C.C.S.: good money thrown after bad. The FutureGen project in Illinois started as a low-emission coal-fired power plant in 2003 with federal funds, but ultimately failed as a result of rising costs.

The Texas Clean Energy and Hydrogen Energy California C.C.S. projects were allocated over a half- billion dollars collectively, then dissolved. The list goes on, with at least 15 projects burning billions of dollars of public money without sequestering any meaningful amount of carbon dioxide. Petra Nova, apparently the only recent commercial-scale power project to inject carbon dioxide underground in the United States (for enhanced oil recovery), shut down in 2020 despite hundreds of millions of dollars in tax credits.

These projects failed because renewable electricity generation outcompetes C.C.S. Renewable power now is cheaper than coal-fired power without C.C.S. Add the cost of the energy required to couple C.C.S. with fossil fuel power and it becomes hopelessly uncompetitive. We can only guess how much more the full costs of C.C.S. would exceed renewable power because, after decades of promotion and many billions of dollars spent, we still have next to no real-world data about the costs of running, maintaining and monitoring large C.C.S. projects.

These C.C.S. projects are subsidized by Section 45Q of the federal tax code, which now offers companies a tax credit for each metric ton of carbon dioxide injected into the ground. Those enhanced oil recovery subsidies would rise under the new law, to $60 per ton from $35. The legislation also significantly broadens the number of facilities eligible for tax credits. And they will be able to claim the tax credit through a tax refund. The 45Q program is nominally a program to fight climate change. But since nearly all carbon dioxide injections subsidized by 45Q are for enhanced oil recovery, the 45Q program is actually an oil production subsidy.

The Internal Revenue Service does not provide information about who gets the credits. But we do know that it issued more than $1 billion of these credits as of 2020.

These subsidies create a perverse incentive, because for companies to qualify for the subsidies, carbon dioxide must be produced, then captured and buried. This incentive handicaps technologies that reduce carbon dioxide production in the first place, tilting the playing field against promising innovations that avoid fossil fuels in the steel, fertilizer and cement industries while locking in long-term oil and gas use.

Industry campaigns for C.C.S. also have shifted their decades-long disinformation fight: Instead of spreading doubt about climate science, the industry now spreads false confidence about how we can continue to burn fossil fuels while efficiently cutting emissions. For example, Exxon Mobil advertises that it has "cumulatively captured more carbon dioxide than any other company — 120 million metric tons."

What Exxon Mobil doesn't say is that this carbon dioxide was already sequestered underground before it "captured" it while producing natural gas and then injected it back into the ground to produce more oil. These advertising campaigns lend support to government programs to directly subsidize C.C.S.

Solving climate change requires resources; misappropriating these resources makes solving the problem harder. We have no time to waste. We need to stop subsidizing oil extraction and carbon dioxide production in the name of fighting climate change and stop burning billions in taxpayer money on white elephant projects. Clean power from carbon capture and sequestration died with the success of renewable energy; it's time to bury this technology deep underground.

OPINION CONVERSATION *The climate, and the world, are changing. What challenges will the future bring, and how should we respond to them?*

- **What does climate change look like around the world?**
  From "Postcards From a World on Fire," these 193 stories show how climate change is reshaping reality.
- **What should our leaders be doing?**
  Al Gore, the 45th vice president of the United States, finds reasons for optimism in the Biden presidency.

- **What are the worst climate risks in your country?**
  Select a country, and we'll break down the climate hazards it faces.
- **Where are Americans suffering most?**
  Our maps, developed with experts, show where extreme heat is causing the most deaths in the U.S.

From: **TJ Carlson** tjcarlson@mosers.org
Subject: RE: Catch-up
Date: August 29, 2022 at 2:53 PM
To: Matt Cole matt.cole@strive.com
Cc: Vivek Ramaswamy vivek@strive.com

TC

Look forward to talking on Friday.

Best

TJ

From: Matt Cole <matt.cole@strive.com>
Sent: Monday, August 29, 2022 12:54 PM
To: TJ Carlson <tjcarlson@mosers.org>
Cc: Vivek Ramaswamy <vivek@strive.com>
Subject: Re: Catch-up

This email originated from outside of MOSERS

Hey TJ,

Just sent over an invite for Friday at 3 pm CST.

Looking forward to it,
Matt

On Sun, Aug 28, 2022 at 8:25 PM, TJ Carlson <tjcarlson@mosers.org> wrote:

> Sorry for the delay, I can do 4 CST on Thursday or 3 on Friday.
>
> Look forward to catching up.
>
> Best
>
> TJ
>
> Sent from my iPhone
>
> On Aug 28, 2022, at 1:40 PM, Vivek Ramaswamy <vivek@strive.com> wrote:
>
> **This email originated from outside of MOSERS**
>
> TJ, just wanted to make sure you received the message below. We wanted to share our concept with you, relating to shareholder engagement and proxy voting, should this be of interest to you. Hope you are well and happy to catch up this week

happy to catch up this week.

Warm regards,
Vivek

On Wed, Aug 24, 2022 at 6:32 PM Vivek Ramaswamy
<vivek@strive.com> wrote:

> Dear TJ,
>
> Hope you have been well since we last spoke. Matt Cole debriefed me on your most recent conversation with him - we appreciated you taking time with him.
>
> Since that time, we have been in dialogue with certain other states about a potential collaboration to assist them with their proxy voting and shareholder engagement needs, without the need to actually move assets. This offers a potentially more rapid path to addressing the "fiduciary gap" without the obstacles of actually evaluating or selecting new managers.
>
> I would love the opportunity to hear your thoughts briefly if you are available for a call later this week or next. Kindly let me know your thoughts.
>
> Warm regards,
> Vivek

From: **TJ Carlson** tjcarlson@mosers.org
Subject: RE: ESG meeting
Date: June 1, 2022 at 12:48 PM
To: Ronda Stegmann rondas@mosers.org, Abby Spieler abbys@mosers.org

I think that is a good call.
In general, I feel people tend to easily attach themselves to a high level idea from a third party without understanding the detailed pros and cons. I think we are trying to get at what are the Boards ideas on these topics and then we can look at whether or not we need to add any policies or make any portfolio changes to implement the Boards stated goals.
Just a quick thought.
TJ

From: Ronda Stegmann <rondas@mosers.org>
Sent: Wednesday, June 1, 2022 11:20 AM
To: TJ Carlson <tjcarlson@mosers.org>; Abby Spieler <abbys@mosers.org>
Subject: RE: ESG meeting
I haven't looked over the presentation yet but yes, think it makes sense to share with Eileen. Any updates/modifications can be made while she is reviewing or afterward.
The call with the STO will give us the opportunity to talk through the approach at the Board meeting and get his feedback prior to actually being in the meeting. Additionally, his office called with a presenter option of Mr. Vivek Ramaswamy. His office did say that they wanted to be transparent by making sure we know that Mr. Ramaswamy is putting together an ESG neutral investment option through his new-ish company, Strive Assessment Management. My thought is we want to keep this meeting to education and not include someone who is actively recruiting investors for a fund.
Success is a TEAM sport!

Ronda Stegmann
Executive Director | *MOSERS*

573-632-6110 rondas@mosers.org

From: TJ Carlson <tjcarlson@mosers.org>
Sent: Wednesday, June 1, 2022 10:21 AM
To: Ronda Stegmann <rondas@mosers.org>; Abby Spieler <abbys@mosers.org>
Subject: ESG meeting
Hi Ronda,
Saw the meeting with the Treasurer on ESG for next week.
Do you want Eileen to review the presentation before we share it with the Treasurer?
Best
TJ

From: **Eileen Neill** ENeill@verusinvestments.com
Subject: RE: [EXT] MOSERS Board Education & 2nd Qtr Meeting
Date: June 10, 2022 at 1:02 PM
To: Ronda Stegmann rondas@mosers.org
Cc: Abby Spieler abbys@mosers.org, TJ Carlson tjcarlson@mosers.org

This email originated from outside of MOSERS

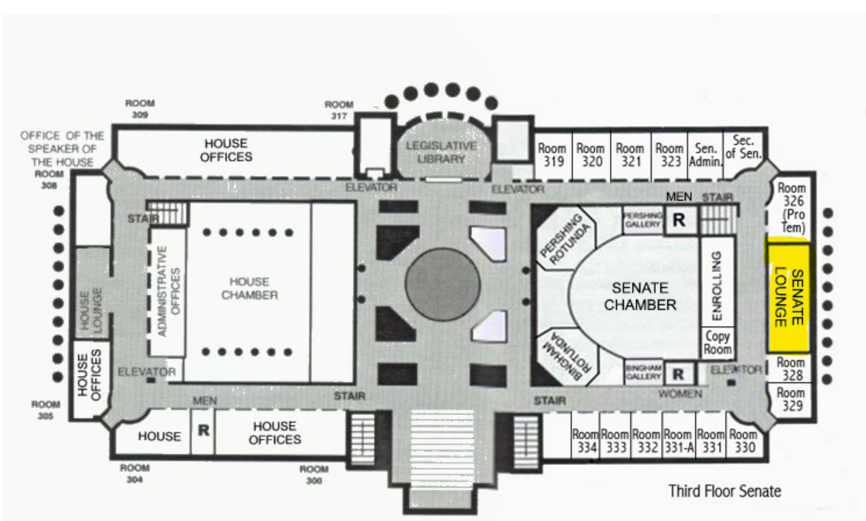
Thanks, Ronda. FYI, did you see Vivek's op-ed today in the Wall St. Journal he co-wrote with Riley Moore, Treasurer for the state of West Virginia (WVIMB is a Verus client)?

Eileen Neill, CFA
Managing Director I Senior Consultant
Verus
310-297-1777 I eneill@verusinvestments.com
2321 Rosecrans Avenue, Suite 2250, El Segundo, CA 90245
Consulting I **Outsourced CIO (OCIO)** I **Risk Advisory** I **Private Markets**
Celebrating 35 years Follow us on LinkedIn

From: Ronda Stegmann <rondas@mosers.org>
Sent: Friday, June 10, 2022 9:54 AM
To: Ronda Stegmann <rondas@mosers.org>
Cc: Abby Spieler <abbys@mosers.org>; TJ Carlson <tjcarlson@mosers.org>
Subject: [EXT] MOSERS Board Education & 2nd Qtr Meeting
CAUTION: Do not click links or open attachments unless you recognize the sender and know the content is safe. This email originated from outside of Verus.

Next week, on Wednesday, June 15th, the Board will hold its annual educational conference. This meeting is designed to assist the Board in meeting the governance-required 6 hours of annual education. This meeting will be held in the State Capitol building in the Senate Lounge. The Senate Lounge is located on the 3rd floor on the east side of the building (map below). The physical address of the building is 201 W. Capitol Ave, Jefferson City, MO.

Missouri State Senate
Map of the Third Floor of the State Capitol



We will have a full day of education beginning at 9:00 a.m. with presentations from Cavanaugh Macdonald, Verus, Vivek Ramaswamy with Strive Asset Management, and

Cavanaugh Macdonald, Verus, Vivek Ramaswamy with Strive Asset Management, and staff. We expect the day to end around 5:00 p.m.

Some things you need to know for **Wednesday, June 15th**:

- We have received 10 parking spaces in the Senate garage in **spaces 3 through 16** (you are welcome to use any of those spaces). These spaces are for Board members and consultants. Staff will work to consolidate in a few vehicles to ensure parking for all. The Senate garage is the circular garage on the Missouri River side of the Capitol building.
- It is important to note that if you do not have an ID badge that allows for access into the Capitol building, *you will need to go through the Security process* which is located at that entrance to the building, under the carriage tunnel on the Supreme Court side of the Capitol, so please allow a few extra minutes for that process.
- We will be having lunch in the restaurant in the basement of the Capitol. Melissa will get with you for your choice of lunch options.
- We are working to have time to take the Board into the Senate Chamber and to the Whispering Gallery/ top of the outside of the dome, if anyone is interested.
- We will have an "on your own" informal dinner for anyone who is interested at the Canterbury Hill Restaurant and Winery – located at 1707 S Summit Drive in Holts Summit.

On Thursday, June 16th, we will conduct the 2nd Quarter Meeting of the Board at the MOSERS Office Building. We will begin the meeting at 9:00 a.m.

We are looking forward to seeing everyone! If you have any questions between now and Wednesday, do not hesitate to contact me on my cell at 573-230-1116 at any time.

Thanks very much,

Ronda

Success is a TEAM sport!

Ronda Stegmann

Executive Director | *MOSERS*

573-632-6110 rondas@mosers.org

From: **Matt Cole** matt.cole@strivefunds.com
Subject: Re: Follow-up call
Date: July 12, 2022 at 6:06 PM
To: TJ Carlson tjcarlson@mosers.org

MC

This email originated from outside of MOSERS

TJ,

Do you have the availability to move our July 27th call Friday July 29th? If so, we're available all day, let us know a time that works for you.

Thanks,
Matt

On Fri, Jul 8, 2022 at 4:30 PM TJ Carlson <tjcarlson@mosers.org> wrote:

> Enjoyed the conversation as well, talk soon.
>
> TJ
>
> ---
>
> **From:** Vivek Ramaswamy <vivek@strivefunds.com>
> **Sent:** Friday, July 8, 2022 3:28 PM
> **To:** TJ Carlson <tjcarlson@mosers.org>
> **Cc:** Matt Cole <matt.cole@strivefunds.com>
> **Subject:** Follow-up call
>
> ## This email originated from outside of MOSERS
>
> TJ, great speaking with you. I am copying Matt who joined our call just now. We look forward to a follow-up discussion on July 27 at 3pm CT / 4pm ET. Thanks and talk soon.
>
> Regards,
>
> Vivek
>
> ---
>
>

From: **TJ Carlson** tjcarlson@mosers.org
Subject: RE: Follow-up call
Date: July 8, 2022 at 4:30 PM
To: Vivek Ramaswamy vivek@strivefunds.com
Cc: Matt Cole matt.cole@strivefunds.com

TC

Enjoyed the conversation as well, talk soon.

TJ

From: Vivek Ramaswamy <vivek@strivefunds.com>
Sent: Friday, July 8, 2022 3:28 PM
To: TJ Carlson <tjcarlson@mosers.org>
Cc: Matt Cole <matt.cole@strivefunds.com>
Subject: Follow-up call

This email originated from outside of MOSERS

TJ, great speaking with you. I am copying Matt who joined our call just now. We look forward to a follow-up discussion on July 27 at 3pm CT / 4pm ET. Thanks and talk soon.

Regards,
Vivek

From: **Scott Fitzpatrick** scott.fitzpatrick@treasurer.mo.gov
Subject: Re: MOSERS Board Education & 2nd Qtr Meeting
Date: June 14, 2022 at 8:54 PM
To: Ronda Stegmann rondas@mosers.org
Cc: Abby Spieler abbys@mosers.org, TJ Carlson tjcarlson@mosers.org, Brandon Alexander Brandon.Alexander@treasurer.mo.gov

SF

This email originated from outside of MOSERS

If you guys need additional parking for staff tomorrow, we should have some spaces available. Just holler at Brandon if you need them.

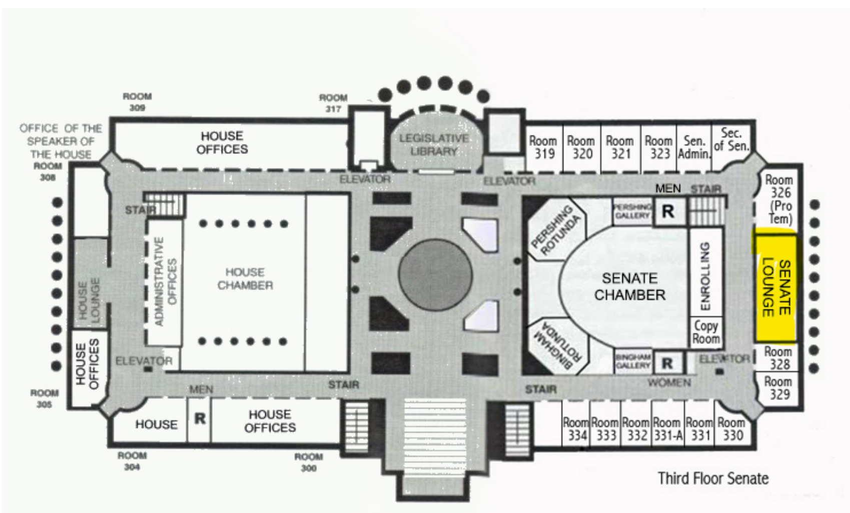
Scott Fitzpatrick
Missouri State Treasurer

Sent from my iPhone

> On Jun 10, 2022, at 12:47 PM, Ronda Stegmann <rondas@mosers.org> wrote:
>
> Next week, on Wednesday, June 15th, the Board will hold its annual educational conference. This meeting is designed to assist the Board in meeting the governance-required 6 hours of annual education. This meeting will be held in the State Capitol building in the Senate Lounge. The Senate Lounge is located on the 3rd floor on the east side of the building (map below). The physical address of the building is 201 W. Capitol Ave, Jefferson City, MO.

Missouri State Senate

Map of the Third Floor of the State Capitol



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> - We will be having lunch in the restaurant in the basement of the Capitol. Melissa will get with you for your choice of lunch options.

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On Thursday, June 16th, we will conduct the 2nd Quarter Meeting of the Board at the MOSERS Office Building. We will begin the meeting at 9:00 a.m.

We are looking forward to seeing everyone! If you have any questions between now and Wednesday, do not hesitate to contact me on my cell at 573-230-1116 at any time.

Thanks very much,

Ronda

Success is a TEAM sport!

Ronda Stegmann

Executive Director | *MOSERS*

573-632-6110 rondas@mosers.org

From: **Ronda Stegmann** rondas@mosers.org
Subject: Re: MOSERS Board Education & 2nd Qtr Meeting
Date: June 15, 2022 at 6:34 AM
To: Scott Fitzpatrick scott.fitzpatrick@treasurer.mo.gov

RS

Appreciate it. Thanks.

> On Jun 14, 2022, at 7:54 PM, Scott Fitzpatrick <scott.fitzpatrick@treasurer.mo.gov> wrote:
>
> **This email originated from outside of MOSERS**
>
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> Scott Fitzpatrick
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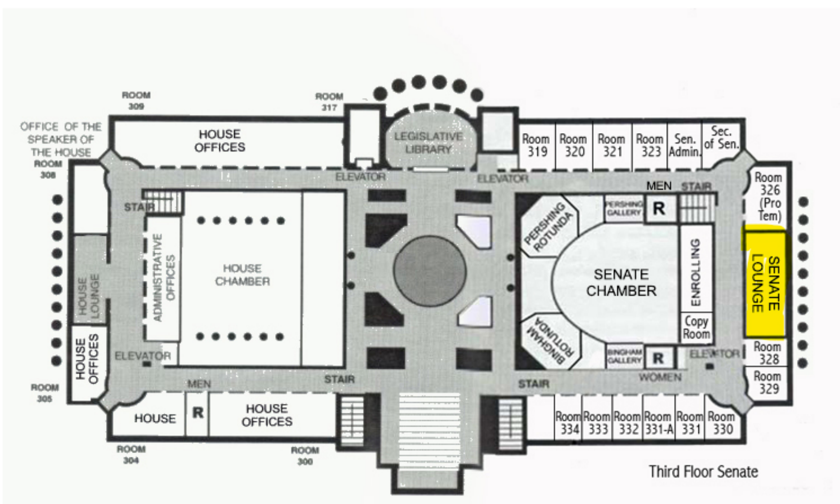

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We are looking forward to seeing everyone! If you have any questions between now and Wednesday, do not hesitate to contact me on my cell at 573-230-1116 at any time.

Thanks very much,

Ronda

Success is a TEAM sport!

Ronda Stegmann

Executive Director | *MOSERS*

573-632-6110 rondas@mosers.org

From: **Vivek Ramaswamy** vivek@strivefunds.com
Subject: Re: MOSERS follow up
Date: June 10, 2022 at 7:48 AM
To: Ronda Stegmann rondas@mosers.org
Cc: Melissa Johnson melissaj@mosers.org, Sierra Yoho sierra@strivefunds.com

VR

This email originated from outside of MOSERS

Dear Ronda,

Thank you for the kind invitation! I enjoyed speaking with you briefly yesterday, and I look forward to the event. My cell phone is 646-864-6895, and I have copied my assistant as well. I look forward to meeting you and your colleagues next week!

Warm regards,
Vivek

On Thu, Jun 9, 2022 at 3:13 PM Ronda Stegmann <rondas@mosers.org> wrote:

> Mr. Ramaswamy – This email is to confirm that we have discussed your attendance at the MOSERS Board of Trustees Annual Educational Conference on June 15, 2022. As mentioned, we will be having lunch in the Capitol building at approximately 11:30 a.m. CDT and you are welcome to join us. After lunch, we will be on the topic of ESG with you being the first presenter to speak. I will include you on an email communication to the Board members regarding logistics of the meeting.
>
> Melissa Johnson, our Board Administrator, will include you on any lunch-related communication as well.
>
> Please let me know that you have received this email. Appreciate it.
>
> Looking forward to meeting you next week,
>
> Ronda
>
> *Success is a TEAM sport!*
>
> Ronda Stegmann
> *Executive Director* | *MOSERS*
>
> 573-632-6110
>
> rondas@mosers.org
>
>

From: **Scott Fitzpatrick** Scott.Fitzpatrick@treasurer.mo.gov
Subject: Re: MOSERS Presentations
Date: June 14, 2022 at 8:57 PM
To: Ronda Stegmann rondas@mosers.org

SF

This email originated from outside of MOSERS

Thank you Ronda. See you tomorrow!

Scott Fitzpatrick
Missouri State Treasurer

Sent from my iPhone

> On Jun 10, 2022, at 11:48 AM, Ronda Stegmann <rondas@mosers.org> wrote:
>
> Treasurer – As mentioned, staff separated ESG & Proxy Voting topics into 2 presentations which are attached. They are, of course, going to be included in the Board packet but thought you might be interested in receiving a little earlier. When I spoke with Mr. Ramaswamy, he indicated that he would not be using a presentation.
>
> Also attached, is new information from BlackRock relative to a new offering. Under this new arrangement, clients can keep their asset invested in BlackRock commingled funds but have their relative proportion of the fund voted with their own customized Proxy Voting Policy. Just FYI.
>
> If you have any questions, please feel to reach out. Otherwise, we will look forward to seeing you on Wednesday.
>
> Thanks very much,
> Ronda
>
> *Success is a TEAM sport!*
>
> Ronda Stegmann
> *Executive Director* | *MOSERS*
>
> 573-632-6110 rondas@mosers.org
>
>

MOSERS ESG Educat...L).pptx

Proxy Voting (FINAL).pptx

PDF
MOSERS Operati...ck.pdf

From: **Ronda Stegmann** rondas@mosers.org
Subject: Re: Visit Today
Date: June 15, 2022 at 9:44 AM
To: Sierra Yoho sierra@strivefunds.com

RS

I believe it is just a metal detector. So should be fine. Do we need to order lunch for you? I know we have Mr. Ramaswamy's menu choice but didn't want to leave you out. Thanks.

> On Jun 15, 2022, at 8:28 AM, Sierra Yoho <sierra@strivefunds.com> wrote:
>
> ## This email originated from outside of MOSERS
>
> Hey Ronda-
>
> Just realized I don't have my ID with me and we're already on the plane. Hopefully it's just the metal detector!
>
> On Wed, Jun 15, 2022 at 9:03 AM Ronda Stegmann <rondas@mosers.org> wrote:
>
> > Sounds good. Thanks.
> >
> > > On Jun 15, 2022, at 7:02 AM, Sierra Yoho <sierra@strivefunds.com> wrote:
> > >
> > > ## This email originated from outside of MOSERS
> > >
> > > Thanks so much for your reply!
> > >
> > > Should be good to go but have your cell just in case!
> > >
> > > On Wed, Jun 15, 2022 at 8:00 AM Ronda Stegmann <rondas@mosers.org> wrote:
> > >
> > > > Good morning Sierra – I am assuming you saw the email I sent last week (below).
> > > >
> > > > The lunch is in the basement of the Capitol Building on the West side. Really can't miss it. It's the only cafeteria in the building.
> > > >
> > > > The security process is going through a metal detector at the entrance under the carriage tunnel on the south side of the building (across the street from the Supreme Court building.
> > > >
> > > > You are welcome to call me on my cell at 573-230-1116 at any time. I may have to step out of the meeting but all good.
> > > >
> > > > Thanks very much,
> > > >
> > > > Ronda
> > > >
> > > > Next week, on Wednesday, June 15th, the Board will hold its annual educational conference. This meeting is designed to assist the Board in meeting the governance-required 6 hours of annual education. This meeting will be held in the State Capitol building in the Senate Lounge. The Senate Lounge is located on the 3rd floor on the east side of the building (map below). The physical address of the building is 201 W. Capitol Ave, Jefferson City, MO.

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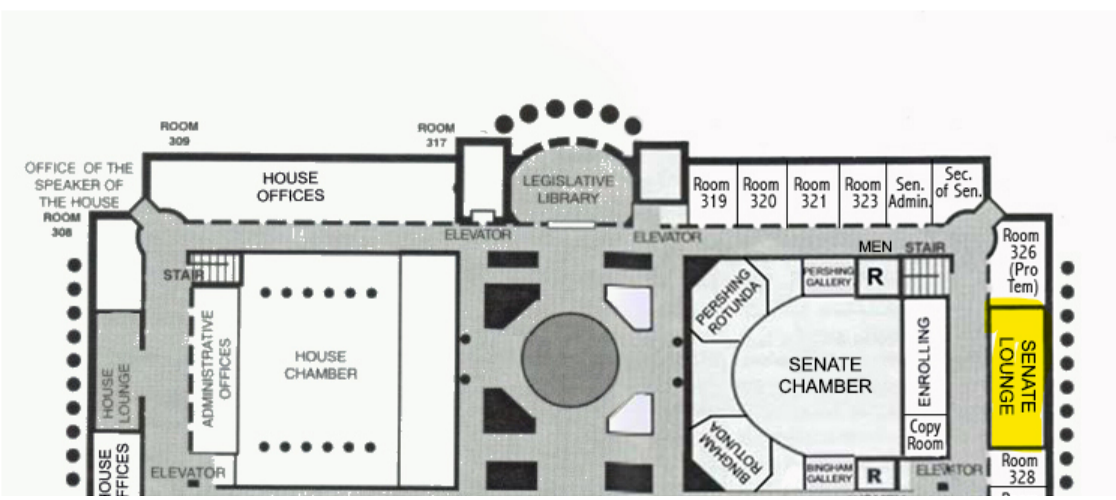

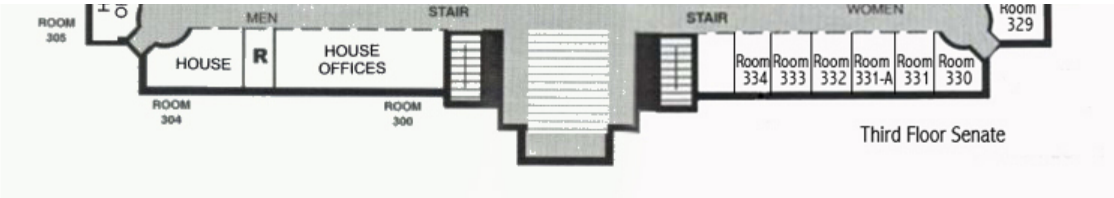

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Thanks very much,

Ronda

Success is a TEAM sport!

Ronda Stegmann

Executive Director | *MOSERS*

573-632-6110

rondas@mosers.org

From: Sierra Yoho <sierra@strivefunds.com>
Sent: Wednesday, June 15, 2022 6:43 AM
To: Ronda Stegmann <rondas@mosers.org>
Subject: Re: Visit Today

This email originated from outside of MOSERS

Also-

Will we need to go through the security process? If so can I get some more details on that?

Thanks so much!

On Wed, Jun 15, 2022 at 7:25 AM Sierra Yoho <sierra@strivefunds.com> wrote:

> Hi Ronda!
>
> I am Vivek Ramaswamy's assistant. Which room is the lunch in for today?
>
> Checking where I need to get him upon our arrival of at the Capitol building.
>
> If you have a cell to provide we can text if easier!
>
> Best,
>
> Sierra

614-867-7171

CONFIDENTIAL TRANSMISSION: This electronic communication is from the Missouri State Employees' Retirement System (MOSERS). This e-mail and any files transmitted with it are private and confidential and are solely for the use of the intended recipient. This message may contain material which is privileged or is otherwise protected by law. If you are not the intended recipient or the person responsible for delivering it to the addressee, you are requested to immediately delete the message and notify the sender or contact MOSERS by calling (573) 632-6100. Please be advised that if you have received this e-mail in error, any use, retention, disclosure, transmission, or copying of it is strictly prohibited.

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From: **Ronda Stegmann** rondas@mosers.org
Subject: Re: Visit Today
Date: June 15, 2022 at 10:12 AM
To: Sierra Yoho sierra@strivefunds.com

RS

Do you have the email that our board administrator sent about the menu options? If so, can you send her Patrick's selection? You are welcome to eat as well.

> On Jun 15, 2022, at 8:46 AM, Sierra Yoho <sierra@strivefunds.com> wrote:
>
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>
> I think just a meal for him and Patrick Feeley, his accompanying assistant
>
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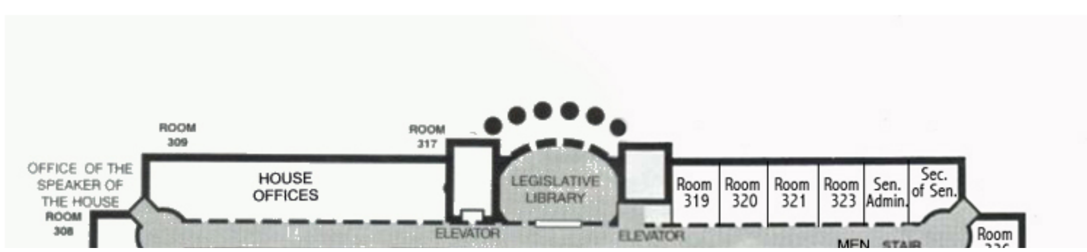
>>> # Missouri State Senate
>>>
>>> ***Map of the Third Floor of the State Capitol***
>>>
>>> 
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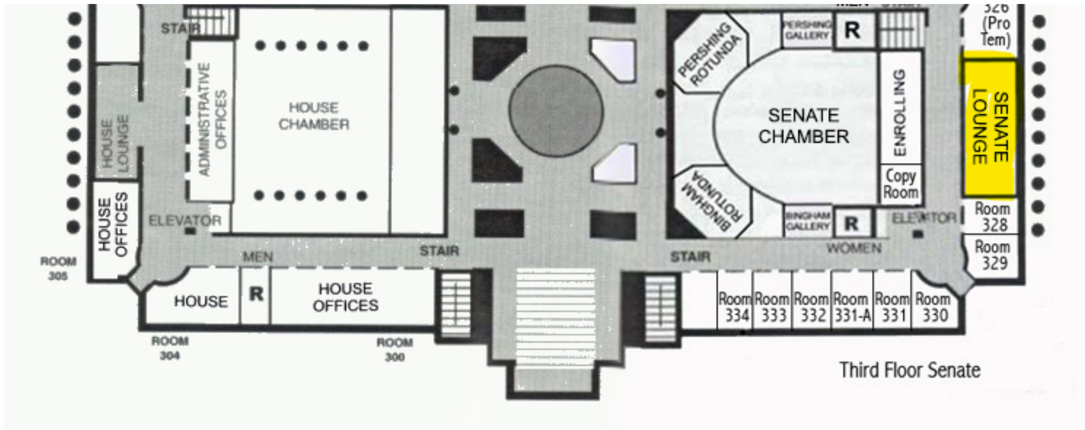

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We are looking forward to seeing everyone! If you have any questions between now and Wednesday, do not hesitate to contact me on my cell at 573-230-1116 at any time.

Thanks very much,

Ronda

Success is a TEAM sport!

Ronda Stegmann

Executive Director | MOSERS

573-632-6110

rondas@mosers.org

From: Sierra Yoho <sierra@strivefunds.com>
Sent: Wednesday, June 15, 2022 6:43 AM
To: Ronda Stegmann <rondas@mosers.org>
Subject: Re: Visit Today

This email originated from outside of MOSERS

Also-

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Thanks so much!

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Sierra

614-867-7171

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From: **Ronda Stegmann** rondas@mosers.org
Subject: RE: Visit Today
Date: June 15, 2022 at 8:00 AM
To: Sierra Yoho sierra@strivefunds.com

RS

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Missouri State Senate

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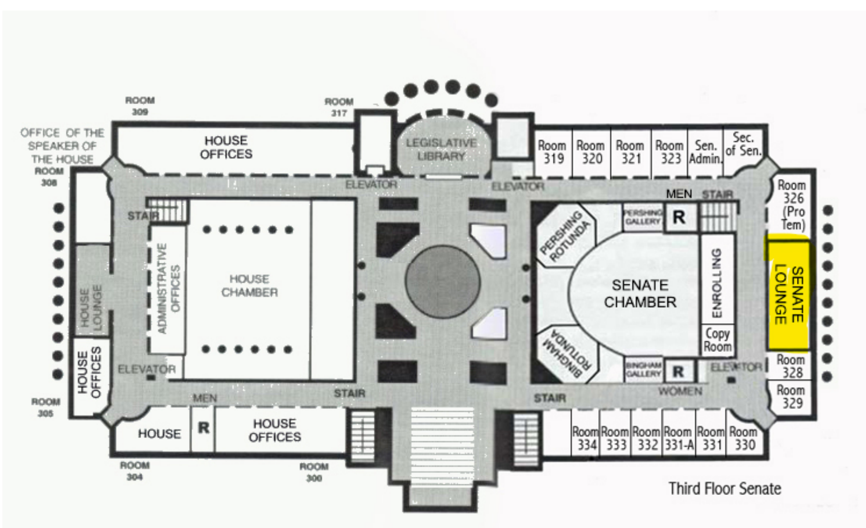

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From: **Sierra Yoho** sierra@strivefunds.com
Subject: Re: Visit Today
Date: June 15, 2022 at 8:02 AM
To: Ronda Stegmann rondas@mosers.org

SY

This email originated from outside of MOSERS

Thanks so much for your reply!

Should be good to go but have your cell just in case!

On Wed, Jun 15, 2022 at 8:00 AM Ronda Stegmann <rondas@mosers.org> wrote:

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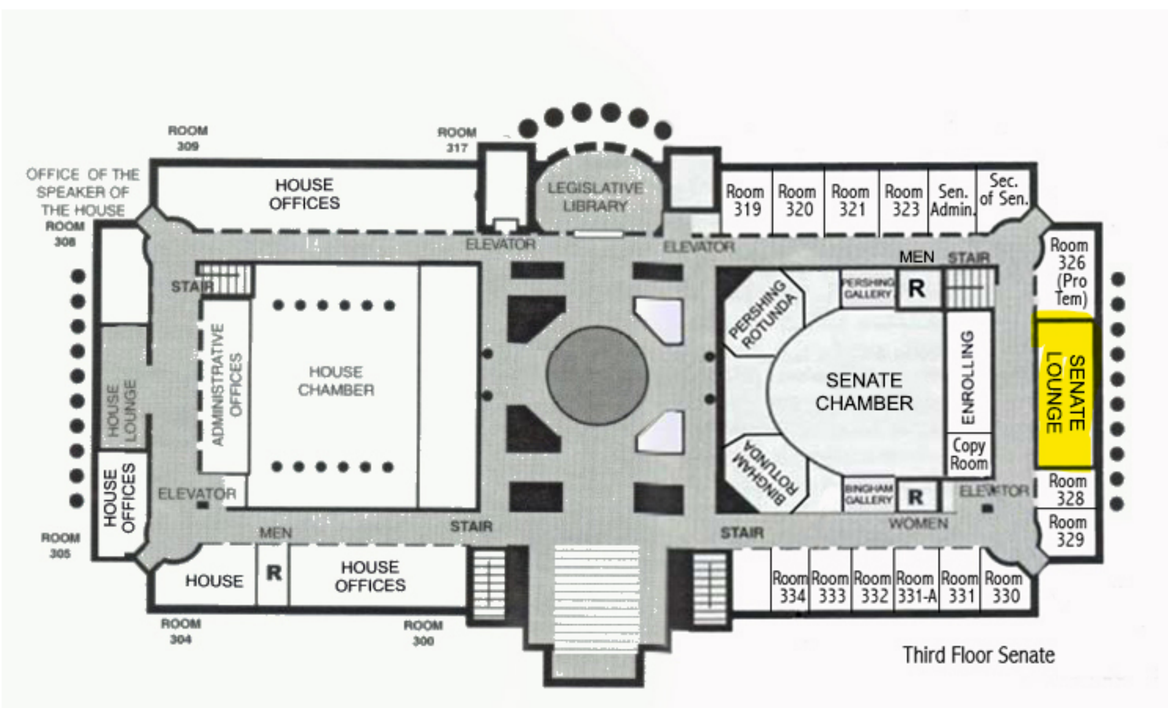

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MOSERS

Missouri State Employees' Retirement System
2022 Board of Trustees Education Program
Missouri State Capitol Building, Senate Lounge, Jefferson City, MO
www.gotomeeting.com, Meeting ID 649-658-117
June 15, 2022 – 9:00 a.m.
Agenda

Open Session

9:00 a.m. – 10:00 a.m.	ASOP 4 Overview *Pat Beckham & Bryan Hoge, Cavanaugh Macdonald Consulting*
10:00 a.m. – 10:15 a.m.	Break
10:15 a.m. – 11:30 a.m.	Asset Allocation *Eileen Neill, Verus Investments*
11:30 a.m. – 12:15 p.m.	Lunch
12:15 p.m. – 1:00 p.m.	Environmental, Social, and Governance (ESG) *Vivek Ramaswamy, Strive Asset Management*
1:00 p.m. – 2:30 p.m.	Environmental, Social, Governance (ESG) (continued) *TJ Carlson, MOSERS* *Abby Spieler, MOSERS* Proxy Voting Discussion *TJ Carlson, MOSERS*
2:30 p.m. – 2:45 p.m.	Total Compensation – The Value of Benefits *Ronda Stegmann, MOSERS*
2:45 p.m. – 3:30 p.m.	Senate Chamber Tour/Whispering Gallery
3:30 p.m. – 4:30 p.m.	DC Annual Report *Cindy Rehmeier, MOSERS*

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Cavanaugh Macdonald
CONSULTING, LLC
The experience and dedication you deserve

Recent Changes to Actuarial Standard of Practice Number 4

Presented by:

Cavanaugh Macdonald Consulting, LLC

Actuarial Standards of Practice (ASOPs)

- Provides practicing actuaries with guidance about how to perform certain aspects of actuarial work
- Credentialed actuaries must follow ASOPs
- 56 ASOPs but applicable ASOPs vary with practice area, e.g., life, health, casualty and pension work
- Key ASOPs applicable for pension work include:
  - ASOP 4: Measuring Pension Obligation
  - ASOP 23 : Data Quality
  - ASOP 27: Economic Assumptions
  - ASOP 35: Demographic Assumptions
  - ASOP 41: Actuarial Communications
  - ASOP 44: Asset Valuation methods
  - ASOP 51: Assessment and Disclosure of Risk
  - ASOP 56: Modeling

ASOP 4: Measuring Pension Obligations

- Prior version revised December 2013
- Current changes evolved over many years with various types of feedback from practicing actuaries
  - Heavy focus on public plans although the standard applies to all plans
  - Three exposure drafts (March 2018, December 2019, June 2021)
  - Revised ASOP 4 issued in December 2021
    - Effective for measurement dates on/after February 15, 2023 (June 30, 2023 valuation for MOSERS)

Changes Impacting Public Plans

- Changes Impacting Public Plans
  - Disclose Low-Default Risk Obligation Measure (LDROM)
  - Disclose Reasonable Actuarially Determined Contribution (ADC)
    - New guidance on amortization of the unfunded actuarial accrued liability
  - Assess implications of Contribution Allocation Procedure (CAP) or Funding Policy
  - Other changes
    - Output Smoothing Methods
    - Addressing contribution lag
    - Gain/loss analysis

Low Default Risk Obligation Measure

- There are several different actuarial cost methods that can be used (which result in different liability measurements). Most systems using Entry Age Normal will likely use the same cost method for the LDROM.
- Discount rate reflects low default risk fixed income securities whose cash flows are reasonably consistent with the benefits expected to be paid. The standard includes non-prescriptive list of examples including:
  - US Treasury yields
  - Highly rated tax-exempt municipal bonds or corporate bonds
  - Rates implicit in settlement of pension obligations like payment of lump sums or purchase of annuities (generally not applicable for large public plans)

Low Default Risk Obligation Measure

- One interpretation of LDROM is the ongoing funding liability if the plan invested in low default risk securities rather than a diversified portfolio
  - Difference in LDROM and Actuarial Accrued Liability measures the reduction in liability (savings) from investing in a diversified portfolio

- Key Concern: Some will say the LDROM finally shows the "true cost" of the pension promise by no longer reflecting the future investment risk

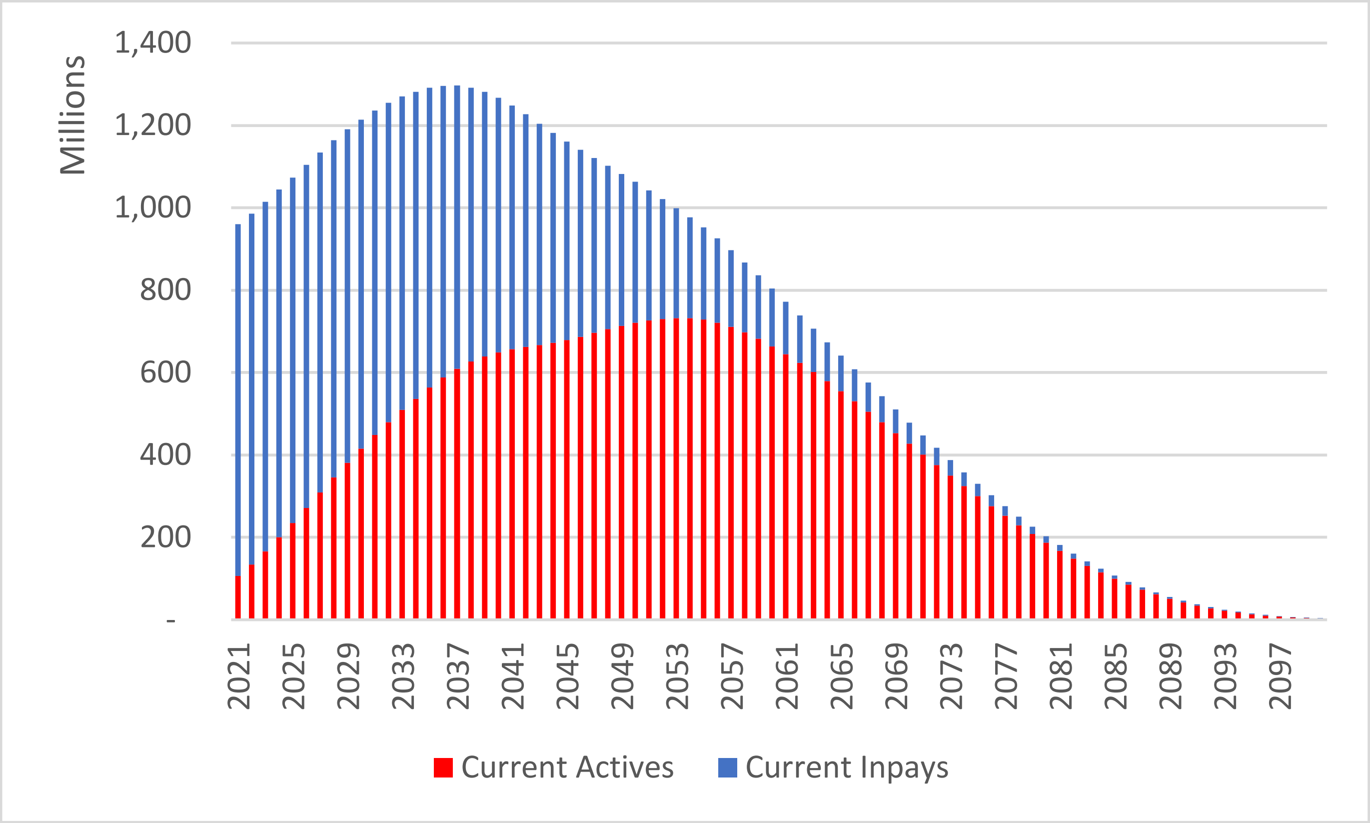
LDROM Decision Points

- What discount rate should we use?
  - Tax-exempt bonds
  - Taxable corporate bonds
  - US Treasury bonds or settlement rate

- Where to present the LDROM disclosure in the report?
  - Suggest including it with other risk assessment information in the ASOP 51 section of the MOSERS report (Section 7 "Risk Measures")
  - Consistent with other material regarding assessment of risk
  - Easily misunderstood so a good explanation is extremely important

LDROM Example

➢ Current expected benefit payments for MSEP



➢ One potential discount rate

- Discounted benefit payments back to June 30, 2021 using the Treasury yields in place at that time (1.93% effective LDROM rate)
- Rate may change with every valuation date which will impact the liability measurement.

LDROM Example

- C + I = B + E
  - Lower **I**nvestment earnings would mean higher **C**ontributions

- Shows the savings of investing assets with a prudent amount of risk

Valuation Date	June 30, 2021
Actuarial Accrued Liability (6.95%)	$15,110,646,537
Low Default Risk Obligation Measure (1.93%)	$29,003,721,824

LDROM Disclosures

- Discount rate and rationale for selection
- Assumptions that differ from the funding valuation along with explanation
- Cost method used (even is same as funding valuation)
- Explanation of any plan provisions valued differently from the funding valuation
- Commentary to help the intended user understand the LDROM measure with respect to funded status, contributions and benefit security
  - What about unintended users?

LDROM Complexities

- Plans with risk-sharing provisions present complications for the LDROM value. Examples include:
  - Additional benefits triggered if actual returns exceed expected returns like COLAs
  - Cash balance plans with dividends that vary with actual returns
  - Other variable benefit designs
- If benefits are related to investment returns, the actuary may reflect how the benefits change with the LDROM discount rate
- Can also adjust other assumptions so consistent with discount rate
- MOSERS does not have any of these type of provisions so the LDROM calculation will be straightforward

LDROM Conclusions

- Remember, only the liability measure must be disclosed, not the funded status or unfunded portion of the liability
- Ease of calculation: must be immediate gain cost method
  - Use same cost method, if possible, or different one (lower liability)
- Communication challenges
  - How to communicate what LDROM represents (and what it doesn't)
  - Reasons for and explanation of various liability measurements (funding liability, GASB liability, LDROM liability)
  - ASOP 41 concerns
    - Potential mis-use of information
    - Potential misunderstanding of information
  - Language and presentation of LDROM likely to evolve over time as we get feedback from clients and other actuaries

Reasonable Actuarially Determined Contribution

- **With any funding valuation**, the actuary should calculate and disclose a reasonable actuarially determined contribution (ADC) except when assumptions/methods set by law
- An ADC is reasonable if
  - "Reasonable assumptions" rules under ASOPs 27 and 35 are met
  - Actuarial cost method meets the ASOPs requirements
  - Asset smoothing method is consistent with ASOP 44
  - Amortization method is consistent with ASOP 4, including no perpetual negative amortization (increasing dollar amount of UAAL)
  - Contribution allocation procedure results in the plan accumulating sufficient assets to make benefit payments when due
    - Assuming all assumptions are met and the actuarially determined contribution is made
  - Output smoothing method, if any, meets ASOP 4

New Guidance on UAAL Amortization

- Each individual base either
  - Fully amortized in a reasonable period of time or
  - Reduce outstanding balance by reasonable amount each year
  - Precludes rolling negative amortization

- Similar conditions on total amortization payments
  - Total payments must reduce outstanding balance by a reasonable amount within a sufficiently short period of time

- Fixed contribution rate plans have to determine if fixed rate is the ADC or a different ADC is determined

Determination of "Reasonable Period"

- Seven possible factors in determining "reasonable period" or amount
  - Method open or closed
  - Source of the amortization base
  - Pattern of payments including how long until payments exceed interest on the outstanding balance
  - Base positive or negative?
  - Duration of the actuarial accrued liability
  - Average remaining service lifetime of active members
  - Funded status or period to plan insolvency

MOSERS Amortization of UAAL

Amortization Base	Original Amount	Remaining Payments	Projected June 30, 2022 Balance	Annual Payment*
2018 Legacy UAAL	$ 4,861,507,879	27	$ 4,951,993,017	$ 320,218,960
2019 Assumption Changes	74,340,841	28	75,242,356	4,776,757
2019 Experience Base	259,714,456	28	262,863,955	16,687,906
2020 Assumption Changes	124,766,739	29	125,516,840	7,831,829
2020 Experience Base	196,930,919	29	198,114,873	12,361,703
2021 Assumption Changes	515,859,705	25	515,859,705	34,739,368
2021 Experience Base	$ 152,907,202	25	152,907,202	10,297,179
Total			**$ 6,282,497,948**	**$ 406,913,702**

* Payment amount reflects mid-year timing.

1. Total UAAL Amortization Payments	$	406,913,702
2. Expected Payroll for FYE 2023	$	2,099,195,375
3. UAAL Amortization Payment Rate (1) / (2)		19.38%

MOSERS Amortization of UAAL

As of June 30	2018 Legacy UAAL	2020 Exp Base	2021 Assump Chg	Total UAAL
	Outstanding Balance (BOY)			
2022	4,951,993,017	198,114,873	515,859,705	6,282,497,948
2023	4,964,996,865	199,099,800	515,785,670	6,298,315,105
2024	4,971,453,387	199,865,537	514,898,148	6,305,763,185
2025	4,970,739,896	200,390,381	513,122,414	6,304,047,497
2026	4,962,186,654	200,650,970	510,378,140	6,292,313,329
2027	4,945,073,518	200,622,173	506,578,998	6,269,641,664
2028	4,918,626,355	200,276,958	501,632,232	6,235,044,600
2029	4,882,013,194	199,586,261	495,438,200	6,187,460,454
2030	4,834,340,120	198,518,837	487,889,889	6,125,748,516
2031	4,774,646,876	197,041,107	478,872,393	6,048,683,438
2032	4,701,902,153	195,116,992	468,262,349	5,954,949,234
2033	4,614,998,562	192,707,735	455,927,344	5,843,132,854
2034	4,512,747,242	189,771,712	441,725,273	5,711,717,316
2035	4,393,872,095	186,264,228	425,503,656	5,559,074,348
2036	4,257,003,627	182,137,301	407,098,902	5,383,456,530
2037	4,100,672,342	177,339,425	386,335,529	5,182,988,871
2038	3,923,301,689	171,815,328	363,025,325	4,955,659,806
2039	3,723,200,510	165,505,699	336,966,450	4,699,311,569
2040	3,498,554,960	158,346,908	307,942,478	4,411,629,880
2041	3,247,419,864	150,270,699	275,721,369	4,090,132,928
2042	2,967,709,474	141,203,863	240,054,373	3,732,159,570
2043	2,657,187,575	131,067,893	200,674,854	3,334,856,718
2044	2,313,456,906	119,778,606	157,297,035	2,895,165,839
2045	1,933,947,838	107,245,747	109,614,650	2,409,808,517
2046	1,515,906,268	93,372,562	57,299,513	1,875,271,005
2047	1,056,380,662	78,055,338	0	1,287,787,764
2048	552,208,203	61,182,918	0	724,557,653
2049	0	42,636,176	0	107,496,633
2050	0	22,287,459	0	36,407,856
2051	0	0	0	0

- 2018 Legacy UAAL Base (largest base) has two more years of negative amortization
- 2020 Experience Base (and 2020 Assumption Change base which is not shown) has four more years of negative amortization
- All new bases beginning in 2021 and after have no negative amortization due to reducing the period to 25 years
- Standard will first be effective for the June 30, 2023 valuation
  - Limited negative amortization at that time
- Our professional judgement is that the amortization method is reasonable given the current assumptions

MOSERS' Funding Policy

➢ Will MOSERS' current funding policy meet the requirements of the new ASOP 4 with respect to a reasonable actuarially determined contribution?

- Cost method: Entry Age Normal ✓
- Asset valuation method: Difference between actual and expected investment returns on market value of assets recognized evenly over a five-year period ✓
- Amortization of UAAL:
  - "Layered" base approach ✓
  - Closed period for bases ✓
  - Period for new experience bases = 25 years ✓
  - Period for existing bases = 30 years ✓

Considerations in Selecting Contribution Allocation Procedure

- Balance among benefit security, intergenerational equity, and contribution stability

- Timing and duration of expected benefit payments

- Nature and frequency of plan changes

- Input from plan sponsor such as funding goals like reaching full funding within a specified timeframe

Implications of CAP or Funding Policy

- Qualitative assessment of contribution allocation policy/funding policy on plan's expected future contributions and funded status
- Estimate how long before contributions determined by the Funding Policy are expected to exceed normal cost plus interest on the UAAL
- Estimate when UAAL is expected to be fully amortized
- Assess whether the funding policy is significantly inconsistent with accumulating assets adequate to make future benefit payments when due
  - Estimate asset depletion date, if applicable

Output Smoothing Method

- Information only - Not applicable to MOSERS
- Output smoothing method (OSM) is a mechanism that provides smoothing of contributions
  - Phase in impact of assumption changes
  - Blending of current and prior valuations
  - Limitations/caps on the change in the contribution rate from year to year
- Requires the OSM to produce a value that does not fall below a reasonable range around the ADC
- Requires differences between the OSM and ADC to be recognized within a reasonable time period
- Both are required, not one or the other
- Also required to disclose what ADC would be without OSM

Other Relevant Items in ASOP 4

- Contribution Lag
  - Calculation of the ADC should reflect the passage of time between the measurement date and the expected timing of actual contributions

- Gain/Loss Analysis
  - Should be performed in funding valuation unless very small plan
  - Separate the total gain/loss into investment gain/loss and other gain/loss

- Both are already addressed in the MOSERS' annual valuation

Summary Comments

- Changes to ASOP 4 reflect the continuing concern of the actuarial profession with funding practices in public plans
  - Corporate plans are heavily regulated and contribution requirements are defined by the federal government
  - Public plans have no uniform set of funding standards so there is a wide range of funding practices
  - Actuarial profession feels a strong obligation to the public, especially for public plans that rely heavily on actuarial expertise in funding the plans. Also, a desire to protect the reputation of the profession so more guidance was deemed desirable

- While the changes are not necessarily what we wanted to see, we are bound to comply with the standard. Furthermore, the changes are not as extreme as earlier exposure drafts of ASOP 4.

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PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

Asset Allocation Process Education

Missouri State Employees Retirement System

JUNE 15, 2022

Table of contents

Verus

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Objectives

- Arrive at common understanding of:
  - how fiduciaries should define “risk”
  - asset-liability decision making framework
  - “best practices” approach to selecting appropriate asset allocation policy
- Identify asset allocation policies to move forward in asset-liability analysis

What is risk?

- How do you define investment risk?
  - Losing capital
  - Volatility of returns
  - Falling short of financial goals
  - Return experience different from expectations
  - Comparison to peers
  - Bad headlines

While all risk definitions apply, most important for institutional pension funds is falling short of financial goals

How should a pension fund fiduciary should think about risk?

"Risk is any uncertainty with respect to investments that has potential to negatively affect financial welfare."[1]

- Key risk = inability to sufficiently fund promised benefit obligations (projected benefit payments for current fund population)

Current Assets + Investment Returns + Future Contributions = Future Benefits & Expenses

Risk: Contributions + Assets + Returns < Promised Benefit Payments

- Public pension funds only directly control assets through investment decisions.
  - No direct control of contributions, but these are impacted through results of investment decisions.

[1] *Source: FINRA (Financial Industry Regulatory Authority)*

What risks should be taken?

- Risk must be taken in order to grow assets sufficiently to meet objective (i.e., funding benefit payments).
  - Key is identifying risks with sufficient rewards to justify taking the risk.
- Risks to be considered:
  - Market (can't be diversified away)
  - Default
  - Liquidity
  - Concentration (lack of diversification)
  - Inflation
  - Socio-political (e.g., war, famine, power struggles, etc.)

What determines risk appetite?

- *Time horizon* – longer time horizon means can take greater risk
  - As ongoing plan, MOSERS has very long time horizon (30+ years)
- *Probability of loss* – what is likely occurrence of severely negative outcome? (e.g., 2008)
  - Although a low probability event, when it occurs, it has potential long-term impact due to severity
- *Magnitude of loss* – what is impact of bad outcome?
  - Losses can be so great as to cause permanent failure to achieve financial goals

Objective is to take enough risk to maximize ability to achieve financial goals. *How do we know how much risk is enough?*

Answer: asset allocation process

Asset allocation process

Fiduciary decision making process

Fiduciaries should develop thoughtful **strategic asset allocation** to balance risk and reward based on organization's objectives, risk tolerance and time horizon.

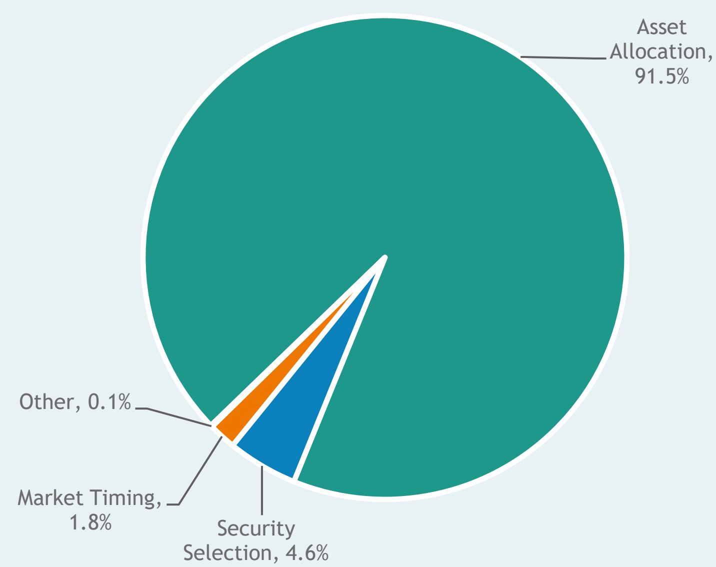
Asset allocation decision

Asset allocation drives the bulk of the variation in portfolio returns over time

ACADEMIC SUPPORT:

- Gary P. Brinson, L. Randolph Hood, and Gilbert L. Beebower. "Determinants of Portfolio Performance". Financial Analysts Journal, July/August 1986.
- Gary P. Brinson, Brian D. Singer, and Gilbert L. Beebower. "Determinants of Portfolio Performance II: An Update". Financial Analysts Journal, 47, 3 (1991).
- Roger G. Ibbotson and Paul D. Kaplan. "Does Asset Allocation Policy Explain 40%, 90%, or 100% of Performance?" Financial Analysts Journal, January/February 2000.

PERCENT OF VARIATION EXPLAINED



Asset allocation is the most important decision we make as investors

Source: Brinson, Singer & Beebower: Determinants of Portfolio Performance II: An Update

'Functional' asset allocation

- Why invest in various asset classes?
- What is their expect contribution to portfolio over time?
- What determines whether or not they serve intended role?

	RETURN ROLES				DIVERSIFICATION & VOLATILITY ROLES			HOW MACRO OUTLOOK/GDP AFFECTS ROLE	
	Benefit from GDP Growth	Earn Risk Premium	Produce Stable Income	Hedge Against Inflation	Low Absolute Volatility	Low Corr. To Other Assets	Reduce Portfolio Volatility	Elements of Return for Asset Class	Sensitivity of Role to GDP
Public Equities	●	◕	◔	◑	○	◔	◔	PEs, Dividends, Earnings Growth	●
Private Equities	●	●	○	○	◔	◑	◑	PEs (exits), Financing, Opportunity Set	◕
Fixed (Treasury)	○	○	●	◔	●	◑	●	Direct Link to Yields	◑
Fixed (Credit)	◑	◔	●	◔	◕	◑	◕	Direct Link to Yields, Credit Spreads	◕
Alternative Beta (Perceived role)	○	◔	○	○	●	●	●	PEs, Credit Spreads, Fat Tails	◑
Real Estate	◕	◑	◕	●	◑	◕	◑	Unemployment, Vacancies, Cap Rates	●

Magnitude: ● High ◕ Med-High ◑ Medium ◔ Low ○ None

Economic conditions & asset class returns

Rising Growth

Equities	Emerging Market Debt
Commodities	Real Estate
Corporate Bonds	Infrastructure

Falling Growth

Government Bonds	Inflation Linked Bonds
Corporate Bonds	
Emerging Market Debt	

Rising Inflation

Inflation Linked Bonds	Infrastructure
Commodities	
Real Estate	

Falling Inflation

Equities	Emerging Market Debt
Government Bonds	
Corporate Bonds	

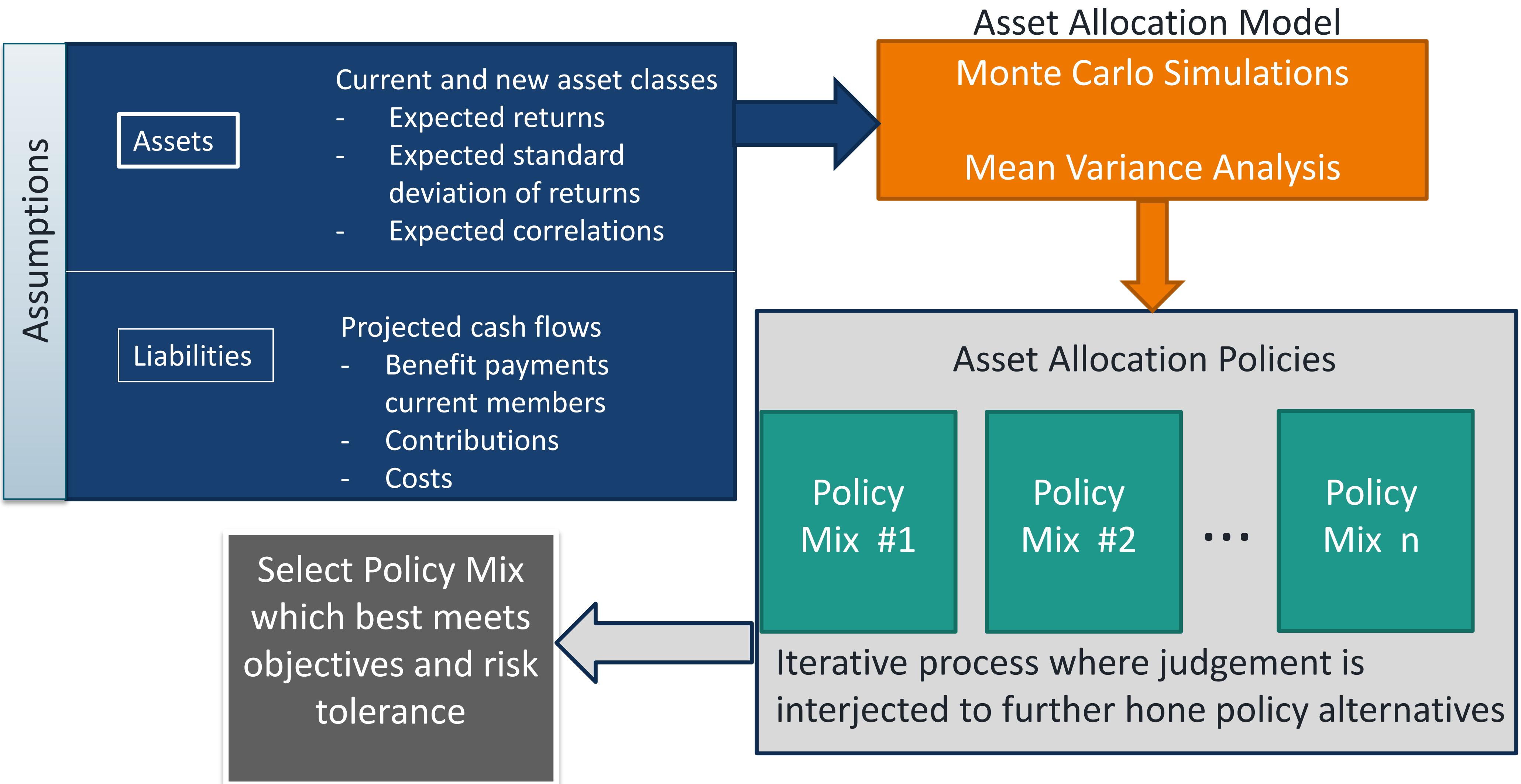
Diversification by economic regime is another approach to answering the same question

Asset allocation process

- **Define investment goals** –

  (1) improve funding ratio
  (2) preservation of capital over the long term
  (3) develop Required Return Objective ("RRO") to maintain reasonably level contribution rates. The current RRO is 4.70%.
  (4) establish policy to meet RRO while minimizing impact on contribution rates from fund volatility
- **Define risk** – inability to meet promised benefit payments to current fund members
- **Time horizon** – long; 30+ years
- **Assess alternative policy allocations** relative to current policy and actual portfolio allocations in terms of investment goals and risk tolerance
- **Identify reasonable policy alternatives** which may better achieve investment goals given associated risk and fund's unique requirements (statutory or otherwise)
- **Select most appropriate policy** given investment goals and risk tolerance
- **Implement** selected policy using dollar cost averaging approach adjusting for market conditions
- **Regularly monitor and re-balance** back to policy when necessary
- **Re-engage in asset allocation process every 3 to 5 years**

What is "best practices" approach to asset allocation process for public pension funds?



Assets – Capital Markets Assumptions

- 10-year forecasts for individual asset classes (*See appendix for details*) developed by Verus investment research professionals and bucketed by risk drivers (i.e., Growth, Income, Inflation)
  - Why not 30-years to match MOSERS' time horizon?
  - Why bucket asset classes?

Monte Carlo simulation

Construction

— Inputs from capital market assumptions are used to simulate portfolio returns and volatility 2,000 times for 10-year period

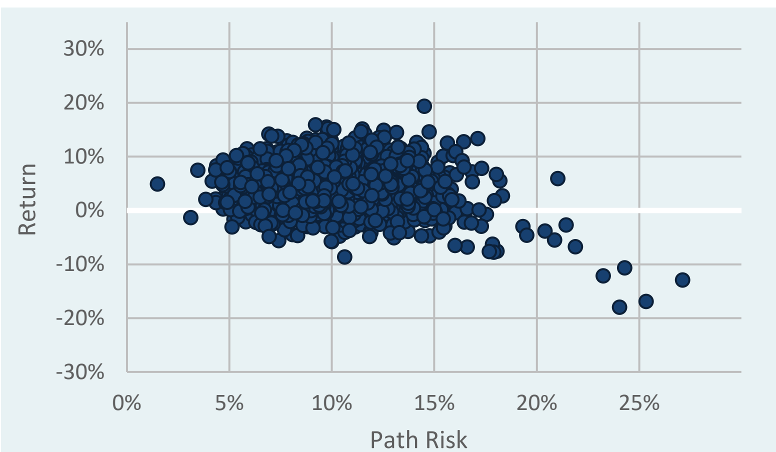
Purpose

— Examine possible tail risks in portfolio that may not be apparent from single risk-return perspective

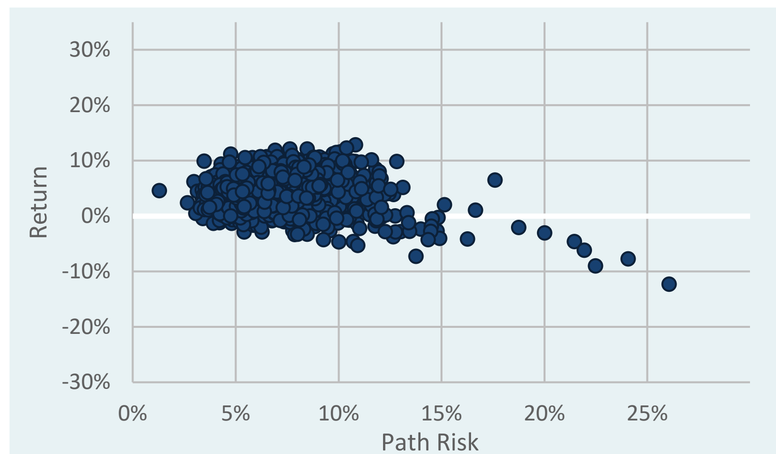
— Determine probability of meeting a given return

Output

70/30 S&P 500/BC Agg



50/50 S&P 500/BC Agg



Mean Variance analysis

Construction

- Disciplined framework for analyzing investment portfolios from asset-only perspective
- Predicated upon Modern Portfolio Theory
  - Investors prefer to minimize risk for any combination of asset classes they are considering allocating to

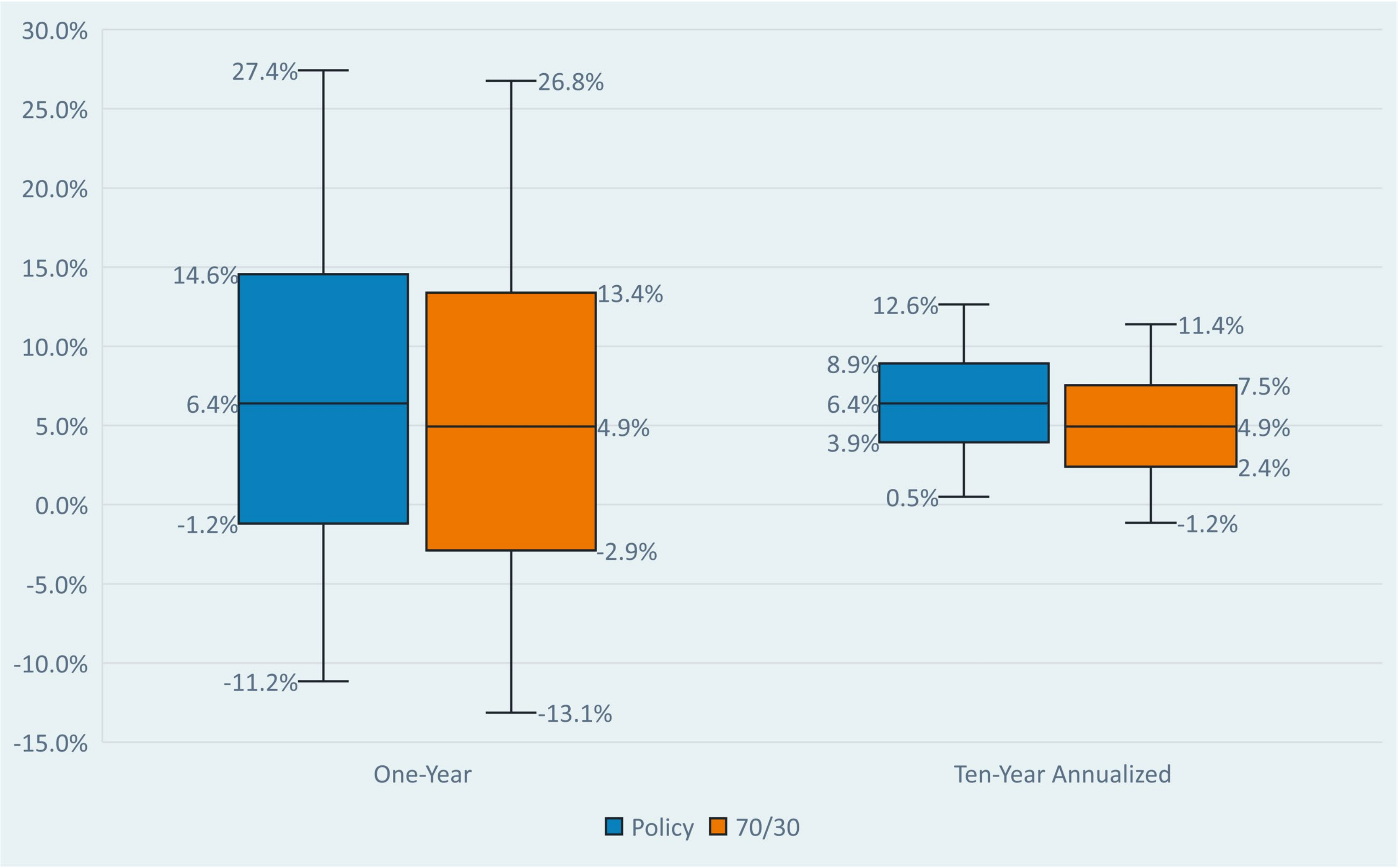
Purpose

- Identify highest returning portfolio for the level of risk reflected by combining varying asset class exposures
- Efficient, objective approach to whittling down feasible portfolio mixes to consider from Monte Carlo Simulation process

			Verus 2022 CMA's (10 Yr)			
	Policy	70/30	Return (g)	Return (a)	Standard Deviation	Sharpe Ratio (a)
Global Equity	30	70	5.7	7.1	17.3	0.39
Private Equity	15		9.5	12.4	26.0	0.46
Total Growth	***45***	***70***				
US Treasury (7-10 Year)	25		1.5	1.7	6.8	0.20
Core Fixed Income	10	30	2.2	2.3	4.1	0.46
Total Income	***35***	***30***				
Commodities	5		3.0	4.2	15.9	0.24
TIPS	25		1.7	1.8	5.3	0.27
Private Real Assets (Core & Value Add)	5		7.0	7.9	13.6	0.55
Other Public Real Assets (Infra)	5		6.6	8.0	17.6	0.43
Total Inflation Hedge	***40***					
Direct Hedge Funds	5		3.8	4.1	7.7	0.48
Absolute Return	10		4.8	5.1	7.7	0.61
Private Credit	5		6.8	7.8	14.6	0.51
Total Absolute Return	***20***					
Cash	-40		0.4	0.4	1.2	-
Total Fund	**100**	**100**				

	Policy	70/30
Mean Variance Analysis		
Forecast 10 Year Return	***6.4***	***4.9***
Standard Deviation	11.8	12.2
Return/Std. Deviation	*0.5*	*0.4*
1st percentile ret. 1 year	*-17.6*	*-19.7*
Sharpe Ratio	0.55	0.42

Range of likely outcomes



Source: MPI & Verus

From top-to-bottom, percentiles shown are 5th, 25th, 50th, 75th, and 95th

Tail risk and stress tests

Construction

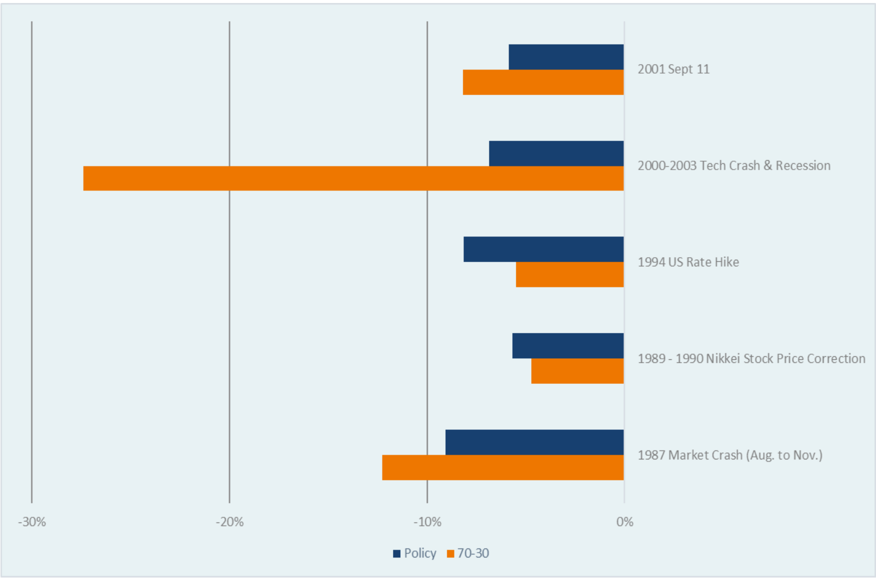
— In Verus' tail risk tool, factor shocks are used to calculate portfolio performance in times of financial stress such as the 2008 global financial crisis or the 2001 tech bubble

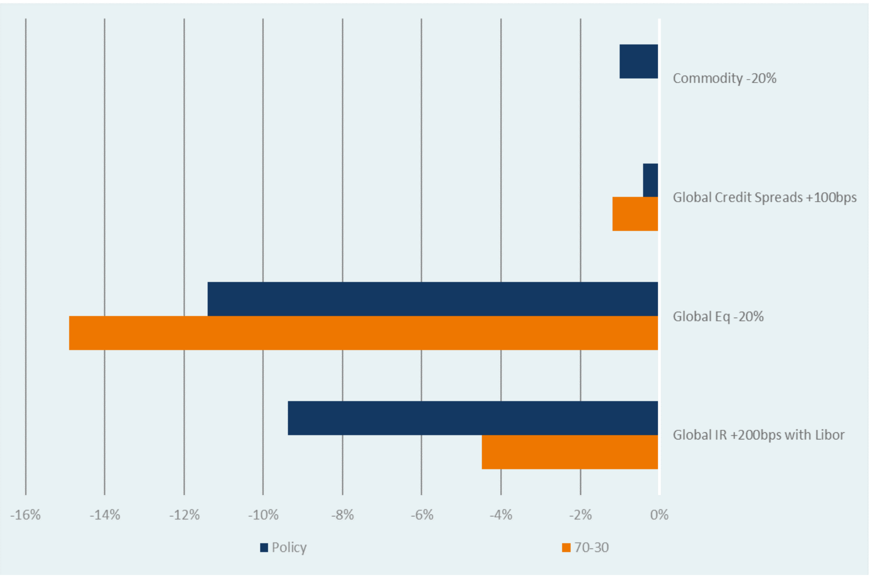
— Verus' stress test tool uses a proprietary model to instantly shock portfolio risk factors and determine how a portfolio is expected to have performed

Purpose

— Examine risk in a portfolio by looking at how a portfolio would have performed during historical periods of market stress or how a portfolio might be expected to perform if certain factors were shocked

Output





Risk decomposition analysis (example)

Construction

— Verus uses top industry risk analytics provider's (BarraOne) proprietary model to determine the diversification benefit between broad risk factors

Purpose

— Examine the contribution of each risk factor in the context of total portfolio risk. Traditional portfolio construction uses asset allocation by capital weight. The risk decomposition report shows allocation by broad risk factors.

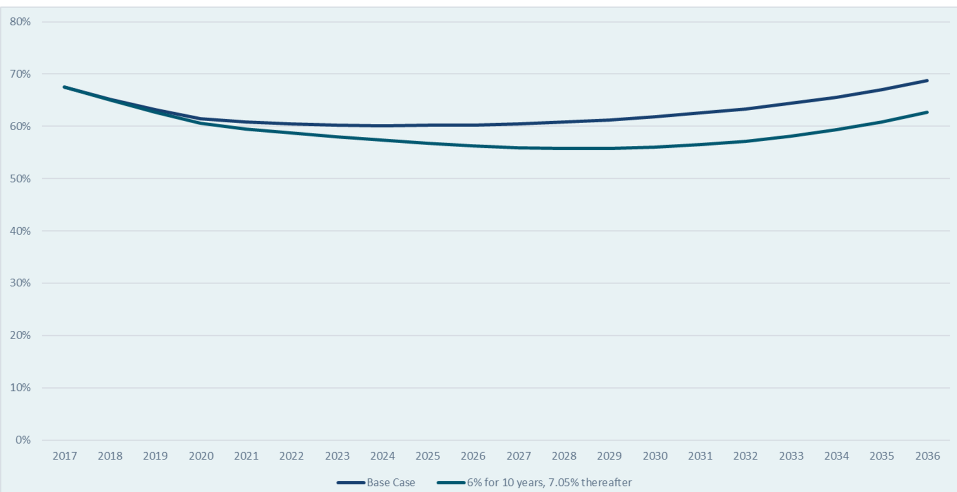
Deterministic forecasting

— Analyzing the impact of a pre-determined event

- Base Case: meeting assumptions.
- Economic Regimes
- Underperforming assumptions

EXAMPLE

Funded Status



EXAMPLE

Funded Status

Annual Returns	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
0.0%	67%	64%	61%	57%	53%	49%	45%	42%	39%	36%	34%
2.0%	67%	65%	61%	58%	56%	54%	51%	49%	46%	44%	41%
4.0%	67%	65%	62%	59%	58%	56%	55%	53%	52%	50%	49%
5.0%	67%	65%	62%	60%	59%	57%	56%	55%	54%	53%	52%
6.0%	67%	65%	63%	61%	60%	59%	58%	57%	57%	56%	56%
6.5%	67%	65%	63%	61%	60%	59%	59%	58%	58%	58%	58%
7.0%	67%	65%	63%	61%	60%	60%	60%	60%	60%	60%	60%
7.5%	67%	65%	63%	61%	61%	61%	61%	61%	61%	61%	62%
8.0%	67%	65%	63%	62%	61%	61%	62%	62%	63%	63%	64%

Note: Data shown is from 2018 MOSERS Asset-Liability study

Stochastic forecasting

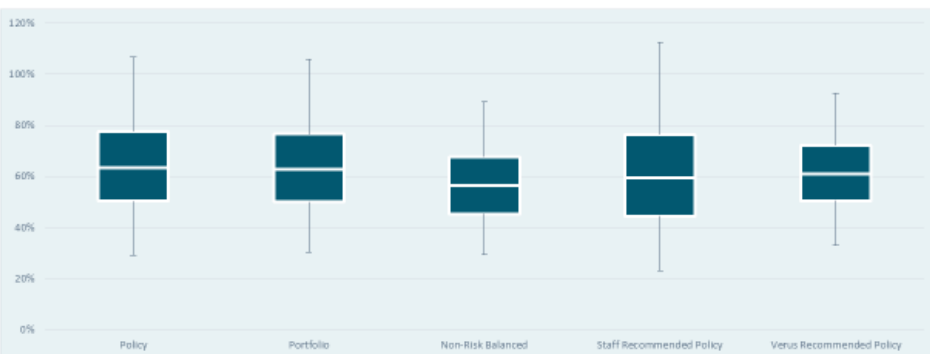
— Assigning probabilities to an unknown future

- Incorporating expected return and correlations, we generate 5,000 paths via a Monte Carlo simulation.
- Display median, volatility, range, and percentile outcomes

EXAMPLE

Expected funded ratio

FUNDED RATIO SIMULATION FOR PLAN YEAR ENDING 2027



	Policy	Portfolio	Non-Risk Balanced	Staff Recommended Policy	Verus Recommended Policy
Best Case	106.6%	105.8%	89.2%	112.5%	92.6%
Median	63.5%	62.8%	56.5%	59.5%	61.0%
Worst Case	29.3%	30.5%	29.4%	23.2%	33.2%

Assumes discount rate declines from 7.5% at start of 2017 and decreases by .15% each year until ending at 7.05%. Based on 5,000 independent simulations. Best case defined as 5th percentile. Worst case defined as 95th percentile. Median outcome is the 50th percentile.

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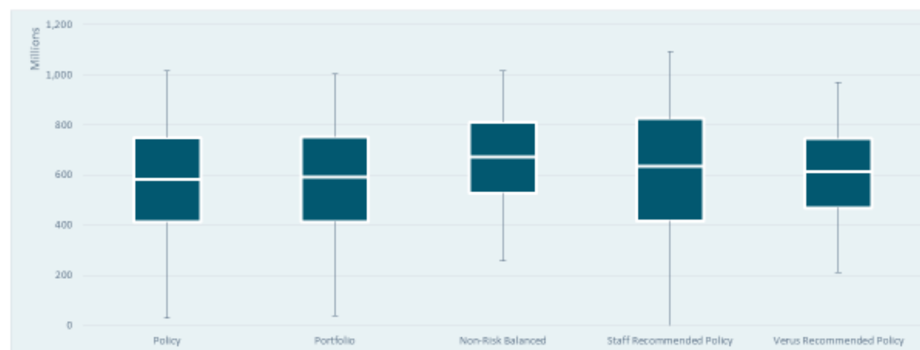
June 21, 2018 39

EXAMPLE

Expected employer contributions

EMPLOYER CONTRIBUTION SIMULATION FOR PLAN YEAR ENDING 2027



	Policy	Portfolio	Non-Risk Balanced	Staff Recommended Policy	Verus Recommended Policy
Best Case	29,286,486	40,100,518	256,575,349	-	211,219,527
Median	583,059,592	592,647,791	673,479,949	634,398,936	615,101,168
Worst Case	1,017,065,169	1,002,197,392	1,016,082,075	1,094,001,363	969,014,942

Assumes discount rate declines from 7.5% at start of 2017 and decreases by .15% each year until ending at 7.05%. Based on 5,000 independent simulations. Best case defined as 5th percentile. Worst case defined as 95th percentile. Median outcome is the 50th percentile.

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MOSERS
June 21, 2018 41

Next Steps

- Educational sessions in preparation of asset allocation study in late 2022 early 2023
  - — Feb. 2023 Updated capital markets assumptions review
- Commence asset-liability study process to incorporate 2021 experience study by actuary and after development of Verus' 2023 Capital Market Assumptions
- Provide suggested and reference policy mix alternatives to Investment Committee
  - — Verus recommends *at minimum* examining the following policy alternatives:
    - current policy
    - policy optimized to achieve liability discount rate assumption (6.95%)
    - traditional 70/30 policy
- Benchmark review and selection
- Discuss results and determine policy allocation for recommendation to full Board
  - — Preliminary results to be reviewed and discussed at April 2023 Board meeting
  - — Finalized results to be reviewed and discussed at June 2023 Board meeting

Appendix

Verus asset allocation tools

We utilize the following combination of “lenses” to reach robust recommendations

Asset Allocation Tool	Output	Data used	Model Type	Construction
Verus Capital Market Assumptions	Return, volatility, and correlation forecast	Current + Long-term historical market data	Forecast	Determine the 10-year return, risk, and correlation expectations of each asset class based on the underlying drivers of returns as well as current and past behavior
Scenario Analysis	Return forecast	Long-term historical market data	Forecast	Using the Verus Capital Market Assumptions, determine the 10-year return expectations of each asset class if the drivers of return were to exhibit a +/- 1 standard deviation move in either a weaker or stronger direction, based on the historical behavior of each return driver
Monte Carlo Simulation	Return & volatility forecast	Verus Capital Market Assumptions	Stochastic analysis	Examine the possible 10-year distribution of portfolio performance assuming Verus Capital Market Assumptions were perfectly accurate in terms of return, risk, and correlation
Tail Risk Analysis	Historical return	BarraOne + Historical returns	Backtest	Calculate how a portfolio would have performed historically in times of market stress (i.e. 2008 financial crisis, 2001 tech bubble, oil crisis, etc.) Scenarios are often customized for clients to provide unique insights into portfolio sensitivities.
Stress Tests	Return forecast	BarraOne	Factor shock	Model how a portfolio might perform if certain risk factors are shocked up or down (i.e. global equity +/- 20%, global rates +/- 200 bps) based on the current risk sensitivities of the portfolio. Scenarios are often customized for clients to provide unique insights into portfolio sensitivities.
Risk Decomposition	Risk exposure forecast	BarraOne	Factor model	Determine each asset classes' current contribution to total portfolio risk using BarraOne model.

Mean variance analysis remains one of the most widely used forecasting tools

But, the mean variance optimization process is prone to generating errors.

So we use a variety of “lenses” in our asset allocation studies.

Methodology

CORE INPUTS

— We use a fundamental building block approach based on several inputs, including historical data and academic research to create asset class return forecasts.
— For most asset classes, we use the long-term historical volatility after adjusting for autocorrelation.
— Correlations between asset classes are calculated based on the last 10 years. For illiquid assets, such as private equity and private real estate, we use BarraOne correlation estimates.

Asset	Return Methodology	Volatility Methodology*
Inflation	25% weight to the University of Michigan Survey 5-10 year ahead inflation expectation and the Survey of Professional Forecasters (Fed Survey), and the remaining 50% to the market's expectation for inflation as observed through the 10-year TIPS breakeven rate	-
Cash	Real yield estimate + inflation forecast	Long-term volatility
Bonds	Nominal bonds: current yield; Real bonds: real yield + inflation forecast	Long-term volatility
International Bonds	Current yield	Long-term volatility
Credit	Current option-adjusted spread + U.S. 10-year Treasury – effective default rate	Long-term volatility
International Credit	Current option-adjusted spread + foreign 10-year Treasury – effective default rate	Long-term volatility
Private Credit	Bank loan forecast + 1.75% private credit premium**	Long-term volatility
Equity	Current yield + real earnings growth (historical average) + inflation on earnings (inflation forecast) + expected P/E change	Long-term volatility
Intl Developed Equity	Current yield + real earnings growth (historical average) + inflation on earnings (intl. inflation forecast) + expected P/E change	Long-term volatility
Private Equity	US large cap domestic equity forecast * 1.85 beta adjustment	1.2 * Long-term volatility of U.S. small cap
Commodities	Collateral return (cash) + spot return (inflation forecast) + roll return (assumed to be zero)	Long-term volatility
Hedge Funds	Return coming from traditional betas + 15-year historical idiosyncratic return	Long-term volatility
Core Real Estate	Cap rate + real income growth – capex + inflation forecast	65% of REIT volatility
REITs	Core real estate	Long-term volatility
Value-Add Real Estate	Core real estate + 2%	Volatility to produce Sharpe Ratio (g) equal to core real estate
Opportunistic Real Estate	Core real estate + 4%	Volatility to produce Sharpe Ratio (g) equal to core real estate
Infrastructure	Current yield + real income growth + inflation on earnings (inflation forecast)	Long-term volatility
Risk Parity	Expected Sharpe Ratio * target volatility + cash rate	Target volatility

**Long-term historical volatility data is adjusted for autocorrelation (see Appendix)*
***The private credit premium is generated by illiquidity, issuer size, and lack of credit rating*

2022 10-year return & risk assumptions

Asset Class	Index Proxy	Ten Year Return Forecast Geometric	Ten Year Return Forecast Arithmetic	Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)
Equities								
U.S. Large	S&P 500	5.3%	6.4%	15.7%	0.31	0.39	1.21	1.19
U.S. Small	Russell 2000	5.3%	7.4%	21.6%	0.23	0.32	0.77	0.81
International Developed	MSCI EAFE	6.1%	7.6%	17.9%	0.32	0.40	0.52	0.57
International Small	MSCI EAFE Small Cap	4.7%	6.9%	22.2%	0.19	0.29	0.66	0.71
Emerging Markets	MSCI EM	6.1%	8.9%	25.3%	0.23	0.34	0.32	0.40
Global Equity	MSCI ACWI	5.7%	7.1%	17.3%	0.31	0.39	0.84	0.86
Private Equity	Cambridge U.S. Private Equity	9.5%	12.4%	26.0%	0.35	0.46	-	-
Private Equity (Direct)	Cambridge U.S. Private Equity	10.5%	13.4%	26.0%	0.39	0.50	-	-
Private Equity (Fund of Funds)	Cambridge U.S. Private Equity	8.5%	11.4%	26.0%	0.31	0.42	-	-
Fixed Income								
Cash	30 Day T-Bills	0.4%	0.4%	1.2%	-	-	-	-
U.S. TIPS	Bloomberg U.S. TIPS 5-10	1.7%	1.8%	5.3%	0.25	0.27	0.59	0.60
U.S. Treasury	Bloomberg Treasury 7-10 Year	1.5%	1.7%	6.8%	0.16	0.20	0.43	0.45
Global Sovereign ex U.S.	Bloomberg Global Treasury ex U.S.	0.5%	1.0%	9.5%	0.01	0.06	-0.01	0.02
Global Aggregate	Bloomberg Global Aggregate	1.4%	1.6%	6.1%	0.16	0.20	0.28	0.30
Core Fixed Income	Bloomberg U.S. Aggregate Bond	2.2%	2.3%	4.1%	0.44	0.46	0.80	0.80
Core Plus Fixed Income	Bloomberg U.S. Universal	2.4%	2.5%	4.0%	0.50	0.51	0.82	0.83
Short-Term Gov't/Credit	Bloomberg U.S. Gov't/Credit 1-3 Year	1.5%	1.6%	3.6%	0.31	0.33	1.07	1.06
Short-Term Credit	Bloomberg Credit 1-3 Year	1.6%	1.7%	3.6%	0.34	0.35	1.25	1.24
Long-Term Credit	Bloomberg Long U.S. Corporate	2.4%	2.8%	9.4%	0.21	0.26	0.67	0.70
High Yield Corp. Credit	Bloomberg U.S. Corporate High Yield	3.1%	3.7%	11.2%	0.24	0.30	1.01	1.00
Bank Loans	S&P/LSTA Leveraged Loan Index	2.3%	2.7%	9.3%	0.20	0.25	0.82	0.83
Global Credit	Bloomberg Global Credit	1.5%	1.8%	7.3%	0.15	0.19	0.67	0.68
Emerging Markets Debt (Hard)	JPM EMBI Global Diversified	5.2%	5.9%	12.6%	0.38	0.44	0.66	0.68
Emerging Markets Debt (Local)	JPM GBI-EM Global Diversified	4.2%	4.9%	12.2%	0.31	0.37	0.04	0.09
Private Credit	S&P LSTA Leveraged Loan Index	6.8%	7.8%	14.6%	0.44	0.51	-	-
Private Credit (Direct Lending - Unlevered)	S&P LSTA Leveraged Loan Index	5.0%	5.5%	10.5%	0.44	0.49	-	-
Private Credit (Direct Lending - Levered)	S&P LSTA Leveraged Loan Index	8.0%	9.4%	17.4%	0.44	0.51	-	-
Private Credit (Credit Opportunities)	S&P LSTA Leveraged Loan Index	7.0%	8.0%	15.0%	0.44	0.51	-	-
Private Credit (Junior Capital / Mezzanine)	S&P LSTA Leveraged Loan Index	8.8%	10.4%	19.0%	0.44	0.53	-	-
Private Credit (Distressed)	S&P LSTA Leveraged Loan Index	9.0%	12.6%	29.1%	0.30	0.42	-	-

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

2022 10-year return & risk assumptions

Asset Class	Index Proxy	Ten Year Return Forecast Geometric	Ten Year Return Forecast Arithmetic	Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)
Other								
Commodities	Bloomberg Commodity	3.0%	4.2%	15.9%	0.16	0.24	-0.25	-0.18
Hedge Funds	HFRI Fund Weighted Composite	3.8%	4.1%	7.7%	0.44	0.48	0.88	0.49
Hedge Funds (Fund of Funds)	HFRI Fund of Funds Composite	2.8%	3.1%	7.7%	0.31	0.35	-	-
Hedge Funds (Equity Style)	Custom HFRI Benchmark Mix*	4.5%	5.6%	15.0%	0.27	0.34	-	-
Hedge Funds (Credit Style)	Custom HFRI Benchmark Mix*	3.6%	4.1%	10.1%	0.32	0.37	-	-
Hedge Funds (Asymmetric Style)	Custom HFRI Benchmark Mix*	2.3%	2.4%	4.9%	0.39	0.41	-	-
Real Estate Debt	Bloomberg CMBS IG	2.1%	2.4%	7.4%	0.23	0.27	1.12	1.11
Core Real Estate	NCREIF Property	6.5%	7.2%	12.5%	0.49	0.54	2.08	2.02
Value-Add Real Estate	NCREIF Property + 200bps	8.5%	9.8%	16.7%	0.49	0.56	-	-
Opportunistic Real Estate	NCREIF Property + 300bps	9.5%	11.1%	18.7%	0.49	0.57	-	-
REITs	Wilshire REIT	6.5%	8.2%	19.3%	0.32	0.40	0.67	0.72
Global Infrastructure	S&P Global Infrastructure	6.6%	8.0%	17.6%	0.35	0.43	0.45	0.51
Risk Parity	S&P Risk Parity 10% Vol Index	5.4%	5.9%	10.0%	0.50	0.55	-	-
Currency Beta	MSCI Currency Factor Index	0.8%	0.9%	3.4%	0.12	0.13	0.24	0.25
Inflation		2.5%	-	-	-	-	-	-

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

**To represent hedge fund styles, we use a combination of HFRI benchmarks: Equity Style = 33% HFRI Fundamental Growth, 33% HFRI Fundamental Value, 33% HFRI Activist. Credit Style = 20% HFRI Distressed/Restructuring, 20% HFRI Credit Arbitrage, 20% HFRI Fixed Income-Corporate, 20% HFRI Fixed Income-Convertible Arbitrage, 20% HFRI Fixed Income-Asset Backed. Asymmetric Style = 50% HFRI Relative Value, 50% HFRI Macro*

Correlation assumptions

	Cash	US Large	US Small	Intl Large	Intl Small	EM	Global Equity	PE	US TIPS	US Treasury	Global Sovereign ex-US	US Core	Core Plus	Short-Term Gov't/Credit	Short-Term Credit	Long-Term Credit	US HY	Bank Loans	Global Credit	EMD USD	EMD Local	Commodities	Hedge Funds	Real Estate	REITs	Infrastructure	Risk Parity	Currency Beta
Cash	1.0																											
US Large	-0.2	1.0																										
US Small	-0.2	0.9	1.0																									
Intl Large	-0.2	0.9	0.8	1.0																								
Intl Small	-0.2	0.9	0.8	1.0	1.0																							
EM	-0.1	0.7	0.7	0.8	0.8	1.0																						
Global Equity	-0.2	1.0	0.9	1.0	0.9	0.9	1.0																					
PE	-0.2	0.7	0.6	0.6	0.6	0.6	0.7	1.0																				
US TIPS	0.0	0.2	0.1	0.2	0.2	0.3	0.2	0.2	1.0																			
US Treasury	0.2	-0.3	-0.4	-0.3	-0.3	-0.2	-0.3	-0.2	0.7	1.0																		
Global Sovereign ex-US	0.1	0.2	0.1	0.3	0.4	0.5	0.3	0.1	0.6	0.4	1.0																	
US Core	0.2	0.0	-0.1	0.0	0.0	0.1	0.0	0.0	0.8	0.9	0.6	1.0																
Core Plus	0.1	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.8	0.8	0.6	1.0	1.0															
Short-Term Gov't/Credit	0.4	-0.1	-0.1	0.0	0.0	0.1	0.0	-0.1	0.6	0.7	0.5	0.8	0.7	1.0														
Short-Term Credit	0.0	0.4	0.4	0.4	0.4	0.5	0.4	0.0	0.6	0.3	0.5	0.6	0.7	0.6	1.0													
Long-Term Credit	0.0	0.3	0.2	0.3	0.3	0.4	0.3	0.1	0.7	0.6	0.5	0.8	0.9	0.5	0.7	1.0												
US HY	-0.2	0.8	0.7	0.8	0.8	0.8	0.8	0.5	0.4	-0.2	0.4	0.2	0.5	0.1	0.7	0.6	1.0											
Bank Loans	-0.3	0.6	0.7	0.6	0.7	0.6	0.7	0.3	0.3	-0.3	0.2	0.1	0.3	0.0	0.6	0.4	0.9	1.0										
Global Credit	-0.1	0.6	0.5	0.7	0.7	0.8	0.7	0.3	0.6	0.2	0.7	0.5	0.7	0.4	0.8	0.8	0.8	0.6	1.0									
EMD USD	-0.2	0.6	0.5	0.7	0.7	0.7	0.7	0.4	0.6	0.1	0.6	0.5	0.7	0.3	0.7	0.7	0.8	0.7	0.9	1.0								
EMD Local	0.0	0.6	0.5	0.7	0.7	0.8	0.7	0.4	0.4	0.0	0.7	0.3	0.5	0.3	0.6	0.5	0.7	0.5	0.8	0.8	1.0							
Commodities	-0.1	0.5	0.5	0.6	0.6	0.6	0.6	0.3	0.2	-0.3	0.3	-0.1	0.1	0.0	0.3	0.1	0.6	0.5	0.5	0.5	0.6	1.0						
Hedge Funds	-0.2	0.8	0.8	0.8	0.8	0.7	0.8	0.6	0.2	-0.3	0.2	0.0	0.2	0.0	0.5	0.4	0.8	0.7	0.6	0.6	0.5	0.5	1.0					
Real Estate	-0.2	0.6	0.6	0.5	0.5	0.5	0.6	0.4	0.2	-0.1	0.2	0.1	0.1	-0.1	0.1	0.2	0.4	0.3	0.3	0.4	0.4	0.3	0.5	1.0				
REITs	-0.2	0.7	0.6	0.6	0.6	0.5	0.7	0.5	0.5	0.1	0.3	0.4	0.5	0.2	0.5	0.5	0.7	0.5	0.6	0.6	0.5	0.3	0.5	0.7	1.0			
Infrastructure	-0.2	0.8	0.7	0.8	0.8	0.7	0.8	0.7	0.4	-0.1	0.5	0.3	0.4	0.2	0.6	0.5	0.8	0.7	0.8	0.8	0.8	0.5	0.7	0.3	0.7	1.0		
Risk Parity	-0.1	0.7	0.6	0.7	0.7	0.7	0.8	0.4	0.5	0.0	0.4	0.3	0.5	0.3	0.7	0.5	0.8	0.7	0.7	0.8	0.7	0.7	0.7	0.4	0.6	0.8	1.0	
Currency Beta	0.0	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.0	-0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	1.0

Note: Correlation assumptions are based on the last ten years. Private Equity and Real Estate correlations are especially difficult to model – we have therefore used BarraOne correlation data to strengthen these correlation estimates.

Glossary of Terms

Alpha: The excess return of a portfolio after adjusting for market risk, usually attributable to manager skill.

Beta: A measure of systematic, or market, risk. This is risk that is attributable to general market movements.

Correlation: A measure of the relative movement of returns of one asset class relative to another over time. A correlation of 1 means the asset class returns move in lock step; a correlation of -1 means the asset class returns move in the exact opposite direction. Correlation is used to help maximize the benefits of diversification when constructing a total fund portfolio.

Idiosyncratic: Unique or individual. Idiosyncratic implies evidence of skill, and not market exposures, as the driver of risk and return.

Mean: Equivalent to the average of a set of numbers. Can be distorted by extremes, so it is important to understand distribution of the set.

Risk Premium: Expected return over the risk free rate (i.e., cash return) earned for bearing risk. The greater the risk borne (e.g., equities), the greater the risk premium. Not all assets have a risk premium – some assets offer inconsistent excess returns over cash and should be avoided.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return over cash for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio.

Standard Deviation: A measure of volatility, or risk, inherent in a portfolio. The standard deviation measures the extent to which actual returns differ from the expected mean return. For example, if a portfolio has an average expected rate of return of 7% and a standard deviation of 12%, then one would expect to receive an annual rate of return of between 19% and -5% at least 2/3 of the time.

Systematic: Market driven. Cannot be diversified away. Measured by beta. Investors can often achieve systematic returns and exposures through low cost index funds or derivatives, such as futures.

Tail Risk: The risk that arises when the possibility that an investment will move more than three standard deviations from the mean is greater than what is shown by a normal distribution

MOSERS
MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

ESG Education Session

MOSERS Board of Trustees
June 15, 2022

What is ESG?

SRI – Where it all began……

- Socially Responsible Investing (SRI) has been going on for hundreds of years. SRI typically means overlaying a non-financial fact or view onto a financial decision for a non-financial reason (i.e., avoiding "sin" stocks)

- For decades, private citizens, plan sponsors, and boards of trustees have struggled with the "exclusive benefit rule" and how that interacts with their personal or community views of certain activities or topics

- Early examples of SRI involve exclusion of tobacco, firearms, alcohol, gambling, pharmaceuticals and defense contracting when making investment decisions

ESG takes SRI Further

(Environmental, Social and Governance)

Environmental Issues	Climate Change and Carbon	Air and Water Pollution	Biodiversity	Deforestation	Energy Efficiency	Traditional and Hazardous Waste
Social Issues	Human Rights	Gender and Diversity	Firearms and DOD Contracting	Socio-Economic Disparity	Police and Community Relations	Data Protection and Privacy
Governance Issues	Board Composition	Audit Committee Structure	Bribery and Corruption	Executive Compensation	Lobbying	Whistleblower Programs

Sustainable Development Goals

- Sustainable Development Goals (SDG's) are 17 global goals, put forward by the United Nations in 2015, and approved by 193 countries that some use as a blueprint for ESG investing

- Some investors use SDG's as guidance to apply a different lens to filter future investment decisions and measure ESG impact

ESG Implementation Approaches

	ESG Neutral	ESG Integration	Exclusion/Divestment	Shareholder Engagement	ETI and Impact Investing
Policy Implications	IPS either silent or articulates that ESG or other non-economic variables will not be incorporated into investment decisions	IPS articulates that ESG will factor into investment decision making at some level (either for purposes of risk mitigation or to add value or both)	IPS articulates specific ESG variables that will be avoided for investment	IPS articulates activities Board and Staff will undertake to engage with portfolio companies and state goals of engagement	IPS articulates goals related to allocation of capital to specific investment approaches for purposes other than return enhancement or risk mitigation
Strategy Selection	Limited impact on investment strategy or vehicle selection	Only applies to separate accounts. Commingled or LP vehicles generally exempt	Impacts vehicle selection including commingled vehicles	Applied to separate accounts only	Requires implementation of separate accounts or specialized commingled vehicles (e.g., fund of one)
Monitoring	Staff reviews and monitors the risk/return implications of managers ESG policies on the portfolio	Requires staff to incorporate due diligence component related to assessing investment manager's degree of ESG integration and in monitoring activities	Requires selection of specialized benchmarks Requires staff time to ensure prohibitions being implemented per policy	Requires additional Staff time; potential for full-time dedicated staff	Requires additional Staff time; potentially dedicated Staff; potentially specialized consultant
Cost Impact	No cost impact	May have cost impact	Generally increased costs, even for passive vehicles	Cost is increased through Board and Staff time; potential cost for additional staff	Cost is increased through Board and Staff time and potential costs for additional staff in addition to fees to consultants or other experts

Current Regulatory Landscape

DOL – Fiduciary Standard*

"The primary responsibility of fiduciaries is to run the plan solely in the interest of participants and beneficiaries and for the exclusive purpose of providing benefits and paying plan expenses. Fiduciaries must act prudently and must diversify the plan's investments in order to minimize the risk of large losses."

**The U.S. Department of Labor has no jurisdiction over state retirement plans but their guidance can inform an understanding of Trustees' fiduciary duties in overseeing the plan.*

DOL – Current Rules

Over the last few decades, regulators and administrations have issued guidance on ERISA's fiduciary standards. The guidance has changed over time.

- Current Rules – Financial Factors Rules – This final rule was issued in October 2020.

- It requires that plan fiduciaries consider only "pecuniary factors" in making investment decisions and does not mention the environmental, social, or governance considerations.
  - "Pecuniary factors" – "a factor that a fiduciary prudently determines is expected to have a material effect on the risk and/or return of an investment based on appropriate investment horizons consistent with the plan's investment objectives and the funding policy."

  - The final rule indicates that a plan fiduciary may consider non-pecuniary factors as a deciding factor in making an investment decision where the plan fiduciary is considering several investment opportunities and is unable to distinguish these alternatives solely on the basis of pecuniary factors.

- In sum, the final rules state that compliance with the exclusive benefit rule requirement in ERISA prohibits fiduciaries from subordinating the interests of participants to objectives other than the optimum risk/return calculus and bars plan fiduciaries from sacrificing investment return or taking on additional investment risk to promote non-pecuniary goals.

DOL – Proposed Rules

October 2021 – DOL issues new proposed rules on fiduciary reasonability in selecting ERISA plan investments and the role of ESG.

- The proposed rule removes the concept of pecuniary factors and states that "a prudent fiduciary may consider ***any factor*** in the evaluation of an investment or investment course of action that, depending on the facts and circumstances, ***is material*** to the risk-return analysis."

- Specific incorporation of ESG factors that may be considered as part of Duty of Prudence / Duty of Loyalty.

- The proposed rules includes the following ESG factors as examples of the facts and circumstances that can be considered ***if material*** to the risk-return analysis:
  - **climate change-related factors**, such as a corporation's exposure to the real and potential economic effects of climate change
  - **governance factors**, such as those involving board composition, executive compensation, and transparency and accountability in corporate decision-making, etc.
  - **workforce practices**, including the corporation's progress on workforce diversity, inclusion, and other drivers of employee hiring, promotion, and retention, etc.

- However, the proposal is clear that "a fiduciary may not subordinate the interests of the participants and beneficiaries in their retirement income or financial benefits under the plan to other objectives" and may not sacrifice economic returns to promote ancillary goals.

Missouri's Statutory Standard – Section 105.688

(excerpts below)

The assets of a system may be invested, reinvested and managed by an investment fiduciary subject to the terms, conditions and limitations provided in sections 105.687 to 105.689. **An investment fiduciary shall discharge his or her duties in the interest of the participants in the system and their beneficiaries** and shall:

(1) Act with the same care, skill, prudence, and diligence under the circumstances then prevailing that **a prudent person** acting in a similar capacity and familiar with those matters would use in the conduct of a similar enterprise with similar aims;…

(3) Make investments for the purposes of providing benefits to participants and participants' beneficiaries, and of defraying reasonable expenses of investing the assets of the system;…..

(5) Give appropriate consideration to investments which would enhance the general welfare of this state and its citizens if those investments offer the safety and rate of return comparable to other investments available to the investment fiduciary at the time the investment decision is made.

Recent Missouri Experience

- 2020 Enacted Legislation
  - SB 739 – Public entities are prohibited from entering into certain contracts with a company unless the contract includes a written certification that the company is not currently engaged in, and agrees for the duration of the contract not to engage in, a boycott of goods and services from the *State of Israel* or any company, or person or entity, doing business with or in the *State of Israel*.

Recent Missouri Experience

- 2022 Legislative Proposals[1]
  - SB 1048 – Public entity contracts – company must have a written verification that it does not have a practice or policy that discriminates against *a firearm entity or firearm trade association.*
  - SB 1171 – Public body contracts – company must have a written verification that it does not discriminate based on an *environmental, social, and governance score*.
  - HB 2825 – Requires at least 20% of venture capital and real estate investments of the system are investments in businesses and real estate *located in and owned by residents of Missouri.*

[1] *None of these proposals passed*

Various Public Pension Board Positions

- Some Pension Boards take positions in opposition to any legislation that limits the Board's ability to effectively seek the best risk-adjusted investment returns and such limits conflict with the Board's fiduciary duty.
  - Colorado PERA Divestment Statement

- Alternatively, some Pension Boards take an active role in ESG discussions at the Board level, pass policies focused on what ESG means to the system, and how those values should be implemented in the portfolio.

MOSERS Current Investment Process

MOSERS Current Process

- MOSERS Investment Policy Statement governs Board, Staff and Consultants' responsibilities and authority
  - The Board has responsibility for strategic asset allocation and risk budgeting
    - The Board's Investment Committee also reviews and recommends relevant investment items to the full Board for consideration
  - The CIO has responsibility for implementation of the Board's IPS, asset allocation and overall investment implementation
    - Manager/strategy hiring, monitoring and termination
    - Day-to-day investment management practices and procedures (documented in MOSERS' Implementation Manual)
    - Staff reviews managers' ESG policies during initial and ongoing due diligence reviews

MOSERS Current Implementation

- Given MOSERS' current portfolio construction and implementation approach, the majority of MOSERS' assets cannot be incorporated into traditional ESG implementation approaches (except for the current ESG Neutral approach) without material disruption to the asset allocation and investment return assumption.
  - Public markets:
    - Derivative/leverage strategies
    - Fund vehicles (mutual funds, comingled funds etc.)
  - Private markets:
    - GP/LP-type vehicles

MOSERS Portfolio

- Proxy voting is usually a topic discussed in detail, when talking about ESG, and will be addressed in a separate presentation later today

- The MOSERS portfolio implementation strategies mentioned previously limit the use of proxy voting within the MOSERS portfolio
  - In the current portfolio, $938 million (and declining) could be available for proxy voting if the Board created a formal proxy voting policy
  - Moving additional assets to separately managed account would increase this amount to $2.2 billion but would increase investment management and staffing costs

Options for Discussion

IPS Statement Consideration

Articulate the current practice into IPS:

The MOSERS Board of Trustees, staff and investment managers are fiduciaries and must perform their duties for the exclusive benefit and in the best economic interest of the System's members and beneficiaries. MOSERS will not systematically include or exclude any investments in companies, industries, countries, or geographic areas unless specifically addressed through Board action or legislative action.

Additional Consideration

- Does the Board want to review taking a stronger position for/against investment mandates such as:
  - *The MOSERS Board of Trustees opposes any state or federal legislation that limits the Board's ability to effectively seek the most prudent risk-adjusted investment returns and believes such limits or mandates conflict with the Board's fiduciary duty.*

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Proxy Voting Education and Discussion

MOSERS Board of Trustees

June 15, 2022

Proxy Voting – What is it?

- As an equity owner of a corporation (or shareholder), the owner has a right to vote on certain corporate matters, both financial and non-financial which include but are not limited to
  - Board and Director issues (terms, attendance, composition)
  - Mergers and acquisitions
  - Audit firm selection
  - Executive compensation
  - Shareholder proposals or protections (if allowed)
  - Environmental, Social or Governance issues (if on the ballot)

- "Proxy Voting" allows an owner of a corporation, who may not be able to attend a shareholder's meeting in person, to vote on any issues on the ballot (see above)

- Voting proxies is generally considered an important part of a pension fiduciary's duty.

- Due to the sheer volume of corporate proxies that need to be voted on every year, proxy voting services have been created and continue to expand their practices to address the evolving needs of their clients.

DOL – Proxy Voting

The DOL's October 2021 proposed rules also would amend the rules for the exercise of proxy voting by ERISA fiduciaries.

- Elimination of "No Vote" Statement in 2020 Proxy Rule
  - The current rule specifically states that a fiduciary's duties to exercise shareholder rights does not require the voting of every proxy or the exercise of every other shareholder right. The DOL, concerned that this statement could be read as broad authorization for fiduciaries to simply abstain from proxy voting, proposes to delete this statement in the proposed rules.
  - DOL reiterates its longstanding view that proxies should be voted as part of the process of managing the plan's investments, unless a prudent plan fiduciary determines voting proxies may not be in the plan's best interest (e.g., if there are significant costs or efforts associated with voting).
  - Furthermore, prudent fiduciaries should take steps to ensure that the cost and effort associated with voting a proxy is commensurate with the significance of an issue to the plan's financial interests.

Proxy Voting at MOSERS

- Asset allocation, portfolio leverage and account structuring selections are primary drivers of proxy voting availability

- Proxy voting, where applicable, is contractually delegated to our external managers, who are fiduciaries

  - In separately managed accounts, the manager must exercise the proxy vote in the way they believe is in MOSERS best interest

  - In fund vehicles (mutual funds, commingled funds etc.), the manager must vote the proxies in the way they believe is in the best interest of the fund that MOSERS is invested in

- Like many public pension plans, and considering the portfolio structure, MOSERS Board has not developed a detailed Proxy Voting policy

Which Assets Are Impacted

		Policy Allocation - Capital	
Growth		45%	
	Global Public Equities		30%
	Global Private Equities		15%
Income		35%	
	Long Treasuries		25%
	Core Bonds		10%
Inflation Hedge		40%	
	Commodities		5%
	TIPS		25%
	Private Real Assets		5%
	Public Real Assets		5%
Absoute Return		20%	
	Hedge Funds		5%
	Alternative Beta		10%
	Private Credit		5%
Total Portfolio - Exposure		140%	

The portfolio assets highlighted in yellow are the assets that may be *partially* impacted by the outcome of this discussion.

The greyed-out assets will not be impacted.

Portfolio Values Currently Being Voted

Unaudited as of May 31, 2022

	Public Equity Portfolio Exposure Summary		Dollar Exposure	% of Total Plan Exposure
Growth	Global Public Equity US Exposure - Passive Fund	$	75,699,015	0.6%
	Global Public Equity Non-US Exposure - 5 Actively Managed Funds	$	1,055,588,879	8.5%
	Private Equity P4P US Exposure - Passive Fund	$	373,290,897	3.0%
	Private Equity P4P Non-US Exposure - 5 Actively Managed Funds	$	243,509,223	2.0%
Inflation	US Public REIT Portfolio – Separately Managed Account	$	444,161,702	3.6%
Absolute Return	ACWI US Exposure - Passive Fund	$	27,144,440	0.2%
	ACWI Non-US Exposure - Passive Fund	$	17,354,642	0.1%
	Total Public Equity Portfolio Exposure	**$**	**2,236,748,799**	**18.0%**

US Equities
Non-US Equities
REITs

Proxy Voting Options

1. Continue current practice of delegation to account/fund manager fiduciary's

2. Work with Board Investment Consultant or retain a Proxy Advisory Service to develop a Board approved Proxy Voting Policy for MOSERS
   - Requires a <u>significant time commitment</u> from Board & Committee to go through the hundreds of proxy decisions <u>to determine the best interest for MOSERS & its members</u>, i.e., building the proxy policy

Proxy Voting Options (con't)

3. Utilize the new proxy voting policy where MOSERS can, without incurring additional costs. This would impact approximately $938m of assets
   - All passive funds ($493m), will be continually reduced and completely gone in 3-5 years
   - REIT separately managed account ($445m)

4. Move US equity assets into separately managed accounts and use new proxy policy

5. Move all public equities into separately managed accounts and use new proxy policy
   - Some current managers may not offer separately managed accounts

Estimated Cost Progression

	Activity	Annual $ Cost Estimate	Running Total	Staffing Estimate (Cumulative)
1	Maintain Current proxy voting delegation practice	$ -	$ -	None
2	Hire a proxy advisor to develop a proxy voting policy	$ 40,000	$ 40,000	None
3	Utilize new proxy policy to vote where can without costs	$ -	$ 40,000	None
4	Move US assets to a separately managed account	$ 290,000	$ 330,000	1
5	Move Non-US assets to separetely managed accounts	$ 1,114,000	$ 1,444,000	2
	Additional compliance costs	$ 130,000	$ 1,574,000	2-3
	Totals		$ 1,574,000	2-3

Questions and Discussion

UNITED STATES

Proxy Voting Guidelines
Benchmark Policy Recommendations

Effective for Meetings on or after February 1, 2022
Published December 13, 2021

ISSGOVERNANCE.COM

TABLE OF CONTENTS

Coverage

The U.S. research team provides proxy analyses and voting recommendations for the common shareholder meetings of U.S. - incorporated companies that are publicly-traded on U.S. exchanges, as well as certain OTC companies, if they are held in our institutional investor clients' portfolios. Coverage generally includes corporate actions for common equity holders, such as written consents and bankruptcies. ISS' U.S. coverage includes investment companies (including open-end funds, closed-end funds, exchange-traded funds, and unit investment trusts), limited partnerships ("LPs"), master limited partnerships ("MLPs"), limited liability companies ("LLCs"), and business development companies. ISS reviews its universe of coverage on an annual basis, and the coverage is subject to change based on client need and industry trends.

Foreign-incorporated companies

In addition to U.S.- incorporated, U.S.- listed companies, ISS' U.S. policies are applied to certain foreign-incorporated company analyses. Like the SEC, ISS distinguishes two types of companies that list but are not incorporated in the U.S.:

- U.S. Domestic Issuers – which have a majority of outstanding shares held in the U.S. and meet other criteria, as determined by the SEC, and are subject to the same disclosure and listing standards as U.S. incorporated companies (e.g. they are required to file DEF14A proxy statements) – are generally covered under standard U.S. policy guidelines.
- Foreign Private Issuers (FPIs) – which are allowed to take exemptions from most disclosure requirements (e.g., they are allowed to file 6-K for their proxy materials) and U.S. listing standards – are generally covered under a combination of policy guidelines:
  - FPI Guidelines (see the Americas Regional Proxy Voting Guidelines), may apply to companies incorporated in governance havens, and apply certain minimum independence and disclosure standards in the evaluation of key proxy ballot items, such as the election of directors; and/or
  - Guidelines for the market that is responsible for, or most relevant to, the item on the ballot.

U.S. incorporated companies listed only on non-U.S. exchanges are generally covered under the ISS guidelines for the market on which they are traded.

An FPI is generally covered under ISS' approach to FPIs outlined above, even if such FPI voluntarily files a proxy statement and/or other filing normally required of a U.S. Domestic Issuer, so long as the company retains its FPI status.

In all cases – including with respect to other companies with cross-market features that may lead to ballot items related to multiple markets – items that are on the ballot solely due to the requirements of another market (listing, incorporation, or national code) may be evaluated under the policy of the relevant market, regardless of the "assigned" primary market coverage.

1. Board of Directors

Voting on Director Nominees in Uncontested Elections

Four fundamental principles apply when determining votes on director nominees:

Independence: Boards should be sufficiently independent from management (and significant shareholders) to ensure that they are able and motivated to effectively supervise management's performance for the benefit of all shareholders, including in setting and monitoring the execution of corporate strategy, with appropriate use of shareholder capital, and in setting and monitoring executive compensation programs that support that strategy. The chair of the board should ideally be an independent director, and all boards should have an independent leadership position or a similar role in order to help provide appropriate counterbalance to executive management, as well as having sufficiently independent committees that focus on key governance concerns such as audit, compensation, and nomination of directors.

Composition: Companies should ensure that directors add value to the board through their specific skills and expertise and by having sufficient time and commitment to serve effectively. Boards should be of a size appropriate to accommodate diversity, expertise, and independence, while ensuring active and collaborative participation by all members. Boards should be sufficiently diverse to ensure consideration of a wide range of perspectives.

Responsiveness: Directors should respond to investor input, such as that expressed through significant opposition to management proposals, significant support for shareholder proposals (whether binding or non-binding), and tender offers where a majority of shares are tendered.

Accountability: Boards should be sufficiently accountable to shareholders, including through transparency of the company's governance practices and regular board elections, by the provision of sufficient information for shareholders to be able to assess directors and board composition, and through the ability of shareholders to remove directors.

General Recommendation: Generally vote for director nominees, except under the following circumstances (with new nominees[1] considered on case-by-case basis):

Independence

Vote against[2] or withhold from non-independent directors (Executive Directors and Non-Independent Non-Executive Directors per ISS' Classification of Directors) when:

- Independent directors comprise 50 percent or less of the board;
- The non-independent director serves on the audit, compensation, or nominating committee;
- The company lacks an audit, compensation, or nominating committee so that the full board functions as that committee; or
- The company lacks a formal nominating committee, even if the board attests that the independent directors fulfill the functions of such a committee.

[1] A "new nominee" is a director who is being presented for election by shareholders for the first time. Recommendations on new nominees who have served for less than one year are made on a case-by-case basis depending on the timing of their appointment and the problematic governance issue in question.
[2] In general, companies with a plurality vote standard use "Withhold" as the contrary vote option in director elections; companies with a majority vote standard use "Against". However, it will vary by company and the proxy must be checked to determine the valid contrary vote option for the particular company.

ISS Classification of Directors – U.S.

1. **Executive Director**
   1.1. Current officer[1] of the company or one of its affiliates[2].

2. **Non-Independent Non-Executive Director**

   Board Identification

   2.1. Director identified as not independent by the board.

   Controlling/Significant Shareholder

   2.2. Beneficial owner of more than 50 percent of the company's voting power (this may be aggregated if voting power is distributed among more than one member of a group).

   Current Employment at Company or Related Company

   2.3. Non-officer employee of the firm (including employee representatives).
   2.4. Officer[1], former officer, or general or limited partner of a joint venture or partnership with the company.

   Former Employment

   2.5. Former CEO of the company.[3, 4]
   2.6. Former non-CEO officer[1] of the company or an affiliate[2] within the past five years.
   2.7. Former officer[1] of an acquired company within the past five years.[4]
   2.8. Officer[1] of a former parent or predecessor firm at the time the company was sold or split off within the past five years.
   2.9. Former interim officer if the service was longer than 18 months. If the service was between 12 and 18 months an assessment of the interim officer's employment agreement will be made.[5]

   Family Members

   2.10. Immediate family member[6] of a current or former officer[1] of the company or its affiliates[2] within the last five years.
   2.11. Immediate family member[6] of a current employee of company or its affiliates[2] where additional factors raise concern (which may include, but are not limited to, the following: a director related to numerous employees; the company or its affiliates employ relatives of numerous board members; or a non-Section 16 officer in a key strategic role).

   Professional, Transactional, and Charitable Relationships

   2.12. Director who (or whose immediate family member[6]) currently provides professional services[7] in excess of $10,000 per year to: the company, an affiliate[2], or an individual officer of the company or an affiliate; or who is (or whose immediate family member[6] is) a partner, employee, or controlling shareholder of an organization which provides the services.
   2.13. Director who (or whose immediate family member[6]) currently has any material transactional relationship[8] with the company or its affiliates[2]; or who is (or whose immediate family member[6] is) a partner in, or a controlling shareholder or an executive officer of, an organization which has the material transactional relationship[8] (excluding investments in the company through a private placement).
   2.14. Director who (or whose immediate family member[6]**)** is a trustee, director, or employee of a charitable or non-profit organization that receives material grants or endowments[8] from the company or its affiliates[2].

   Other Relationships

   2.15. Party to a voting agreement[9] to vote in line with management on proposals being brought to shareholder vote.
   2.16. Has (or an immediate family member[6] has) an interlocking relationship as defined by the SEC involving members of the board of directors or its Compensation Committee.[10]
   2.17. Founder[11] of the company but not currently an employee.
   2.18. Director with pay comparable to Named Executive Officers.
   2.19. Any material[12] relationship with the company.

3. **Independent Director**
   3.1. No material[12] connection to the company other than a board seat.

Footnotes:

1. The definition of officer will generally follow that of a "Section 16 officer" (officers subject to Section 16 of the Securities and Exchange Act of 1934) and includes the chief executive, operating, financial, legal, technology, and accounting officers of a company (including the president, treasurer, secretary, controller, or any vice president in charge of a principal business unit, division, or policy function). Current interim officers are included in this category. For private companies, the equivalent positions are applicable. A non-employee director serving as an officer due to statutory requirements (e.g. corporate secretary) will generally be classified as a Non-Independent Non-Executive Director under "Any material relationship with the company." However, if the company provides explicit disclosure that the director is not receiving additional compensation exceeding $10,000 per year for serving in that capacity, then the director will be classified as an Independent Director.

2. "Affiliate" includes a subsidiary, sibling company, or parent company. ISS uses 50 percent control ownership by the parent company as the standard for applying its affiliate designation. The manager/advisor of an externally managed issuer (EMI) is considered an affiliate.

3. Includes any former CEO of the company prior to the company's initial public offering (IPO).

4. When there is a former CEO of a special purpose acquisition company (SPAC) serving on the board of an acquired company, ISS will generally classify such directors as independent unless determined otherwise taking into account the following factors: the applicable listing standards determination of such director's independence; any operating ties to the firm; and the existence of any other conflicting relationships or related party transactions.

5. ISS will look at the terms of the interim officer's employment contract to determine if it contains severance pay, long-term health and pension benefits, or other such standard provisions typically contained in contracts of permanent, non-temporary CEOs. ISS will also consider if a formal search process was under way for a full-time officer at the time.

6. "Immediate family member" follows the SEC's definition of such and covers spouses, parents, children, step-parents, step-children, siblings, in-laws, and any person (other than a tenant or employee) sharing the household of any director, nominee for director, executive officer, or significant shareholder of the company.

7. Professional services can be characterized as advisory in nature, generally involve access to sensitive company information or to strategic decision-making, and typically have a commission- or fee-based payment structure. Professional services generally include but are not limited to the following: investment banking/financial advisory services, commercial banking (beyond deposit services), investment services, insurance services, accounting/audit services, consulting services, marketing services, legal services, property management services, realtor services, lobbying services, executive search services, and IT consulting services. The following would generally be considered transactional relationships and not professional services: deposit services, IT tech support services, educational services, and construction services. The case of participation in a banking syndicate by a non-lead bank should be considered a transactional (and hence subject to the associated materiality test) rather than a professional relationship. "Of Counsel" relationships are only considered immaterial if the individual does not receive any form of compensation (in excess of $10,000 per year) from, or is a retired partner of, the firm providing the professional service. The case of a company providing a professional service to one of its directors or to an entity with which one of its directors is affiliated, will be considered a transactional rather than a professional relationship. Insurance services and marketing services are assumed to be professional services unless the company explains why such services are not advisory.

8. A material transactional relationship, including grants to non-profit organizations, exists if the company makes annual payments to, or receives annual payments from, another entity, exceeding the greater of: $200,000 or 5 percent of the recipient's gross revenues, for a company that follows NASDAQ listing standards; or the greater of $1,000,000 or 2 percent of the recipient's gross revenues, for a company that follows NYSE listing standards. For a company that follows neither of the preceding standards, ISS will apply the NASDAQ-based materiality test. (The recipient is the party receiving the financial proceeds from the transaction).

9. Dissident directors who are parties to a voting agreement pursuant to a settlement or similar arrangement may be classified as Independent Directors if an analysis of the following factors indicates that the voting agreement does not compromise their alignment with all shareholders' interests: the terms of the agreement; the duration of the standstill provision in the agreement; the limitations and requirements of actions that are agreed upon; if the dissident director nominee(s) is subject to the standstill; and if there any conflicting relationships or related party transactions.

10. Interlocks include: executive officers serving as directors on each other's compensation or similar committees (or, in the absence of such a committee, on the board); or executive officers sitting on each other's boards and at least one serves on the other's compensation or similar committees (or, in the absence of such a committee, on the board).

11. The operating involvement of the founder with the company will be considered; if the founder was never employed by the company, ISS may deem him or her an Independent Director.

12. For purposes of ISS's director independence classification, "material" will be defined as a standard of relationship (financial, personal, or otherwise) that a reasonable person might conclude could potentially influence one's objectivity in the boardroom in a manner that would have a meaningful impact on an individual's ability to satisfy requisite fiduciary standards on behalf of shareholders.

Composition

Attendance at Board and Committee Meetings: Generally vote against or withhold from directors (except nominees who served only part of the fiscal year[3]) who attend less than 75 percent of the aggregate of their board and committee meetings for the period for which they served, unless an acceptable reason for absences is disclosed in the proxy or another SEC filing. Acceptable reasons for director absences are generally limited to the following:

- Medical issues/illness;
- Family emergencies; and
- Missing only one meeting (when the total of all meetings is three or fewer).

In cases of chronic poor attendance without reasonable justification, in addition to voting against the director(s) with poor attendance, generally vote against or withhold from appropriate members of the nominating/governance committees or the full board.

If the proxy disclosure is unclear and insufficient to determine whether a director attended at least 75 percent of the aggregate of his/her board and committee meetings during his/her period of service, vote against or withhold from the director(s) in question.

Overboarded Directors: Generally vote against or withhold from individual directors who:

- Sit on more than five public company boards; or
- Are CEOs of public companies who sit on the boards of more than two public companies besides their own—withhold only at their outside boards[4].

Gender Diversity: For companies in the Russell 3000 or S&P 1500 indices, generally vote against or withhold from the chair of the nominating committee (or other directors on a case-by-case basis) at companies where there are no women on the company's board. An exception will be made if there was a woman on the board at the preceding annual meeting and the board makes a firm commitment to return to a gender-diverse status within a year.

[3] Nominees who served for only part of the fiscal year are generally exempted from the attendance policy.
[4] Although all of a CEO's subsidiary boards with publicly-traded common stock will be counted as separate boards, ISS will not recommend a withhold vote for the CEO of a parent company board or any of the controlled (>50 percent ownership) subsidiaries of that parent but may do so at subsidiaries that are less than 50 percent controlled and boards outside the parent/subsidiary relationships.

This policy will also apply for companies not in the Russell 3000 and S&P1500 indices, effective for meetings on or after **Feb. 1, 2023**.

Racial and/or Ethnic Diversity: For companies in the Russell 3000 or S&P 1500 indices, generally vote against or withhold from the chair of the nominating committee (or other directors on a case-by-case basis) where the board has no apparent racially or ethnically diverse members[5]. An exception will be made if there was racial and/or ethnic diversity on the board at the preceding annual meeting and the board makes a firm commitment to appoint at least one racial and/or ethnic diverse member within a year.

Responsiveness

Vote case-by-case on individual directors, committee members, or the entire board of directors as appropriate if:

- The board failed to act on a shareholder proposal that received the support of a majority of the shares cast in the previous year or failed to act on a management proposal seeking to ratify an existing charter/bylaw provision that received opposition of a majority of the shares cast in the previous year. Factors that will be considered are:
  - Disclosed outreach efforts by the board to shareholders in the wake of the vote;
  - Rationale provided in the proxy statement for the level of implementation;
  - The subject matter of the proposal;
  - The level of support for and opposition to the resolution in past meetings;
  - Actions taken by the board in response to the majority vote and its engagement with shareholders;
  - The continuation of the underlying issue as a voting item on the ballot (as either shareholder or management proposals); and
  - Other factors as appropriate.
- The board failed to act on takeover offers where the majority of shares are tendered;
- At the previous board election, any director received more than 50 percent withhold/against votes of the shares cast and the company has failed to address the issue(s) that caused the high withhold/against vote.

Vote case-by-case on Compensation Committee members (or, in exceptional cases, the full board) and the Say on Pay proposal if:

- The company's previous say-on-pay received the support of less than 70 percent of votes cast. Factors that will be considered are:
  - The company's response, including:
    - Disclosure of engagement efforts with major institutional investors, including the frequency and timing of engagements and the company participants (including whether independent directors participated);
    - Disclosure of the specific concerns voiced by dissenting shareholders that led to the say-on-pay opposition;
    - Disclosure of specific and meaningful actions taken to address shareholders' concerns;
  - Other recent compensation actions taken by the company;
  - Whether the issues raised are recurring or isolated;
  - The company's ownership structure; and
  - Whether the support level was less than 50 percent, which would warrant the highest degree of responsiveness.

[5] Aggregate diversity statistics provided by the board will only be considered if specific to racial and/or ethnic diversity.

- The board implements an advisory vote on executive compensation on a less frequent basis than the frequency that received the plurality of votes cast.

Accountability

Problematic Takeover Defenses/Governance Structure

Poison Pills: Vote against or withhold from all nominees (except new nominees[1], who should be considered case-by-case) if:

- The company has a poison pill that was not approved by shareholders[6]. However, vote case-by-case on nominees if the board adopts an initial pill with a term of one year or less, depending on the disclosed rationale for the adoption, and other factors as relevant (such as a commitment to put any renewal to a shareholder vote);
- The board makes a material adverse modification to an existing pill, including, but not limited to, extension, renewal, or lowering the trigger, without shareholder approval; or
- The pill, whether short-term[7] or long-term, has a deadhand or slowhand feature.

Classified Board Structure: The board is classified, and a continuing director responsible for a problematic governance issue at the board/committee level that would warrant a withhold/against vote recommendation is not up for election. All appropriate nominees (except new) may be held accountable.

Removal of Shareholder Discretion on Classified Boards: The company has opted into, or failed to opt out of, state laws requiring a classified board structure.

Director Performance Evaluation: The board lacks mechanisms to promote accountability and oversight, coupled with sustained poor performance relative to peers. Sustained poor performance is measured by one-, three-, and five-year total shareholder returns in the bottom half of a company's four-digit GICS industry group (Russell 3000 companies only). Take into consideration the company's operational metrics and other factors as warranted. Problematic provisions include but are not limited to:

- A classified board structure;
- A supermajority vote requirement;
- Either a plurality vote standard in uncontested director elections, or a majority vote standard in contested elections;
- The inability of shareholders to call special meetings;
- The inability of shareholders to act by written consent;
- A multi-class capital structure; and/or
- A non-shareholder-approved poison pill.

Unilateral Bylaw/Charter Amendments and Problematic Capital Structures*:* Generally vote against or withhold from directors individually, committee members, or the entire board (except new nominees[1], who should be considered case-by-case) if the board amends the company's bylaws or charter without shareholder approval in a manner that materially diminishes shareholders' rights or that could adversely impact shareholders, considering the following factors:

- The board's rationale for adopting the bylaw/charter amendment without shareholder ratification;
- Disclosure by the company of any significant engagement with shareholders regarding the amendment;

[6] Public shareholders only, approval prior to a company's becoming public is insufficient.
[7] If the short-term pill with a deadhand or slowhand feature is enacted but expires before the next shareholder vote, ISS will generally still recommend withhold/against nominees at the next shareholder meeting following its adoption.

- The level of impairment of shareholders' rights caused by the board's unilateral amendment to the bylaws/charter;
- The board's track record with regard to unilateral board action on bylaw/charter amendments or other entrenchment provisions;
- The company's ownership structure;
- The company's existing governance provisions;
- The timing of the board's amendment to the bylaws/charter in connection with a significant business development; and
- Other factors, as deemed appropriate, that may be relevant to determine the impact of the amendment on shareholders.

Unless the adverse amendment is reversed or submitted to a binding shareholder vote, in subsequent years vote case-by-case on director nominees. Generally vote against (except new nominees[1], who should be considered case-by-case) if the directors:

- Classified the board;
- Adopted supermajority vote requirements to amend the bylaws or charter; or
- Eliminated shareholders' ability to amend bylaws.

Unequal Voting Rights

Problematic Capital Structure - Newly Public Companies: For **2022**, for newly public companies[8], generally vote against or withhold from the entire board (except new nominees[1], who should be considered case-by-case) if, prior to or in connection with the company's public offering, the company or its board implemented a multi-class capital structure in which the classes have unequal voting rights without subjecting the multi-class capital structure to a reasonable time-based sunset. In assessing the reasonableness of a time-based sunset provision, consideration will be given to the company's lifespan, its post-IPO ownership structure and the board's disclosed rationale for the sunset period selected. No sunset period of more than seven years from the date of the IPO will be considered to be reasonable.

Continue to vote against or withhold from incumbent directors in subsequent years, unless the problematic capital structure is reversed, removed, or subject to a newly added reasonable sunset.

Common Stock Capital Structure with Unequal Voting Rights: Starting **Feb 1, 2023,** generally vote withhold or against directors individually, committee members, or the entire board (except new nominees[1], who should be considered case-by-case), if the company employs a common stock structure with unequal voting rights[9].

Exceptions to this policy will generally be limited to:

- Newly-public companies[8] with a sunset provision of no more than seven years from the date of going public;
- Limited Partnerships and the Operating Partnership (OP) unit structure of REITs;
- Situations where the unequal voting rights are considered *de minimis*; or
- The company provides sufficient protections for minority shareholders, such as allowing minority shareholders a regular binding vote on whether the capital structure should be maintained.

[8] Newly-public companies generally include companies that emerge from bankruptcy, SPAC transactions, spin-offs, direct listings, and those who complete a traditional initial public offering.
[9] This generally includes classes of common stock that have additional votes per share than other shares; classes of shares that are not entitled to vote on all the same ballot items or nominees; or stock with time-phased voting rights ("loyalty shares").

Problematic Governance Structure - Newly Public Companies: For newly public companies[8], generally vote against or withhold from directors individually, committee members, or the entire board (except new nominees[1], who should be considered case-by-case) if, prior to or in connection with the company's public offering, the company or its board adopted the following bylaw or charter provisions that are considered to be materially adverse to shareholder rights:

- Supermajority vote requirements to amend the bylaws or charter;
- A classified board structure; or
- Other egregious provisions.

A reasonable sunset provision will be considered a mitigating factor.

Unless the adverse provision is reversed or removed, vote case-by-case on director nominees in subsequent years.

Management Proposals to Ratify Existing Charter or Bylaw Provisions: Vote against/withhold from individual directors, members of the governance committee, or the full board, where boards ask shareholders to ratify existing charter or bylaw provisions considering the following factors:

- The presence of a shareholder proposal addressing the same issue on the same ballot;
- The board's rationale for seeking ratification;
- Disclosure of actions to be taken by the board should the ratification proposal fail;
- Disclosure of shareholder engagement regarding the board's ratification request;
- The level of impairment to shareholders' rights caused by the existing provision;
- The history of management and shareholder proposals on the provision at the company's past meetings;
- Whether the current provision was adopted in response to the shareholder proposal;
- The company's ownership structure; and
- Previous use of ratification proposals to exclude shareholder proposals.

Restrictions on Shareholders' Rights

Restricting Binding Shareholder Proposals: Generally vote against or withhold from the members of the governance committee if:

- The company's governing documents impose undue restrictions on shareholders' ability to amend the bylaws. Such restrictions include but are not limited to: outright prohibition on the submission of binding shareholder proposals or share ownership requirements, subject matter restrictions, or time holding requirements in excess of SEC Rule 14a-8. Vote against or withhold on an ongoing basis.

Submission of management proposals to approve or ratify requirements in excess of SEC Rule 14a-8 for the submission of binding bylaw amendments will generally be viewed as an insufficient restoration of shareholders' rights. Generally continue to vote against or withhold on an ongoing basis until shareholders are provided with an unfettered ability to amend the bylaws or a proposal providing for such unfettered right is submitted for shareholder approval.

Problematic Audit-Related Practices

Generally vote against or withhold from the members of the Audit Committee if:

- The non-audit fees paid to the auditor are excessive;
- The company receives an adverse opinion on the company's financial statements from its auditor; or
- There is persuasive evidence that the Audit Committee entered into an inappropriate indemnification agreement with its auditor that limits the ability of the company, or its shareholders, to pursue legitimate legal recourse against the audit firm.

Vote case-by-case on members of the Audit Committee and potentially the full board if:

- Poor accounting practices are identified that rise to a level of serious concern, such as: fraud; misapplication of GAAP; and material weaknesses identified in Section 404 disclosures. Examine the severity, breadth, chronological sequence, and duration, as well as the company's efforts at remediation or corrective actions, in determining whether withhold/against votes are warranted.

Problematic Compensation Practices

In the absence of an Advisory Vote on Executive Compensation (Say on Pay) ballot item or in egregious situations, vote against or withhold from the members of the Compensation Committee and potentially the full board if:

- There is an unmitigated misalignment between CEO pay and company performance (pay for performance);
- The company maintains significant problematic pay practices; or
- The board exhibits a significant level of poor communication and responsiveness to shareholders.

Generally vote against or withhold from the Compensation Committee chair, other committee members, or potentially the full board if:

- The company fails to include a Say on Pay ballot item when required under SEC provisions, or under the company's declared frequency of say on pay; or
- The company fails to include a Frequency of Say on Pay ballot item when required under SEC provisions.

Generally vote against members of the board committee responsible for approving/setting non-employee director compensation if there is a pattern (i.e. two or more years) of awarding excessive non-employee director compensation without disclosing a compelling rationale or other mitigating factors.

Problematic Pledging of Company Stock*:*

Vote against the members of the committee that oversees risks related to pledging, or the full board, where a significant level of pledged company sto1ck by executives or directors raises concerns. The following factors will be considered:

- The presence of an anti-pledging policy, disclosed in the proxy statement, that prohibits future pledging activity;
- The magnitude of aggregate pledged shares in terms of total common shares outstanding, market value, and trading volume;
- Disclosure of progress or lack thereof in reducing the magnitude of aggregate pledged shares over time;
- Disclosure in the proxy statement that shares subject to stock ownership and holding requirements do not include pledged company stock; and
- Any other relevant factors.

Climate Accountability

For companies that are significant greenhouse gas (GHG) emitters, through their operations or value chain[10], generally vote against or withhold from the incumbent chair of the responsible committee (or other directors on a case-by-case basis) in cases where ISS determines that the company is not taking the minimum steps needed to understand, assess, and mitigate risks related to climate change to the company and the larger economy.

[10] For 2022, companies defined as "significant GHG emitters" will be those on the current Climate Action 100+ Focus Group list.

For **2022**, minimum steps to understand and mitigate those risks are considered to be the following. Both minimum criteria will be required to be in compliance:

- Detailed disclosure of climate-related risks, such as according to the framework established by the Task Force on Climate-related Financial Disclosures (TCFD), including:
  - Board governance measures;
  - Corporate strategy;
  - Risk management analyses; and
  - Metrics and targets.
- Appropriate GHG emissions reduction targets.

For **2022**, "appropriate GHG emissions reductions targets" will be any well-defined GHG reduction targets. Targets for Scope 3 emissions will not be required for 2022 but the targets should cover at least a significant portion of the company's direct emissions. Expectations about what constitutes "minimum steps to mitigate risks related to climate change" will increase over time.

Governance Failures

Under extraordinary circumstances, vote against or withhold from directors individually, committee members, or the entire board, due to:

- Material failures of governance, stewardship, risk oversight[11], or fiduciary responsibilities at the company;
- Failure to replace management as appropriate; or
- Egregious actions related to a director's service on other boards that raise substantial doubt about his or her ability to effectively oversee management and serve the best interests of shareholders at any company.

Voting on Director Nominees in Contested Elections

Vote-No Campaigns

General Recommendation: In cases where companies are targeted in connection with public "vote-no" campaigns, evaluate director nominees under the existing governance policies for voting on director nominees in uncontested elections. Take into consideration the arguments submitted by shareholders and other publicly available information.

Proxy Contests/Proxy Access

General Recommendation: Vote case-by-case on the election of directors in contested elections, considering the following factors:

- Long-term financial performance of the company relative to its industry;
- Management's track record;
- Background to the contested election;
- Nominee qualifications and any compensatory arrangements;
- Strategic plan of dissident slate and quality of the critique against management;
- Likelihood that the proposed goals and objectives can be achieved (both slates); and

[11] Examples of failure of risk oversight include but are not limited to: bribery; large or serial fines or sanctions from regulatory bodies; demonstrably poor risk oversight of environmental and social issues, including climate change; significant adverse legal judgments or settlement; or hedging of company stock.

- Stock ownership positions.

In the case of candidates nominated pursuant to proxy access, vote case-by-case considering any applicable factors listed above or additional factors which may be relevant, including those that are specific to the company, to the nominee(s) and/or to the nature of the election (such as whether there are more candidates than board seats).

Other Board-Related Proposals

Adopt Anti-Hedging/Pledging/Speculative Investments Policy

General Recommendation: Generally vote for proposals seeking a policy that prohibits named executive officers from engaging in derivative or speculative transactions involving company stock, including hedging, holding stock in a margin account, or pledging stock as collateral for a loan. However, the company's existing policies regarding responsible use of company stock will be considered.

Board Refreshment

Board refreshment is best implemented through an ongoing program of individual director evaluations, conducted annually, to ensure the evolving needs of the board are met and to bring in fresh perspectives, skills, and diversity as needed.

Term/Tenure Limits

General Recommendation: Vote case-by-case on management proposals regarding director term/tenure limits, considering:

- The rationale provided for adoption of the term/tenure limit;
- The robustness of the company's board evaluation process;
- Whether the limit is of sufficient length to allow for a broad range of director tenures;
- Whether the limit would disadvantage independent directors compared to non-independent directors; and
- Whether the board will impose the limit evenly, and not have the ability to waive it in a discriminatory manner.

Vote case-by-case on shareholder proposals asking for the company to adopt director term/tenure limits, considering:

- The scope of the shareholder proposal; and
- Evidence of problematic issues at the company combined with, or exacerbated by, a lack of board refreshment.

Age Limits

General Recommendation: Generally vote against management and shareholder proposals to limit the tenure of independent directors through mandatory retirement ages. Vote for proposals to remove mandatory age limits.

Board Size

General Recommendation: Vote for proposals seeking to fix the board size or designate a range for the board size.

Vote against proposals that give management the ability to alter the size of the board outside of a specified range without shareholder approval.

Classification/Declassification of the Board

General Recommendation: Vote against proposals to classify (stagger) the board.

Vote for proposals to repeal classified boards and to elect all directors annually.

CEO Succession Planning

General Recommendation: Generally vote for proposals seeking disclosure on a CEO succession planning policy, considering, at a minimum, the following factors:

- The reasonableness/scope of the request; and
- The company's existing disclosure on its current CEO succession planning process.

Cumulative Voting

General Recommendation: Generally vote against management proposals to eliminate cumulate voting, and for shareholder proposals to restore or provide for cumulative voting, unless:

- The company has proxy access[12], thereby allowing shareholders to nominate directors to the company's ballot; and
- The company has adopted a majority vote standard, with a carve-out for plurality voting in situations where there are more nominees than seats, and a director resignation policy to address failed elections.

Vote for proposals for cumulative voting at controlled companies (insider voting power > 50%).

Director and Officer Indemnification and Liability Protection

General Recommendation: Vote case-by-case on proposals on director and officer indemnification and liability protection.

Vote against proposals that would:

- Eliminate entirely directors' and officers' liability for monetary damages for violating the duty of care.
- Expand coverage beyond just legal expenses to liability for acts that are more serious violations of fiduciary obligation than mere carelessness.
- Expand the scope of indemnification to provide for mandatory indemnification of company officials in connection with acts that previously the company was permitted to provide indemnification for, at the discretion of the company's board (*i.e.*, "permissive indemnification"), but that previously the company was not required to indemnify.

Vote for only those proposals providing such expanded coverage in cases when a director's or officer's legal defense was unsuccessful if both of the following apply:

- If the director was found to have acted in good faith and in a manner that s/he reasonably believed was in the best interests of the company; and
- If only the director's legal expenses would be covered.

Establish/Amend Nominee Qualifications

General Recommendation: Vote case-by-case on proposals that establish or amend director qualifications. Votes should be based on the reasonableness of the criteria and the degree to which they may preclude dissident nominees from joining the board.

Vote case-by-case on shareholder resolutions seeking a director nominee who possesses a particular subject matter expertise, considering:

[12] A proxy access right that meets the recommended guidelines.

- The company's board committee structure, existing subject matter expertise, and board nomination provisions relative to that of its peers;
- The company's existing board and management oversight mechanisms regarding the issue for which board oversight is sought;
- The company's disclosure and performance relating to the issue for which board oversight is sought and any significant related controversies; and
- The scope and structure of the proposal.

Establish Other Board Committee Proposals

General Recommendation: Generally vote against shareholder proposals to establish a new board committee, as such proposals seek a specific oversight mechanism/structure that potentially limits a company's flexibility to determine an appropriate oversight mechanism for itself. However, the following factors will be considered:

- Existing oversight mechanisms (including current committee structure) regarding the issue for which board oversight is sought;
- Level of disclosure regarding the issue for which board oversight is sought;
- Company performance related to the issue for which board oversight is sought;
- Board committee structure compared to that of other companies in its industry sector; and
- The scope and structure of the proposal.

Filling Vacancies/Removal of Directors

General Recommendation: Vote against proposals that provide that directors may be removed only for cause.

Vote for proposals to restore shareholders' ability to remove directors with or without cause.
Vote against proposals that provide that only continuing directors may elect replacements to fill board vacancies.
Vote for proposals that permit shareholders to elect directors to fill board vacancies.

Independent Board Chair

General Recommendation: Generally vote for shareholder proposals requiring that the board chair position be filled by an independent director, taking into consideration the following:

- The scope and rationale of the proposal;
- The company's current board leadership structure;
- The company's governance structure and practices;
- Company performance; and
- Any other relevant factors that may be applicable.

The following factors will increase the likelihood of a "for" recommendation:

- A majority non-independent board and/or the presence of non-independent directors on key board committees;
- A weak or poorly-defined lead independent director role that fails to serve as an appropriate counterbalance to a combined CEO/chair role;
- The presence of an executive or non-independent chair in addition to the CEO, a recent recombination of the role of CEO and chair, and/or departure from a structure with an independent chair;
- Evidence that the board has failed to oversee and address material risks facing the company;
- A material governance failure, particularly if the board has failed to adequately respond to shareholder concerns or if the board has materially diminished shareholder rights; or
- Evidence that the board has failed to intervene when management's interests are contrary to shareholders' interests.

Majority of Independent Directors/Establishment of Independent Committees

General Recommendation: Vote for shareholder proposals asking that a majority or more of directors be independent unless the board composition already meets the proposed threshold by ISS' definition of Independent Director (See ISS' Classification of Directors.)

Vote for shareholder proposals asking that board audit, compensation, and/or nominating committees be composed exclusively of independent directors unless they currently meet that standard.

Majority Vote Standard for the Election of Directors

General Recommendation: Generally vote for management proposals to adopt a majority of votes cast standard for directors in uncontested elections. Vote against if no carve-out for a plurality vote standard in contested elections is included.

Generally vote for precatory and binding shareholder resolutions requesting that the board change the company's bylaws to stipulate that directors need to be elected with an affirmative majority of votes cast, provided it does not conflict with the state law where the company is incorporated. Binding resolutions need to allow for a carve-out for a plurality vote standard when there are more nominees than board seats.

Companies are strongly encouraged to also adopt a post-election policy (also known as a director resignation policy) that will provide guidelines so that the company will promptly address the situation of a holdover director.

Proxy Access

General Recommendation: Generally vote for management and shareholder proposals for proxy access with the following provisions:

- **Ownership threshold:** maximum requirement not more than three percent (3%) of the voting power;
- **Ownership duration:** maximum requirement not longer than three (3) years of continuous ownership for each member of the nominating group;
- **Aggregation:** minimal or no limits on the number of shareholders permitted to form a nominating group;
- **Cap:** cap on nominees of generally twenty-five percent (25%) of the board.

Review for reasonableness any other restrictions on the right of proxy access.
Generally vote against proposals that are more restrictive than these guidelines.

Require More Nominees than Open Seats

General Recommendation: Vote against shareholder proposals that would require a company to nominate more candidates than the number of open board seats.

Shareholder Engagement Policy (Shareholder Advisory Committee)

General Recommendation: Generally vote for shareholder proposals requesting that the board establish an internal mechanism/process, which may include a committee, in order to improve communications between directors and shareholders, unless the company has the following features, as appropriate:

- Established a communication structure that goes beyond the exchange requirements to facilitate the exchange of information between shareholders and members of the board;
- Effectively disclosed information with respect to this structure to its shareholders;
- Company has not ignored majority-supported shareholder proposals, or a majority withhold vote on a director nominee; and

- The company has an independent chair or a lead director, according to ISS' definition. This individual must be made available for periodic consultation and direct communication with major shareholders.

2. Audit-Related

Auditor Indemnification and Limitation of Liability

General Recommendation: Vote case-by-case on the issue of auditor indemnification and limitation of liability. Factors to be assessed include, but are not limited to:

- The terms of the auditor agreement—the degree to which these agreements impact shareholders' rights;
- The motivation and rationale for establishing the agreements;
- The quality of the company's disclosure; and
- The company's historical practices in the audit area.

Vote against or withhold from members of an audit committee in situations where there is persuasive evidence that the audit committee entered into an inappropriate indemnification agreement with its auditor that limits the ability of the company, or its shareholders, to pursue legitimate legal recourse against the audit firm.

Auditor Ratification

General Recommendation: Vote for proposals to ratify auditors unless any of the following apply:

- An auditor has a financial interest in or association with the company, and is therefore not independent;
- There is reason to believe that the independent auditor has rendered an opinion that is neither accurate nor indicative of the company's financial position;
- Poor accounting practices are identified that rise to a serious level of concern, such as fraud or misapplication of GAAP; or
- Fees for non-audit services ("Other" fees) are excessive.

Non-audit fees are excessive if:

- Non-audit ("other") fees > audit fees + audit-related fees + tax compliance/preparation fees

Tax compliance and preparation include the preparation of original and amended tax returns and refund claims, and tax payment planning. All other services in the tax category, such as tax advice, planning, or consulting, should be added to "Other" fees. If the breakout of tax fees cannot be determined, add all tax fees to "Other" fees.

In circumstances where "Other" fees include fees related to significant one-time capital structure events (such as initial public offerings, bankruptcy emergence, and spin-offs) and the company makes public disclosure of the amount and nature of those fees that are an exception to the standard "non-audit fee" category, then such fees may be excluded from the non-audit fees considered in determining the ratio of non-audit to audit/audit-related fees/tax compliance and preparation for purposes of determining whether non-audit fees are excessive.

Shareholder Proposals Limiting Non-Audit Services

General Recommendation: Vote case-by-case on shareholder proposals asking companies to prohibit or limit their auditors from engaging in non-audit services.

Shareholder Proposals on Audit Firm Rotation

General Recommendation: Vote case-by-case on shareholder proposals asking for audit firm rotation, taking into account:

- The tenure of the audit firm;

- The length of rotation specified in the proposal;
- Any significant audit-related issues at the company;
- The number of Audit Committee meetings held each year;
- The number of financial experts serving on the committee; and
- Whether the company has a periodic renewal process where the auditor is evaluated for both audit quality and competitive price.

3. Shareholder Rights & Defenses

Advance Notice Requirements for Shareholder Proposals/Nominations

General Recommendation: Vote case-by-case on advance notice proposals, giving support to those proposals which allow shareholders to submit proposals/nominations as close to the meeting date as reasonably possible and within the broadest window possible, recognizing the need to allow sufficient notice for company, regulatory, and shareholder review.

To be reasonable, the company's deadline for shareholder notice of a proposal/nominations must be no earlier than 120 days prior to the anniversary of the previous year's meeting and have a submittal window of no shorter than 30 days from the beginning of the notice period (also known as a 90-120-day window). The submittal window is the period under which shareholders must file their proposals/nominations prior to the deadline.

In general, support additional efforts by companies to ensure full disclosure in regard to a proponent's economic and voting position in the company so long as the informational requirements are reasonable and aimed at providing shareholders with the necessary information to review such proposals.

Amend Bylaws without Shareholder Consent

General Recommendation: Vote against proposals giving the board exclusive authority to amend the bylaws.

Vote case-by-case on proposals giving the board the ability to amend the bylaws in addition to shareholders, taking into account the following:

- Any impediments to shareholders' ability to amend the bylaws (i.e. supermajority voting requirements);
- The company's ownership structure and historical voting turnout;
- Whether the board could amend bylaws adopted by shareholders; and
- Whether shareholders would retain the ability to ratify any board-initiated amendments.

Control Share Acquisition Provisions

General Recommendation: Vote for proposals to opt out of control share acquisition statutes unless doing so would enable the completion of a takeover that would be detrimental to shareholders.

Vote against proposals to amend the charter to include control share acquisition provisions.

Vote for proposals to restore voting rights to the control shares.

Control share acquisition statutes function by denying shares their voting rights when they contribute to ownership in excess of certain thresholds. Voting rights for those shares exceeding ownership limits may only be restored by approval of either a majority or supermajority of disinterested shares. Thus, control share acquisition statutes effectively require a hostile bidder to put its offer to a shareholder vote or risk voting disenfranchisement if the bidder continues buying up a large block of shares.

Control Share Cash-Out Provisions

General Recommendation: Vote for proposals to opt out of control share cash-out statutes.

Control share cash-out statutes give dissident shareholders the right to "cash-out" of their position in a company at the expense of the shareholder who has taken a control position. In other words, when an investor crosses a preset threshold level, remaining shareholders are given the right to sell their shares to the acquirer, who must buy them at the highest acquiring price.

Disgorgement Provisions

General Recommendation: Vote for proposals to opt out of state disgorgement provisions.

Disgorgement provisions require an acquirer or potential acquirer of more than a certain percentage of a company's stock to disgorge, or pay back, to the company any profits realized from the sale of that company's stock purchased 24 months before achieving control status. All sales of company stock by the acquirer occurring within a certain period of time (between 18 months and 24 months) prior to the investor's gaining control status are subject to these recapture-of-profits provisions.

Fair Price Provisions

General Recommendation: Vote case-by-case on proposals to adopt fair price provisions (provisions that stipulate that an acquirer must pay the same price to acquire all shares as it paid to acquire the control shares), evaluating factors such as the vote required to approve the proposed acquisition, the vote required to repeal the fair price provision, and the mechanism for determining the fair price.

Generally vote against fair price provisions with shareholder vote requirements greater than a majority of disinterested shares.

Freeze-Out Provisions

General Recommendation: Vote for proposals to opt out of state freeze-out provisions. Freeze-out provisions force an investor who surpasses a certain ownership threshold in a company to wait a specified period of time before gaining control of the company.

Greenmail

General Recommendation: Vote for proposals to adopt anti-greenmail charter or bylaw amendments or otherwise restrict a company's ability to make greenmail payments.

Vote case-by-case on anti-greenmail proposals when they are bundled with other charter or bylaw amendments.

Greenmail payments are targeted share repurchases by management of company stock from individuals or groups seeking control of the company. Since only the hostile party receives payment, usually at a substantial premium over the market value of its shares, the practice discriminates against all other shareholders.

Shareholder Litigation Rights

Federal Forum Selection Provisions

Federal forum selection provisions require that U.S. federal courts be the sole forum for shareholders to litigate claims arising under federal securities law.

General Recommendation: Generally vote for federal forum selection provisions in the charter or bylaws that specify "the district courts of the United States" as the exclusive forum for federal securities law matters, in the absence of serious concerns about corporate governance or board responsiveness to shareholders.

Vote against provisions that restrict the forum to a particular federal district court; unilateral adoption (without a shareholder vote) of such a provision will generally be considered a one-time failure under the Unilateral Bylaw/Charter Amendments policy.

Exclusive Forum Provisions for State Law Matters

Exclusive forum provisions in the charter or bylaws restrict shareholders' ability to bring derivative lawsuits against the company, for claims arising out of state corporate law, to the courts of a particular state (generally the state of incorporation).

General Recommendation: Generally vote for charter or bylaw provisions that specify courts located within the state of Delaware as the exclusive forum for corporate law matters for Delaware corporations, in the absence of serious concerns about corporate governance or board responsiveness to shareholders.

For states other than Delaware, vote case-by-case on exclusive forum provisions, taking into consideration:

- The company's stated rationale for adopting such a provision;
- Disclosure of past harm from duplicative shareholder lawsuits in more than one forum;
- The breadth of application of the charter or bylaw provision, including the types of lawsuits to which it would apply and the definition of key terms; and
- Governance features such as shareholders' ability to repeal the provision at a later date (including the vote standard applied when shareholders attempt to amend the charter or bylaws) and their ability to hold directors accountable through annual director elections and a majority vote standard in uncontested elections.

Generally vote against provisions that specify a state other than the state of incorporation as the exclusive forum for corporate law matters, or that specify a particular local court within the state; unilateral adoption of such a provision will generally be considered a one-time failure under the Unilateral Bylaw/Charter Amendments policy.

Fee shifting

Fee-shifting provisions in the charter or bylaws require that a shareholder who sues a company unsuccessfully pay all litigation expenses of the defendant corporation and its directors and officers.

General Recommendation: Generally vote against provisions that mandate fee-shifting whenever plaintiffs are not completely successful on the merits (i.e., including cases where the plaintiffs are partially successful).

Unilateral adoption of a fee-shifting provision will generally be considered an ongoing failure under the Unilateral Bylaw/Charter Amendments policy.

Net Operating Loss (NOL) Protective Amendments

General Recommendation: Vote against proposals to adopt a protective amendment for the stated purpose of protecting a company's net operating losses (NOL) if the effective term of the protective amendment would exceed the shorter of three years and the exhaustion of the NOL.

Vote case-by-case, considering the following factors, for management proposals to adopt an NOL protective amendment that would remain in effect for the shorter of three years (or less) and the exhaustion of the NOL:

- The ownership threshold (NOL protective amendments generally prohibit stock ownership transfers that would result in a new 5-percent holder or increase the stock ownership percentage of an existing 5-percent holder);
- The value of the NOLs;

- Shareholder protection mechanisms (sunset provision or commitment to cause expiration of the protective amendment upon exhaustion or expiration of the NOL);
- The company's existing governance structure including: board independence, existing takeover defenses, track record of responsiveness to shareholders, and any other problematic governance concerns; and
- Any other factors that may be applicable.

Poison Pills (Shareholder Rights Plans)

Shareholder Proposals to Put Pill to a Vote and/or Adopt a Pill Policy

General Recommendation: Vote for shareholder proposals requesting that the company submit its poison pill to a shareholder vote or redeem it unless the company has: (1) A shareholder-approved poison pill in place; or (2) The company has adopted a policy concerning the adoption of a pill in the future specifying that the board will only adopt a shareholder rights plan if either:

- Shareholders have approved the adoption of the plan; or
- The board, in its exercise of its fiduciary responsibilities, determines that it is in the best interest of shareholders under the circumstances to adopt a pill without the delay in adoption that would result from seeking stockholder approval (i.e., the “fiduciary out” provision). A poison pill adopted under this fiduciary out will be put to a shareholder ratification vote within 12 months of adoption or expire. If the pill is not approved by a majority of the votes cast on this issue, the plan will immediately terminate.

If the shareholder proposal calls for a time period of less than 12 months for shareholder ratification after adoption, vote for the proposal, but add the caveat that a vote within 12 months would be considered sufficient implementation.

Management Proposals to Ratify a Poison Pill

General Recommendation: Vote case-by-case on management proposals on poison pill ratification, focusing on the features of the shareholder rights plan. Rights plans should contain the following attributes:

- No lower than a 20 percent trigger, flip-in or flip-over;
- A term of no more than three years;
- No deadhand, slowhand, no-hand, or similar feature that limits the ability of a future board to redeem the pill;
- Shareholder redemption feature (qualifying offer clause); if the board refuses to redeem the pill 90 days after a qualifying offer is announced, 10 percent of the shares may call a special meeting or seek a written consent to vote on rescinding the pill.

In addition, the rationale for adopting the pill should be thoroughly explained by the company. In examining the request for the pill, take into consideration the company’s existing governance structure, including: board independence, existing takeover defenses, and any problematic governance concerns.

Management Proposals to Ratify a Pill to Preserve Net Operating Losses (NOLs)

General Recommendation: Vote against proposals to adopt a poison pill for the stated purpose of protecting a company's net operating losses (NOL) if the term of the pill would exceed the shorter of three years and the exhaustion of the NOL.

Vote case-by-case on management proposals for poison pill ratification, considering the following factors, if the term of the pill would be the shorter of three years (or less) and the exhaustion of the NOL:

- The ownership threshold to transfer (NOL pills generally have a trigger slightly below 5 percent);
- The value of the NOLs;
- Shareholder protection mechanisms (sunset provision, or commitment to cause expiration of the pill upon exhaustion or expiration of NOLs);

- The company's existing governance structure including: board independence, existing takeover defenses, track record of responsiveness to shareholders, and any other problematic governance concerns; and
- Any other factors that may be applicable.

Proxy Voting Disclosure, Confidentiality, and Tabulation

General Recommendation: Vote case-by-case on proposals regarding proxy voting mechanics, taking into consideration whether implementation of the proposal is likely to enhance or protect shareholder rights. Specific issues covered under the policy include, but are not limited to, confidential voting of individual proxies and ballots, confidentiality of running vote tallies, and the treatment of abstentions and/or broker non-votes in the company's vote-counting methodology.

While a variety of factors may be considered in each analysis, the guiding principles are: transparency, consistency, and fairness in the proxy voting process. The factors considered, as applicable to the proposal, may include:

- The scope and structure of the proposal;
- The company's stated confidential voting policy (or other relevant policies) and whether it ensures a "level playing field" by providing shareholder proponents with equal access to vote information prior to the annual meeting;
- The company's vote standard for management and shareholder proposals and whether it ensures consistency and fairness in the proxy voting process and maintains the integrity of vote results;
- Whether the company's disclosure regarding its vote counting method and other relevant voting policies with respect to management and shareholder proposals are consistent and clear;
- Any recent controversies or concerns related to the company's proxy voting mechanics;
- Any unintended consequences resulting from implementation of the proposal; and
- Any other factors that may be relevant.

Ratification Proposals: Management Proposals to Ratify Existing Charter or Bylaw Provisions

General Recommendation: Generally vote against management proposals to ratify provisions of the company's existing charter or bylaws, unless these governance provisions align with best practice.

In addition, voting against/withhold from individual directors, members of the governance committee, or the full board may be warranted, considering:

- The presence of a shareholder proposal addressing the same issue on the same ballot;
- The board's rationale for seeking ratification;
- Disclosure of actions to be taken by the board should the ratification proposal fail;
- Disclosure of shareholder engagement regarding the board's ratification request;
- The level of impairment to shareholders' rights caused by the existing provision;
- The history of management and shareholder proposals on the provision at the company's past meetings;
- Whether the current provision was adopted in response to the shareholder proposal;
- The company's ownership structure; and
- Previous use of ratification proposals to exclude shareholder proposals.

Reimbursing Proxy Solicitation Expenses

General Recommendation: Vote case-by-case on proposals to reimburse proxy solicitation expenses.

When voting in conjunction with support of a dissident slate, vote for the reimbursement of all appropriate proxy solicitation expenses associated with the election.

Generally vote for shareholder proposals calling for the reimbursement of reasonable costs incurred in connection with nominating one or more candidates in a contested election where the following apply:

- The election of fewer than 50 percent of the directors to be elected is contested in the election;
- One or more of the dissident's candidates is elected;
- Shareholders are not permitted to cumulate their votes for directors; and
- The election occurred, and the expenses were incurred, after the adoption of this bylaw.

Reincorporation Proposals

General Recommendation: Management or shareholder proposals to change a company's state of incorporation should be evaluated case-by-case, giving consideration to both financial and corporate governance concerns including the following:

- Reasons for reincorporation;
- Comparison of company's governance practices and provisions prior to and following the reincorporation; and
- Comparison of corporation laws of original state and destination state.

Vote for reincorporation when the economic factors outweigh any neutral or negative governance changes.

Shareholder Ability to Act by Written Consent

General Recommendation: Generally vote against management and shareholder proposals to restrict or prohibit shareholders' ability to act by written consent.

Generally vote for management and shareholder proposals that provide shareholders with the ability to act by written consent, taking into account the following factors:

- Shareholders' current right to act by written consent;
- The consent threshold;
- The inclusion of exclusionary or prohibitive language;
- Investor ownership structure; and
- Shareholder support of, and management's response to, previous shareholder proposals.

Vote case-by-case on shareholder proposals if, in addition to the considerations above, the company has the following governance and antitakeover provisions:

- An unfettered[13] right for shareholders to call special meetings at a 10 percent threshold;
- A majority vote standard in uncontested director elections;
- No non-shareholder-approved pill; and
- An annually elected board.

Shareholder Ability to Call Special Meetings

General Recommendation: Vote against management or shareholder proposals to restrict or prohibit shareholders' ability to call special meetings.

Generally vote for management or shareholder proposals that provide shareholders with the ability to call special meetings taking into account the following factors:

- Shareholders' current right to call special meetings;
- Minimum ownership threshold necessary to call special meetings (10 percent preferred);
- The inclusion of exclusionary or prohibitive language;

[13] "Unfettered" means no restrictions on agenda items, no restrictions on the number of shareholders who can group together to reach the 10 percent threshold, and only reasonable limits on when a meeting can be called: no greater than 30 days after the last annual meeting and no greater than 90 prior to the next annual meeting.

- Investor ownership structure; and
- Shareholder support of, and management's response to, previous shareholder proposals.

Stakeholder Provisions

General Recommendation: Vote against proposals that ask the board to consider non-shareholder constituencies or other non-financial effects when evaluating a merger or business combination.

State Antitakeover Statutes

General Recommendation: Vote case-by-case on proposals to opt in or out of state takeover statutes (including fair price provisions, stakeholder laws, poison pill endorsements, severance pay and labor contract provisions, and anti-greenmail provisions).

Supermajority Vote Requirements

General Recommendation: Vote against proposals to require a supermajority shareholder vote.

- Vote for management or shareholder proposals to reduce supermajority vote requirements. However, for companies with shareholder(s) who have significant ownership levels, vote case-by-case, taking into account:
- Ownership structure;
- Quorum requirements; and
- Vote requirements.

Virtual Shareholder Meetings

General Recommendation: Generally vote for management proposals allowing for the convening of shareholder meetings by electronic means, so long as they do not preclude in-person meetings. Companies are encouraged to disclose the circumstances under which virtual-only[14] meetings would be held, and to allow for comparable rights and opportunities for shareholders to participate electronically as they would have during an in-person meeting.

Vote case-by-case on shareholder proposals concerning virtual-only meetings, considering:

- Scope and rationale of the proposal; and
- Concerns identified with the company's prior meeting practices.

[14] Virtual-only shareholder meeting" refers to a meeting of shareholders that is held exclusively using technology without a corresponding in-person meeting.

4. Capital/Restructuring

Capital

Adjustments to Par Value of Common Stock

General Recommendation: Vote for management proposals to reduce the par value of common stock unless the action is being taken to facilitate an anti-takeover device or some other negative corporate governance action.

Vote for management proposals to eliminate par value.

Common Stock Authorization

General Authorization Requests

General Recommendation: Vote case-by-case on proposals to increase the number of authorized shares of common stock that are to be used for general corporate purposes:

- If share usage (outstanding plus reserved) is less than 50% of the current authorized shares, vote for an increase of up to **50**% of current authorized shares.
- If share usage is 50% to 100% of the current authorized, vote for an increase of up to **100**% of current authorized shares.
- If share usage is greater than current authorized shares, vote for an increase of up to the current share usage.
- In the case of a stock split, the allowable increase is calculated (per above) based on the post-split adjusted authorization.

Generally vote against proposed increases, even if within the above ratios, if the proposal or the company's prior or ongoing use of authorized shares is problematic, including, but not limited to:

- The proposal seeks to increase the number of authorized shares of the class of common stock that has superior voting rights to other share classes;
- On the same ballot is a proposal for a reverse split for which support is warranted despite the fact that it would result in an excessive increase in the share authorization;
- The company has a non-shareholder approved poison pill (including an NOL pill); or
- The company has previous sizeable placements (within the past 3 years) of stock with insiders at prices substantially below market value, or with problematic voting rights, without shareholder approval.

However, generally vote for proposed increases beyond the above ratios or problematic situations when there is disclosure of specific and severe risks to shareholders of not approving the request, such as:

- In, or subsequent to, the company's most recent 10-K filing, the company discloses that there is substantial doubt about its ability to continue as a going concern;
- The company states that there is a risk of imminent bankruptcy or imminent liquidation if shareholders do not approve the increase in authorized capital; or
- A government body has in the past year required the company to increase its capital ratios.

For companies incorporated in states that allow increases in authorized capital without shareholder approval, generally vote withhold or against all nominees if a unilateral capital authorization increase does not conform to the above policies.

Specific Authorization Requests

General Recommendation: Generally vote for proposals to increase the number of authorized common shares where the primary purpose of the increase is to issue shares in connection with transaction(s) (such as acquisitions, SPAC transactions, private placements, or similar transactions) on the same ballot, or disclosed in the proxy statement, that warrant support. For such transactions, the allowable increase will be the greater of:

- twice the amount needed to support the transactions on the ballot, and
- the allowable increase as calculated for general issuances above.

Dual Class Structure

General Recommendation: Generally vote against proposals to create a new class of common stock unless:

- The company discloses a compelling rationale for the dual-class capital structure, such as:
- The company's auditor has concluded that there is substantial doubt about the company's ability to continue as a going concern; or
- The new class of shares will be transitory;
- The new class is intended for financing purposes with minimal or no dilution to current shareholders in both the short term and long term; and
- The new class is not designed to preserve or increase the voting power of an insider or significant shareholder.

Issue Stock for Use with Rights Plan

General Recommendation: Vote against proposals that increase authorized common stock for the explicit purpose of implementing a non-shareholder-approved shareholder rights plan (poison pill).

Preemptive Rights

General Recommendation: Vote case-by-case on shareholder proposals that seek preemptive rights, taking into consideration:

- The size of the company;
- The shareholder base; and
- The liquidity of the stock.

Preferred Stock Authorization

General Authorization Requests

General Recommendation: Vote case-by-case on proposals to increase the number of authorized shares of preferred stock that are to be used for general corporate purposes:

- If share usage (outstanding plus reserved) is less than 50% of the current authorized shares, vote for an increase of up to **50**% of current authorized shares.
- If share usage is 50% to 100% of the current authorized, vote for an increase of up to **100**% of current authorized shares.
- If share usage is greater than current authorized shares, vote for an increase of up to the current share usage.
- In the case of a stock split, the allowable increase is calculated (per above) based on the post-split adjusted authorization.
- If no preferred shares are currently issued and outstanding, vote against the request, unless the company discloses a specific use for the shares.

Generally vote against proposed increases, even if within the above ratios, if the proposal or the company’s prior or ongoing use of authorized shares is problematic, including, but not limited to:

- If the shares requested are blank check preferred shares that can be used for antitakeover purposes;[15]
- The company seeks to increase a class of non-convertible preferred shares entitled to more than one vote per share on matters that do not solely affect the rights of preferred stockholders "supervoting shares");
- The company seeks to increase a class of convertible preferred shares entitled to a number of votes greater than the number of common shares into which they are convertible ("supervoting shares") on matters that do not solely affect the rights of preferred stockholders;
- The stated intent of the increase in the general authorization is to allow the company to increase an existing designated class of supervoting preferred shares;
- On the same ballot is a proposal for a reverse split for which support is warranted despite the fact that it would result in an excessive increase in the share authorization;
- The company has a non-shareholder approved poison pill (including an NOL pill); or
- The company has previous sizeable placements (within the past 3 years) of stock with insiders at prices substantially below market value, or with problematic voting rights, without shareholder approval.

However, generally vote for proposed increases beyond the above ratios or problematic situations when there is disclosure of specific and severe risks to shareholders of not approving the request, such as:

- In, or subsequent to, the company's most recent 10-K filing, the company discloses that there is substantial doubt about its ability to continue as a going concern;
- The company states that there is a risk of imminent bankruptcy or imminent liquidation if shareholders do not approve the increase in authorized capital; or
- A government body has in the past year required the company to increase its capital ratios.

For companies incorporated in states that allow increases in authorized capital without shareholder approval, generally vote withhold or against all nominees if a unilateral capital authorization increase does not conform to the above policies.

Specific Authorization Requests

General Recommendation: Generally vote for proposals to increase the number of authorized preferred shares where the primary purpose of the increase is to issue shares in connection with transaction(s) (such as acquisitions, SPAC transactions, private placements, or similar transactions) on the same ballot, or disclosed in the proxy statement, that warrant support. For such transactions, the allowable increase will be the greater of:

- twice the amount needed to support the transactions on the ballot, and
- the allowable increase as calculated for general issuances above.

Recapitalization Plans

General Recommendation: Vote case-by-case on recapitalizations (reclassifications of securities), taking into account the following:

- More simplified capital structure;
- Enhanced liquidity;
- Fairness of conversion terms;
- Impact on voting power and dividends;
- Reasons for the reclassification;

[15] To be acceptable, appropriate disclosure would be needed that the shares are "declawed": i.e., representation by the board that it will not, without prior stockholder approval, issue or use the preferred stock for any defensive or anti-takeover purpose or for the purpose of implementing any stockholder rights plan.

- Conflicts of interest; and
- Other alternatives considered.

Reverse Stock Splits

General Recommendation: Vote for management proposals to implement a reverse stock split if:

- The number of authorized shares will be proportionately reduced; or
- The effective increase in authorized shares is equal to or less than the allowable increase calculated in accordance with ISS' Common Stock Authorization policy.

Vote case-by-case on proposals that do not meet either of the above conditions, taking into consideration the following factors:

- Stock exchange notification to the company of a potential delisting;
- Disclosure of substantial doubt about the company's ability to continue as a going concern without additional financing;
- The company's rationale; or
- Other factors as applicable.

Share Repurchase Programs

General Recommendation: For U.S.-incorporated companies, and foreign-incorporated U.S. Domestic Issuers that are traded solely on U.S. exchanges, vote for management proposals to institute open-market share repurchase plans in which all shareholders may participate on equal terms, or to grant the board authority to conduct open-market repurchases, in the absence of company-specific concerns regarding:

- Greenmail,
- The use of buybacks to inappropriately manipulate incentive compensation metrics,
- Threats to the company's long-term viability, or
- Other company-specific factors as warranted.

Vote case-by-case on proposals to repurchase shares directly from specified shareholders, balancing the stated rationale against the possibility for the repurchase authority to be misused, such as to repurchase shares from insiders at a premium to market price.

Share Repurchase Programs Shareholder Proposals

General Recommendation: Generally vote against shareholder proposals prohibiting executives from selling shares of company stock during periods in which the company has announced that it may or will be repurchasing shares of its stock. Vote for the proposal when there is a pattern of abuse by executives exercising options or selling shares during periods of share buybacks.

Stock Distributions: Splits and Dividends

General Recommendation: Generally vote for management proposals to increase the common share authorization for stock split or stock dividend, provided that the effective increase in authorized shares is equal to or is less than the allowable increase calculated in accordance with ISS' Common Stock Authorization policy.

Tracking Stock

General Recommendation: Vote case-by-case on the creation of tracking stock, weighing the strategic value of the transaction against such factors as:

- Adverse governance changes;
- Excessive increases in authorized capital stock;
- Unfair method of distribution;
- Diminution of voting rights;
- Adverse conversion features;
- Negative impact on stock option plans; and
- Alternatives such as spin-off.

Restructuring

Appraisal Rights

General Recommendation: Vote for proposals to restore or provide shareholders with rights of appraisal.

Asset Purchases

General Recommendation: Vote case-by-case on asset purchase proposals, considering the following factors:

- Purchase price;
- Fairness opinion;
- Financial and strategic benefits;
- How the deal was negotiated;
- Conflicts of interest;
- Other alternatives for the business;
- Non-completion risk.

Asset Sales

General Recommendation: Vote case-by-case on asset sales, considering the following factors:

- Impact on the balance sheet/working capital;
- Potential elimination of diseconomies;
- Anticipated financial and operating benefits;
- Anticipated use of funds;
- Value received for the asset;
- Fairness opinion;
- How the deal was negotiated;
- Conflicts of interest.

Bundled Proposals

General Recommendation: Vote case-by-case on bundled or "conditional" proxy proposals. In the case of items that are conditioned upon each other, examine the benefits and costs of the packaged items. In instances when the joint effect of the conditioned items is not in shareholders' best interests, vote against the proposals. If the combined effect is positive, support such proposals.

Conversion of Securities

General Recommendation: Vote case-by-case on proposals regarding conversion of securities. When evaluating these proposals, the investor should review the dilution to existing shareholders, the conversion price relative to market value, financial issues, control issues, termination penalties, and conflicts of interest.

Vote for the conversion if it is expected that the company will be subject to onerous penalties or will be forced to file for bankruptcy if the transaction is not approved.

Corporate Reorganization/Debt Restructuring/Prepackaged Bankruptcy Plans/Reverse Leveraged Buyouts/Wrap Plans

General Recommendation: Vote case-by-case on proposals to increase common and/or preferred shares and to issue shares as part of a debt restructuring plan, after evaluating:

- Dilution to existing shareholders' positions;
- Terms of the offer - discount/premium in purchase price to investor, including any fairness opinion; termination penalties; exit strategy;
- Financial issues - company's financial situation; degree of need for capital; use of proceeds; effect of the financing on the company's cost of capital;
- Management's efforts to pursue other alternatives;
- Control issues - change in management; change in control, guaranteed board and committee seats; standstill provisions; voting agreements; veto power over certain corporate actions; and
- Conflict of interest - arm's length transaction, managerial incentives.

Vote for the debt restructuring if it is expected that the company will file for bankruptcy if the transaction is not approved.

Formation of Holding Company

General Recommendation: Vote case-by-case on proposals regarding the formation of a holding company, taking into consideration the following:

- The reasons for the change;
- Any financial or tax benefits;
- Regulatory benefits;
- Increases in capital structure; and
- Changes to the articles of incorporation or bylaws of the company.

Absent compelling financial reasons to recommend for the transaction, vote against the formation of a holding company if the transaction would include either of the following:

- Increases in common or preferred stock in excess of the allowable maximum (see discussion under "Capital"); or
- Adverse changes in shareholder rights.

Going Private and Going Dark Transactions (LBOs and Minority Squeeze-outs)

General Recommendation: Vote case-by-case on going private transactions, taking into account the following:

- Offer price/premium;
- Fairness opinion;
- How the deal was negotiated;
- Conflicts of interest;
- Other alternatives/offers considered; and
- Non-completion risk.

Vote case-by-case on going dark transactions, determining whether the transaction enhances shareholder value by taking into consideration:

- Whether the company has attained benefits from being publicly-traded (examination of trading volume, liquidity, and market research of the stock);
- Balanced interests of continuing vs. cashed-out shareholders, taking into account the following:
- Are all shareholders able to participate in the transaction?
- Will there be a liquid market for remaining shareholders following the transaction?
- Does the company have strong corporate governance?
- Will insiders reap the gains of control following the proposed transaction?
- Does the state of incorporation have laws requiring continued reporting that may benefit shareholders?

Joint Ventures

General Recommendation: Vote case-by-case on proposals to form joint ventures, taking into account the following:

- Percentage of assets/business contributed;
- Percentage ownership;
- Financial and strategic benefits;
- Governance structure;
- Conflicts of interest;
- Other alternatives; and
- Non-completion risk.

Liquidations

General Recommendation: Vote case-by-case on liquidations, taking into account the following:

- Management's efforts to pursue other alternatives;
- Appraisal value of assets; and
- The compensation plan for executives managing the liquidation.

Vote for the liquidation if the company will file for bankruptcy if the proposal is not approved.

Mergers and Acquisitions

General Recommendation: Vote case-by-case on mergers and acquisitions. Review and evaluate the merits and drawbacks of the proposed transaction, balancing various and sometimes countervailing factors including:

- *Valuation* - Is the value to be received by the target shareholders (or paid by the acquirer) reasonable? While the fairness opinion may provide an initial starting point for assessing valuation reasonableness, emphasis is placed on the offer premium, market reaction, and strategic rationale.
- *Market reaction* - How has the market responded to the proposed deal? A negative market reaction should cause closer scrutiny of a deal.
- *Strategic rationale* - Does the deal make sense strategically? From where is the value derived? Cost and revenue synergies should not be overly aggressive or optimistic, but reasonably achievable. Management should also have a favorable track record of successful integration of historical acquisitions.
- *Negotiations and process* - Were the terms of the transaction negotiated at arm's-length? Was the process fair and equitable? A fair process helps to ensure the best price for shareholders. Significant negotiation "wins" can also signify the deal makers' competency. The comprehensiveness of the sales process (e.g., full auction, partial auction, no auction) can also affect shareholder value.
- *Conflicts of interest* - Are insiders benefiting from the transaction disproportionately and inappropriately as compared to non-insider shareholders? As the result of potential conflicts, the directors and officers of the company may be more likely to vote to approve a merger than if they did not hold these interests. Consider whether these interests may have influenced these directors and officers to support or recommend the

merger. The CIC figure presented in the "ISS Transaction Summary" section of this report is an aggregate figure that can in certain cases be a misleading indicator of the true value transfer from shareholders to insiders. Where such figure appears to be excessive, analyze the underlying assumptions to determine whether a potential conflict exists.

- *Governance* - Will the combined company have a better or worse governance profile than the current governance profiles of the respective parties to the transaction? If the governance profile is to change for the worse, the burden is on the company to prove that other issues (such as valuation) outweigh any deterioration in governance.

Private Placements/Warrants/Convertible Debentures

General Recommendation: Vote case-by-case on proposals regarding private placements, warrants, and convertible debentures taking into consideration:

- Dilution to existing shareholders' position: The amount and timing of shareholder ownership dilution should be weighed against the needs and proposed shareholder benefits of the capital infusion. Although newly issued common stock, absent preemptive rights, is typically dilutive to existing shareholders, share price appreciation is often the necessary event to trigger the exercise of "out of the money" warrants and convertible debt. In these instances from a value standpoint, the negative impact of dilution is mitigated by the increase in the company's stock price that must occur to trigger the dilutive event.

- Terms of the offer (discount/premium in purchase price to investor, including any fairness opinion, conversion features, termination penalties, exit strategy):

    - The terms of the offer should be weighed against the alternatives of the company and in light of company's financial condition. Ideally, the conversion price for convertible debt and the exercise price for warrants should be at a premium to the then prevailing stock price at the time of private placement.

    - When evaluating the magnitude of a private placement discount or premium, consider factors that influence the discount or premium, such as, liquidity, due diligence costs, control and monitoring costs, capital scarcity, information asymmetry, and anticipation of future performance.

- Financial issues:
    - The company's financial condition;
    - Degree of need for capital;
    - Use of proceeds;
    - Effect of the financing on the company's cost of capital;
    - Current and proposed cash burn rate;
    - Going concern viability and the state of the capital and credit markets.

- Management's efforts to pursue alternatives and whether the company engaged in a process to evaluate alternatives: A fair, unconstrained process helps to ensure the best price for shareholders. Financing alternatives can include joint ventures, partnership, merger, or sale of part or all of the company.

- Control issues:
    - Change in management;
    - Change in control;
    - Guaranteed board and committee seats;
    - Standstill provisions;
    - Voting agreements;
    - Veto power over certain corporate actions; and
    - Minority versus majority ownership and corresponding minority discount or majority control premium.

- Conflicts of interest:
  - Conflicts of interest should be viewed from the perspective of the company and the investor.
  - Were the terms of the transaction negotiated at arm's length? Are managerial incentives aligned with shareholder interests?

- Market reaction:
  - The market's response to the proposed deal. A negative market reaction is a cause for concern. Market reaction may be addressed by analyzing the one-day impact on the unaffected stock price.

Vote for the private placement, or for the issuance of warrants and/or convertible debentures in a private placement, if it is expected that the company will file for bankruptcy if the transaction is not approved.

Reorganization/Restructuring Plan (Bankruptcy)

General Recommendation: Vote case-by-case on proposals to common shareholders on bankruptcy plans of reorganization, considering the following factors including, but not limited to:

- Estimated value and financial prospects of the reorganized company;
- Percentage ownership of current shareholders in the reorganized company;
- Whether shareholders are adequately represented in the reorganization process (particularly through the existence of an Official Equity Committee);
- The cause(s) of the bankruptcy filing, and the extent to which the plan of reorganization addresses the cause(s);
- Existence of a superior alternative to the plan of reorganization; and
- Governance of the reorganized company.

Special Purpose Acquisition Corporations (SPACs)

General Recommendation: Vote case-by-case on SPAC mergers and acquisitions taking into account the following:

- *Valuation* - Is the value being paid by the SPAC reasonable? SPACs generally lack an independent fairness opinion and the financials on the target may be limited. Compare the conversion price with the intrinsic value of the target company provided in the fairness opinion. Also, evaluate the proportionate value of the combined entity attributable to the SPAC IPO shareholders versus the pre-merger value of SPAC. Additionally, a private company discount may be applied to the target if it is a private entity.
- *Market reaction* - How has the market responded to the proposed deal? A negative market reaction may be a cause for concern. Market reaction may be addressed by analyzing the one-day impact on the unaffected stock price.
- *Deal timing* - A main driver for most transactions is that the SPAC charter typically requires the deal to be complete within 18 to 24 months, or the SPAC is to be liquidated. Evaluate the valuation, market reaction, and potential conflicts of interest for deals that are announced close to the liquidation date.
- *Negotiations and process* - What was the process undertaken to identify potential target companies within specified industry or location specified in charter? Consider the background of the sponsors.
- *Conflicts of interest* - How are sponsors benefiting from the transaction compared to IPO shareholders? Potential conflicts could arise if a fairness opinion is issued by the insiders to qualify the deal rather than a third party or if management is encouraged to pay a higher price for the target because of an 80 percent rule (the charter requires that the fair market value of the target is at least equal to 80 percent of net assets of the SPAC). Also, there may be sense of urgency by the management team of the SPAC to close the deal since its charter typically requires a transaction to be completed within the 18-24-month timeframe.
- *Voting agreements* - Are the sponsors entering into enter into any voting agreements/tender offers with shareholders who are likely to vote against the proposed merger or exercise conversion rights?
- *Governance* - What is the impact of having the SPAC CEO or founder on key committees following the proposed merger?

Special Purpose Acquisition Corporations (SPACs) - Proposals for Extensions

General Recommendation: Vote case-by-case on SPAC extension proposals taking into account the length of the requested extension, the status of any pending transaction(s) or progression of the acquisition process, any added incentive for non-redeeming shareholders, and any prior extension requests.

- *Length of request*: Typically, extension requests range from two to six months, depending on the progression of the SPAC's acquistion process.
- *Pending transaction(s)* or *progression of the acquisition process:* Sometimes an intial business combination was already put to a shareholder vote, but, for varying reasons, the transaction could not be consummated by the termination date and the SPAC is requesting an extension. Other times, the SPAC has entered into a definitive transaction agreement, but needs additional time to consummate or hold the shareholder meeting.
- *Added incentive for non-redeeming shareholders*: Sometimes the SPAC sponsor (or other insiders) will contribute, typically as a loan to the company, additional funds that will be added to the redemption value of each public share as long as such shares are not redeemed in connection with the extension request. The purpose of the "equity kicker" is to incentivize shareholders to hold their shares through the end of the requested extension or until the time the transaction is put to a shareholder vote, rather than electing redeemption at the extension proposal meeting.
- *Prior extension requests*: Some SPACs request additional time beyond the extension period sought in prior extension requests.

Spin-offs

General Recommendation: Vote case-by-case on spin-offs, considering:

- Tax and regulatory advantages;
- Planned use of the sale proceeds;
- Valuation of spinoff;
- Fairness opinion;
- Benefits to the parent company;
- Conflicts of interest;
- Managerial incentives;
- Corporate governance changes;
- Changes in the capital structure.

Value Maximization Shareholder Proposals

General Recommendation: Vote case-by-case on shareholder proposals seeking to maximize shareholder value by:

- Hiring a financial advisor to explore strategic alternatives;
- Selling the company; or
- Liquidating the company and distributing the proceeds to shareholders.

These proposals should be evaluated based on the following factors:

- Prolonged poor performance with no turnaround in sight;
- Signs of entrenched board and management (such as the adoption of takeover defenses);
- Strategic plan in place for improving value;
- Likelihood of receiving reasonable value in a sale or dissolution; and
- The company actively exploring its strategic options, including retaining a financial advisor.

5. Compensation

Executive Pay Evaluation

Underlying all evaluations are five global principles that most investors expect corporations to adhere to in designing and administering executive and director compensation programs:

1. Maintain appropriate pay-for-performance alignment, with emphasis on long-term shareholder value: This principle encompasses overall executive pay practices, which must be designed to attract, retain, and appropriately motivate the key employees who drive shareholder value creation over the long term. It will take into consideration, among other factors, the link between pay and performance; the mix between fixed and variable pay; performance goals; and equity-based plan costs;
2. Avoid arrangements that risk "pay for failure": This principle addresses the appropriateness of long or indefinite contracts, excessive severance packages, and guaranteed compensation;
3. Maintain an independent and effective compensation committee: This principle promotes oversight of executive pay programs by directors with appropriate skills, knowledge, experience, and a sound process for compensation decision-making (*e.g.*, including access to independent expertise and advice when needed);
4. Provide shareholders with clear, comprehensive compensation disclosures: This principle underscores the importance of informative and timely disclosures that enable shareholders to evaluate executive pay practices fully and fairly;
5. Avoid inappropriate pay to non-executive directors: This principle recognizes the interests of shareholders in ensuring that compensation to outside directors is reasonable and does not compromise their independence and ability to make appropriate judgments in overseeing managers' pay and performance. At the market level, it may incorporate a variety of generally accepted best practices.

Advisory Votes on Executive Compensation—Management Proposals (Say-on-Pay)

General Recommendation: Vote case-by-case on ballot items related to executive pay and practices, as well as certain aspects of outside director compensation.

Vote against Advisory Votes on Executive Compensation (Say-on-Pay or "SOP") if:

- There is an unmitigated misalignment between CEO pay and company performance (pay for performance);
- The company maintains significant problematic pay practices;
- The board exhibits a significant level of poor communication and responsiveness to shareholders.

Vote against or withhold from the members of the Compensation Committee and potentially the full board if:

- There is no SOP on the ballot, and an against vote on an SOP would otherwise be warranted due to pay-for-performance misalignment, problematic pay practices, or the lack of adequate responsiveness on compensation issues raised previously, or a combination thereof;
- The board fails to respond adequately to a previous SOP proposal that received less than 70 percent support of votes cast;
- The company has recently practiced or approved problematic pay practices, such as option repricing or option backdating; or
- The situation is egregious.

Primary Evaluation Factors for Executive Pay

Pay-for-Performance Evaluation

ISS annually conducts a pay-for-performance analysis to identify strong or satisfactory alignment between pay and performance over a sustained period. With respect to companies in the S&P1500, Russell 3000, or Russell 3000E Indices[16], this analysis considers the following:

1. Peer Group[17] Alignment:

- The degree of alignment between the company's annualized TSR rank and the CEO's annualized total pay rank within a peer group, each measured over a three-year period.
- The rankings of CEO total pay and company financial performance within a peer group, each measured over a three-year period.
- The multiple of the CEO's total pay relative to the peer group median in the most recent fiscal year.

2. Absolute Alignment[18] – the absolute alignment between the trend in CEO pay and company TSR over the prior five fiscal years – i.e., the difference between the trend in annual pay changes and the trend in annualized TSR during the period.

If the above analysis demonstrates significant unsatisfactory long-term pay-for-performance alignment or, in the case of companies outside the Russell indices, a misalignment between pay and performance is otherwise suggested, our analysis may include any of the following qualitative factors, as relevant to an evaluation of how various pay elements may work to encourage or to undermine long-term value creation and alignment with shareholder interests:

- The ratio of performance- to time-based incentive awards;
- The overall ratio of performance-based compensation to fixed or discretionary pay;
- The rigor of performance goals;
- The complexity and risks around pay program design;
- The transparency and clarity of disclosure;
- The company's peer group benchmarking practices;
- Financial/operational results, both absolute and relative to peers;
- Special circumstances related to, for example, a new CEO in the prior FY or anomalous equity grant practices (e.g., bi-annual awards);
- Realizable pay[19] compared to grant pay; and
- Any other factors deemed relevant.

Problematic Pay Practices

The focus is on executive compensation practices that contravene the global pay principles, including:

- Problematic practices related to non-performance-based compensation elements;

[16] The Russell 3000E Index includes approximately 4,000 of the largest U.S. equity securities.
[17] The revised peer group is generally comprised of 14-24 companies that are selected using market cap, revenue (or assets for certain financial firms), GICS industry group, and company's selected peers' GICS industry group, with size constraints, via a process designed to select peers that are comparable to the subject company in terms of revenue/assets and industry, and also within a market-cap bucket that is reflective of the company's market cap. For Oil, Gas & Consumable Fuels companies, market cap is the only size determinant.
[18] Only Russell 3000 Index companies are subject to the Absolute Alignment analysis.
[19] ISS research reports include realizable pay for S&P1500 companies.

- Incentives that may motivate excessive risk-taking or present a windfall risk; and
- Pay decisions that circumvent pay-for-performance, such as options backdating or waiving performance requirements.

Problematic Pay Practices related to Non-Performance-Based Compensation Elements

Pay elements that are not directly based on performance are generally evaluated case-by-case considering the context of a company's overall pay program and demonstrated pay-for-performance philosophy. Please refer to ISS' U.S. Compensation Policies FAQ document for detail on specific pay practices that have been identified as potentially problematic and may lead to negative recommendations if they are deemed to be inappropriate or unjustified relative to executive pay best practices. The list below highlights the problematic practices that carry significant weight in this overall consideration and may result in adverse vote recommendations:

- Repricing or replacing of underwater stock options/SARs without prior shareholder approval (including cash buyouts and voluntary surrender of underwater options);
- Extraordinary perquisites or tax gross-ups;
- New or materially amended agreements that provide for:
  - Excessive termination or CIC severance payments (generally exceeding 3 times base salary and average/target/most recent bonus);
  - CIC severance payments without involuntary job loss or substantial diminution of duties ("single" or "modified single" triggers) or in connection with a problematic Good Reason definition;
  - CIC excise tax gross-up entitlements (including "modified" gross-ups);
  - Multi-year guaranteed awards that are not at risk due to rigorous performance conditions;
- Liberal CIC definition combined with any single-trigger CIC benefits;
- Insufficient executive compensation disclosure by externally-managed issuers (EMIs) such that a reasonable assessment of pay programs and practices applicable to the EMI's executives is not possible;
- Any other provision or practice deemed to be egregious and present a significant risk to investors.

Options Backdating

The following factors should be examined case-by-case to allow for distinctions to be made between “sloppy” plan administration versus deliberate action or fraud:

- Reason and motive for the options backdating issue, such as inadvertent vs. deliberate grant date changes;
- Duration of options backdating;
- Size of restatement due to options backdating;
- Corrective actions taken by the board or compensation committee, such as canceling or re-pricing backdated options, the recouping of option gains on backdated grants; and
- Adoption of a grant policy that prohibits backdating and creates a fixed grant schedule or window period for equity grants in the future.

Compensation Committee Communications and Responsiveness

Consider the following factors case-by-case when evaluating ballot items related to executive pay on the board’s responsiveness to investor input and engagement on compensation issues:

- Failure to respond to majority-supported shareholder proposals on executive pay topics; or
- Failure to adequately respond to the company's previous say-on-pay proposal that received the support of less than 70 percent of votes cast, taking into account:
  - Disclosure of engagement efforts with major institutional investors, including the frequency and timing of engagements and the company participants (including whether independent directors participated);

- Disclosure of the specific concerns voiced by dissenting shareholders that led to the say-on-pay opposition;
- Disclosure of specific and meaningful actions taken to address shareholders' concerns;
- Other recent compensation actions taken by the company;
- Whether the issues raised are recurring or isolated;
- The company's ownership structure; and
- Whether the support level was less than 50 percent, which would warrant the highest degree of responsiveness.

Frequency of Advisory Vote on Executive Compensation ("Say When on Pay")

General Recommendation: Vote for annual advisory votes on compensation, which provide the most consistent and clear communication channel for shareholder concerns about companies' executive pay programs.

Voting on Golden Parachutes in an Acquisition, Merger, Consolidation, or Proposed Sale

General Recommendation: Vote case-by-case on say on Golden Parachute proposals, including consideration of existing change-in-control arrangements maintained with named executive officers but also considering new or extended arrangements.

Features that may result in an “against” recommendation include one or more of the following, depending on the number, magnitude, and/or timing of issue(s):

- Single- or modified-single-trigger cash severance;
- Single-trigger acceleration of unvested equity awards;
- Full acceleration of equity awards granted shortly before the change in control;
- Acceleration of performance awards above the target level of performance without compelling rationale;
- Excessive cash severance (generally >3x base salary and bonus);
- Excise tax gross-ups triggered and payable;
- Excessive golden parachute payments (on an absolute basis or as a percentage of transaction equity value); or
- Recent amendments that incorporate any problematic features (such as those above) or recent actions (such as extraordinary equity grants) that may make packages so attractive as to influence merger agreements that may not be in the best interests of shareholders; or
- The company's assertion that a proposed transaction is conditioned on shareholder approval of the golden parachute advisory vote.

Recent amendment(s) that incorporate problematic features will tend to carry more weight on the overall analysis. However, the presence of multiple legacy problematic features will also be closely scrutinized.

In cases where the golden parachute vote is incorporated into a company's advisory vote on compensation (management say-on-pay), ISS will evaluate the say-on-pay proposal in accordance with these guidelines, which may give higher weight to that component of the overall evaluation.

Equity-Based and Other Incentive Plans

Please refer to ISS' U.S. Equity Compensation Plans FAQ document for additional details on the Equity Plan Scorecard policy.

General Recommendation: Vote case-by-case on certain equity-based compensation plans[20] depending on a combination of certain plan features and equity grant practices, where positive factors may counterbalance negative factors, and vice versa, as evaluated using an "Equity Plan Scorecard" (EPSC) approach with three pillars:

- **Plan Cost:** The total estimated cost of the company's equity plans relative to industry/market cap peers, measured by the company's estimated Shareholder Value Transfer (SVT) in relation to peers and considering both:
  - SVT based on new shares requested plus shares remaining for future grants, plus outstanding unvested/unexercised grants; and
  - SVT based only on new shares requested plus shares remaining for future grants.

- **Plan Features:**
  - Quality of disclosure around vesting upon a change in control (CIC);
  - Discretionary vesting authority;
  - Liberal share recycling on various award types;
  - Lack of minimum vesting period for grants made under the plan;
  - Dividends payable prior to award vesting.

- **Grant Practices:**
  - The company's three-year burn rate relative to its industry/market cap peers;
  - Vesting requirements in CEO's recent equity grants (3-year look-back);
  - The estimated duration of the plan (based on the sum of shares remaining available and the new shares requested, divided by the average annual shares granted in the prior three years);
  - The proportion of the CEO's most recent equity grants/awards subject to performance conditions;
  - Whether the company maintains a sufficient claw-back policy;
  - Whether the company maintains sufficient post-exercise/vesting share-holding requirements.

Generally vote against the plan proposal if the combination of above factors indicates that the plan is not, overall, in shareholders' interests, or if any of the following egregious factors ("overriding factors") apply:

- Awards may vest in connection with a liberal change-of-control definition;
- The plan would permit repricing or cash buyout of underwater options without shareholder approval (either by expressly permitting it – for NYSE and Nasdaq listed companies – or by not prohibiting it when the company has a history of repricing – for non-listed companies);
- The plan is a vehicle for problematic pay practices or a significant pay-for-performance disconnect under certain circumstances;
- The plan is excessively dilutive to shareholders' holdings;
- The plan contains an evergreen (automatic share replenishment) feature; or
- Any other plan features are determined to have a significant negative impact on shareholder interests.

Further Information on certain EPSC Factors:

Shareholder Value Transfer (SVT)

The cost of the equity plans is expressed as Shareholder Value Transfer (SVT), which is measured using a binomial option pricing model that assesses the amount of shareholders' equity flowing out of the company to employees and directors. SVT is expressed as both a dollar amount and as a percentage of market value, and includes the new

[20] Proposals evaluated under the EPSC policy generally include those to approve or amend (1) stock option plans for employees and/or employees and directors, (2) restricted stock plans for employees and/or employees and directors, and (3) omnibus stock incentive plans for employees and/or employees and directors; amended plans will be further evaluated case-by-case.

shares proposed, shares available under existing plans, and shares granted but unexercised (using two measures, in the case of plans subject to the Equity Plan Scorecard evaluation, as noted above). All award types are valued. For omnibus plans, unless limitations are placed on the most expensive types of awards (for example, full-value awards), the assumption is made that all awards to be granted will be the most expensive types.

For proposals that are not subject to the Equity Plan Scorecard evaluation, Shareholder Value Transfer is reasonable if it falls below a company-specific benchmark. The benchmark is determined as follows: The top quartile performers in each industry group (using the Global Industry Classification Standard: GICS) are identified. Benchmark SVT levels for each industry are established based on these top performers' historic SVT. Regression analyses are run on each industry group to identify the variables most strongly correlated to SVT. The benchmark industry SVT level is then adjusted upwards or downwards for the specific company by plugging the company-specific performance measures, size, and cash compensation into the industry cap equations to arrive at the company's benchmark.[21]

Three-Year Burn Rate

For meetings held prior to February 1, 2023, burn-rate benchmarks (utilized in Equity Plan Scorecard evaluations) are calculated as the greater of: (1) the mean (μ) plus one standard deviation (σ) of the company's GICS group segmented by S&P 500, Russell 3000 index (less the S&P500), and non-Russell 3000 index; and (2) two percent of weighted common shares outstanding. In addition, year-over-year burn-rate benchmark changes will be limited to a maximum of two (2) percentage points plus or minus the prior year's burn-rate benchmark. See the U.S. Equity Compensation Plans FAQ for the benchmarks.

For meetings held prior to February 1, 2023, a company's adjusted burn rate is calculated as follows:

Burn Rate = (# of appreciation awards granted + # of full value awards granted * Volatility Multiplier) / Weighted average common shares outstanding

The Volatility Multiplier is used to provide more equivalent valuation between stock options and full value shares, based on the company's historical stock price volatility.

Effective for meetings held on or after February 1, 2023, a "Value-Adjusted Burn Rate" will instead be used for stock plan evaluations. Value-Adjusted Burn Rate benchmarks will be calculated as the greater of: (1) an industry-specific threshold based on three-year burn rates within the company's GICS group segmented by S&P 500, Russell 3000 index (less the S&P 500) and non-Russell 3000 index; and (2) a de minimis threshold established separately for each of the S&P 500, the Russell 3000 index less the S&P 500, and the non-Russell 3000 index. Year-over-year burn-rate benchmark changes will be limited to a predetermined range above or below the prior year's burn-rate benchmark.

The Value-Adjusted Burn Rate will be calculated as follows:

Value-Adjusted Burn Rate = ((# of options * option's dollar value using a Black-Scholes model) + (# of full-value awards * stock price)) / (Weighted average common shares * stock price).

[21] For plans evaluated under the Equity Plan Scorecard policy, the company's SVT benchmark is considered along with other factors.

Egregious Factors

Liberal Change in Control Definition

Generally vote against equity plans if the plan has a liberal definition of change in control and the equity awards could vest upon such liberal definition of change in control, even though an actual change in control may not occur. Examples of such a definition include, but are not limited to, announcement or commencement of a tender offer, provisions for acceleration upon a "potential" takeover, shareholder approval of a merger or other transactions, or similar language.

Repricing Provisions

Vote against plans that expressly permit the repricing or exchange of underwater stock options/stock appreciate rights (SARs) without prior shareholder approval. "Repricing" typically includes the ability to do any of the following:

- Amend the terms of outstanding options or SARs to reduce the exercise price of such outstanding options or SARs;
- Cancel outstanding options or SARs in exchange for options or SARs with an exercise price that is less than the exercise price of the original options or SARs;
- Cancel underwater options in exchange for stock awards; or
- Provide cash buyouts of underwater options.

While the above cover most types of repricing, ISS may view other provisions as akin to repricing depending on the facts and circumstances.

Also, vote against or withhold from members of the Compensation Committee who approved repricing (as defined above or otherwise determined by ISS), without prior shareholder approval, even if such repricings are allowed in their equity plan.

Vote against plans that do not expressly prohibit repricing or cash buyout of underwater options without shareholder approval if the company has a history of repricing/buyouts without shareholder approval, and the applicable listing standards would not preclude them from doing so.

Problematic Pay Practices or Significant Pay-for-Performance Disconnect

If the equity plan on the ballot is a vehicle for problematic pay practices, vote against the plan.

ISS may recommend a vote against the equity plan if the plan is determined to be a vehicle for pay-for-performance misalignment. Considerations in voting against the equity plan may include, but are not limited to:

- Severity of the pay-for-performance misalignment;
- Whether problematic equity grant practices are driving the misalignment; and/or
- Whether equity plan awards have been heavily concentrated to the CEO and/or the other NEOs.

Amending Cash and Equity Plans (including Approval for Tax Deductibility (162(m))

General Recommendation: Vote case-by-case on amendments to cash and equity incentive plans.

Generally vote for proposals to amend executive cash, stock, or cash and stock incentive plans if the proposal:

- Addresses administrative features only; or

- Seeks approval for Section 162(m) purposes only, and the plan administering committee consists entirely of independent directors, per ISS' Classification of Directors. Note that if the company is presenting the plan to shareholders for the first time for any reason (including after the company's initial public offering), or if the proposal is bundled with other material plan amendments, then the recommendation will be case-by-case (see below).

Vote against proposals to amend executive cash, stock, or cash and stock incentive plans if the proposal:

- Seeks approval for Section 162(m) purposes only, and the plan administering committee does not consist entirely of independent directors, per ISS' Classification of Directors.

Vote case-by-case on all other proposals to amend cash incentive plans. This includes plans presented to shareholders for the first time after the company's IPO and/or proposals that bundle material amendment(s) other than those for Section 162(m) purposes.

Vote case-by-case on all other proposals to amend equity incentive plans, considering the following:

- If the proposal requests additional shares and/or the amendments include a term extension or addition of full value awards as an award type, the recommendation will be based on the Equity Plan Scorecard evaluation as well as an analysis of the overall impact of the amendments.
- If the plan is being presented to shareholders for the first time (including after the company's IPO), whether or not additional shares are being requested, the recommendation will be based on the Equity Plan Scorecard evaluation as well as an analysis of the overall impact of any amendments.
- If there is no request for additional shares and the amendments do not include a term extension or addition of full value awards as an award type, then the recommendation will be based entirely on an analysis of the overall impact of the amendments, and the EPSC evaluation will be shown only for informational purposes.

In the first two case-by-case evaluation scenarios, the EPSC evaluation/score is the more heavily weighted consideration.

Specific Treatment of Certain Award Types in Equity Plan Evaluations

Dividend Equivalent Rights

Options that have Dividend Equivalent Rights (DERs) associated with them will have a higher calculated award value than those without DERs under the binomial model, based on the value of these dividend streams. The higher value will be applied to new shares, shares available under existing plans, and shares awarded but not exercised per the plan specifications. DERS transfer more shareholder equity to employees and non-employee directors and this cost should be captured.

Operating Partnership (OP) Units in Equity Plan Analysis of Real Estate Investment Trusts (REITs)

For Real Estate Investment Trusts (REITS), include the common shares issuable upon conversion of outstanding Operating Partnership (OP) units in the share count for the purposes of determining: (1) market capitalization in the Shareholder Value Transfer (SVT) analysis and (2) shares outstanding in the burn rate analysis.

Other Compensation Plans

401(k) Employee Benefit Plans

General Recommendation: Vote for proposals to implement a 401(k) savings plan for employees.

Employee Stock Ownership Plans (ESOPs)

General Recommendation: Vote for proposals to implement an ESOP or increase authorized shares for existing ESOPs, unless the number of shares allocated to the ESOP is excessive (more than five percent of outstanding shares).

Employee Stock Purchase Plans—Qualified Plans

General Recommendation: Vote case-by-case on qualified employee stock purchase plans. Vote for employee stock purchase plans where all of the following apply:

- Purchase price is at least 85 percent of fair market value;
- Offering period is 27 months or less; and
- The number of shares allocated to the plan is 10 percent or less of the outstanding shares.

Vote against qualified employee stock purchase plans where when the plan features do not meet all of the above criteria.

Employee Stock Purchase Plans—Non-Qualified Plans

General Recommendation: Vote case-by-case on nonqualified employee stock purchase plans. Vote for nonqualified employee stock purchase plans with all the following features:

- Broad-based participation;
- Limits on employee contribution, which may be a fixed dollar amount or expressed as a percent of base salary;
- Company matching contribution up to 25 percent of employee's contribution, which is effectively a discount of 20 percent from market value; and
- No discount on the stock price on the date of purchase when there is a company matching contribution.

Vote against nonqualified employee stock purchase plans when the plan features do not meet all of the above criteria. If the matching contribution or effective discount exceeds the above, ISS may evaluate the SVT cost of the plan as part of the assessment.

Option Exchange Programs/Repricing Options

General Recommendation: Vote case-by-case on management proposals seeking approval to exchange/reprice options taking into consideration:

- Historic trading patterns--the stock price should not be so volatile that the options are likely to be back "in-the-money" over the near term;
- Rationale for the re-pricing--was the stock price decline beyond management's control?;
- Is this a value-for-value exchange?;
- Are surrendered stock options added back to the plan reserve?;
- Timing--repricing should occur at least one year out from any precipitous drop in company's stock price;
- Option vesting--does the new option vest immediately or is there a black-out period?;
- Term of the option--the term should remain the same as that of the replaced option;
- Exercise price--should be set at fair market or a premium to market;
- Participants--executive officers and directors must be excluded.

If the surrendered options are added back to the equity plans for re-issuance, then also take into consideration the company's total cost of equity plans and its three-year average burn rate.

In addition to the above considerations, evaluate the intent, rationale, and timing of the repricing proposal. The proposal should clearly articulate why the board is choosing to conduct an exchange program at this point in time. Repricing underwater options after a recent precipitous drop in the company's stock price demonstrates poor timing and warrants additional scrutiny. Also, consider the terms of the surrendered options, such as the grant date, exercise price and vesting schedule. Grant dates of surrendered options should be far enough back (two to three years) so as not to suggest that repricings are being done to take advantage of short-term downward price movements. Similarly, the exercise price of surrendered options should be above the 52-week high for the stock price.

Vote for shareholder proposals to put option repricings to a shareholder vote.

Stock Plans in Lieu of Cash

General Recommendation: Vote case-by-case on plans that provide participants with the option of taking all or a portion of their cash compensation in the form of stock.

Vote for non-employee director-only equity plans that provide a dollar-for-dollar cash-for-stock exchange.

Vote case-by-case on plans which do not provide a dollar-for-dollar cash for stock exchange. In cases where the exchange is not dollar-for-dollar, the request for new or additional shares for such equity program will be considered using the binomial option pricing model. In an effort to capture the total cost of total compensation, ISS will not make any adjustments to carve out the in-lieu-of cash compensation.

Transfer Stock Option (TSO) Programs

General Recommendation: One-time Transfers: Vote against or withhold from compensation committee members if they fail to submit one-time transfers to shareholders for approval.

Vote case-by-case on one-time transfers. Vote for if:

- Executive officers and non-employee directors are excluded from participating;
- Stock options are purchased by third-party financial institutions at a discount to their fair value using option pricing models such as Black-Scholes or a Binomial Option Valuation or other appropriate financial models; and
- There is a two-year minimum holding period for sale proceeds (cash or stock) for all participants.

Additionally, management should provide a clear explanation of why options are being transferred to a third-party institution and whether the events leading up to a decline in stock price were beyond management's control. A review of the company's historic stock price volatility should indicate if the options are likely to be back “in-the-money” over the near term.

Ongoing TSO program: Vote against equity plan proposals if the details of ongoing TSO programs are not provided to shareholders. Since TSOs will be one of the award types under a stock plan, the ongoing TSO program, structure, and mechanics must be disclosed to shareholders. The specific criteria to be considered in evaluating these proposals include, but not limited, to the following:

- Eligibility;
- Vesting;
- Bid-price;
- Term of options;
- Cost of the program and impact of the TSOs on company’s total option expense; and
- Option repricing policy.

Amendments to existing plans that allow for introduction of transferability of stock options should make clear that only options granted post-amendment shall be transferable.

Director Compensation

Shareholder Ratification of Director Pay Programs

General Recommendation: Vote case-by-case on management proposals seeking ratification of non-employee director compensation, based on the following factors:

- If the equity plan under which non-employee director grants are made is on the ballot, whether or not it warrants support; and
- An assessment of the following qualitative factors:
  - The relative magnitude of director compensation as compared to companies of a similar profile;
  - The presence of problematic pay practices relating to director compensation;
  - Director stock ownership guidelines and holding requirements;
  - Equity award vesting schedules;
  - The mix of cash and equity-based compensation;
  - Meaningful limits on director compensation;
  - The availability of retirement benefits or perquisites; and
  - The quality of disclosure surrounding director compensation.

Equity Plans for Non-Employee Directors

General Recommendation: Vote case-by-case on compensation plans for non-employee directors, based on:

- The total estimated cost of the company's equity plans relative to industry/market cap peers, measured by the company's estimated Shareholder Value Transfer (SVT) based on new shares requested plus shares remaining for future grants, plus outstanding unvested/unexercised grants;
- The company's three-year burn rate relative to its industry/market cap peers (in certain circumstances); and
- The presence of any egregious plan features (such as an option repricing provision or liberal CIC vesting risk).

On occasion, non-employee director stock plans will exceed the plan cost or burn-rate benchmarks when combined with employee or executive stock plans. In such cases, vote case-by-case on the plan taking into consideration the following qualitative factors:

- The relative magnitude of director compensation as compared to companies of a similar profile;
- The presence of problematic pay practices relating to director compensation;
- Director stock ownership guidelines and holding requirements;
- Equity award vesting schedules;
- The mix of cash and equity-based compensation;
- Meaningful limits on director compensation;
- The availability of retirement benefits or perquisites; and
- The quality of disclosure surrounding director compensation.

Non-Employee Director Retirement Plans

General Recommendation: Vote against retirement plans for non-employee directors. Vote for shareholder proposals to eliminate retirement plans for non-employee directors.

Shareholder Proposals on Compensation

Bonus Banking/Bonus Banking "Plus"

General Recommendation: Vote case-by-case on proposals seeking deferral of a portion of annual bonus pay, with ultimate payout linked to sustained results for the performance metrics on which the bonus was earned (whether for the named executive officers or a wider group of employees), taking into account the following factors:

- The company's past practices regarding equity and cash compensation;
- Whether the company has a holding period or stock ownership requirements in place, such as a meaningful retention ratio (at least 50 percent for full tenure); and
- Whether the company has a rigorous claw-back policy in place.

Compensation Consultants—Disclosure of Board or Company's Utilization

General Recommendation: Generally vote for shareholder proposals seeking disclosure regarding the company, board, or compensation committee's use of compensation consultants, such as company name, business relationship(s), and fees paid.

Disclosure/Setting Levels or Types of Compensation for Executives and Directors

General Recommendation: Generally vote for shareholder proposals seeking additional disclosure of executive and director pay information, provided the information requested is relevant to shareholders' needs, would not put the company at a competitive disadvantage relative to its industry, and is not unduly burdensome to the company.

Generally vote against shareholder proposals seeking to set absolute levels on compensation or otherwise dictate the amount or form of compensation (such as types of compensation elements or specific metrics) to be used for executive or directors.

Generally vote against shareholder proposals that mandate a minimum amount of stock that directors must own in order to qualify as a director or to remain on the board.

Vote case-by-case on all other shareholder proposals regarding executive and director pay, taking into account relevant factors, including but not limited to: company performance, pay level and design versus peers, history of compensation concerns or pay-for-performance disconnect, and/or the scope and prescriptive nature of the proposal.

Golden Coffins/Executive Death Benefits

General Recommendation: Generally vote for proposals calling for companies to adopt a policy of obtaining shareholder approval for any future agreements and corporate policies that could oblige the company to make payments or awards following the death of a senior executive in the form of unearned salary or bonuses, accelerated vesting or the continuation in force of unvested equity grants, perquisites and other payments or awards made in lieu of compensation. This would not apply to any benefit programs or equity plan proposals for which the broad-based employee population is eligible.

Hold Equity Past Retirement or for a Significant Period of Time

General Recommendation: Vote case-by-case on shareholder proposals asking companies to adopt policies requiring senior executive officers to retain a portion of net shares acquired through compensation plans. The following factors will be taken into account:

- The percentage/ratio of net shares required to be retained;
- The time period required to retain the shares;
- Whether the company has equity retention, holding period, and/or stock ownership requirements in place and the robustness of such requirements;

- Whether the company has any other policies aimed at mitigating risk taking by executives;
- Executives' actual stock ownership and the degree to which it meets or exceeds the proponent's suggested holding period/retention ratio or the company's existing requirements; and
- Problematic pay practices, current and past, which may demonstrate a short-term versus long-term focus.

Pay Disparity

General Recommendation: Vote case-by-case on proposals calling for an analysis of the pay disparity between corporate executives and other non-executive employees. The following factors will be considered:

- The company's current level of disclosure of its executive compensation setting process, including how the company considers pay disparity;
- If any problematic pay practices or pay-for-performance concerns have been identified at the company; and
- The level of shareholder support for the company's pay programs.

Generally vote against proposals calling for the company to use the pay disparity analysis or pay ratio in a specific way to set or limit executive pay.

Pay for Performance/Performance-Based Awards

General Recommendation: Vote case-by-case on shareholder proposals requesting that a significant amount of future long-term incentive compensation awarded to senior executives shall be performance-based and requesting that the board adopt and disclose challenging performance metrics to shareholders, based on the following analytical steps:

- First, vote for shareholder proposals advocating the use of performance-based equity awards, such as performance contingent options or restricted stock, indexed options, or premium-priced options, unless the proposal is overly restrictive or if the company has demonstrated that it is using a "substantial" portion of performance-based awards for its top executives. Standard stock options and performance-accelerated awards do not meet the criteria to be considered as performance-based awards. Further, premium-priced options should have a meaningful premium to be considered performance-based awards.

- Second, assess the rigor of the company's performance-based equity program. If the bar set for the performance-based program is too low based on the company's historical or peer group comparison, generally vote for the proposal. Furthermore, if target performance results in an above target payout, vote for the shareholder proposal due to program's poor design. If the company does not disclose the performance metric of the performance-based equity program, vote for the shareholder proposal regardless of the outcome of the first step to the test.

In general, vote for the shareholder proposal if the company does not meet both of the above two steps.

Pay for Superior Performance

General Recommendation: Vote case-by-case on shareholder proposals that request the board establish a pay-for-superior performance standard in the company's executive compensation plan for senior executives. These proposals generally include the following principles:

- Set compensation targets for the plan's annual and long-term incentive pay components at or below the peer group median;
- Deliver a majority of the plan's target long-term compensation through performance-vested, not simply time-vested, equity awards;
- Provide the strategic rationale and relative weightings of the financial and non-financial performance metrics or criteria used in the annual and performance-vested long-term incentive components of the plan;

- Establish performance targets for each plan financial metric relative to the performance of the company's peer companies;
- Limit payment under the annual and performance-vested long-term incentive components of the plan to when the company's performance on its selected financial performance metrics exceeds peer group median performance.

Consider the following factors in evaluating this proposal:

- What aspects of the company's annual and long-term equity incentive programs are performance driven?
- If the annual and long-term equity incentive programs are performance driven, are the performance criteria and hurdle rates disclosed to shareholders or are they benchmarked against a disclosed peer group?
- Can shareholders assess the correlation between pay and performance based on the current disclosure?
- What type of industry and stage of business cycle does the company belong to?

Pre-Arranged Trading Plans (10b5-1 Plans)

General Recommendation: Generally vote for shareholder proposals calling for the addition of certain safeguards in prearranged trading plans (10b5-1 plans) for executives. Safeguards may include:

- Adoption, amendment, or termination of a 10b5-1 Plan must be disclosed in a Form 8-K;
- Amendment or early termination of a 10b5-1 Plan allowed only under extraordinary circumstances, as determined by the board;
- Request that a certain number of days that must elapse between adoption or amendment of a 10b5-1 Plan and initial trading under the plan;
- Reports on Form 4 must identify transactions made pursuant to a 10b5-1 Plan;
- An executive may not trade in company stock outside the 10b5-1 Plan;
- Trades under a 10b5-1 Plan must be handled by a broker who does not handle other securities transactions for the executive.

Prohibit Outside CEOs from Serving on Compensation Committees

General Recommendation: Generally vote against proposals seeking a policy to prohibit any outside CEO from serving on a company's compensation committee, unless the company has demonstrated problematic pay practices that raise concerns about the performance and composition of the committee.

Recoupment of Incentive or Stock Compensation in Specified Circumstances

General Recommendation: Vote case-by-case on proposals to recoup incentive cash or stock compensation made to senior executives if it is later determined that the figures upon which incentive compensation is earned turn out to have been in error, or if the senior executive has breached company policy or has engaged in misconduct that may be significantly detrimental to the company's financial position or reputation, or if the senior executive failed to manage or monitor risks that subsequently led to significant financial or reputational harm to the company. Many companies have adopted policies that permit recoupment in cases where an executive's fraud, misconduct, or negligence significantly contributed to a restatement of financial results that led to the awarding of unearned incentive compensation. However, such policies may be narrow given that not all misconduct or negligence may result in significant financial restatements. Misconduct, negligence, or lack of sufficient oversight by senior executives may lead to significant financial loss or reputational damage that may have long-lasting impact.

In considering whether to support such shareholder proposals, ISS will take into consideration the following factors:

- If the company has adopted a formal recoupment policy;
- The rigor of the recoupment policy focusing on how and under what circumstances the company may recoup incentive or stock compensation;

- Whether the company has chronic restatement history or material financial problems;
- Whether the company's policy substantially addresses the concerns raised by the proponent;
- Disclosure of recoupment of incentive or stock compensation from senior executives or lack thereof; or
- Any other relevant factors.

Severance Agreements for Executives/Golden Parachutes

General Recommendation: Vote for shareholder proposals requiring that golden parachutes or executive severance agreements be submitted for shareholder ratification, unless the proposal requires shareholder approval *prior* to entering into employment contracts.

Vote case-by-case on proposals to ratify or cancel golden parachutes. An acceptable parachute should include, but is not limited to, the following:

- The triggering mechanism should be beyond the control of management;
- The amount should not exceed three times base amount (defined as the average annual taxable W-2 compensation during the five years prior to the year in which the change of control occurs);
- Change-in-control payments should be double-triggered, i.e., (1) after a change in control has taken place, and (2) termination of the executive as a result of the change in control. Change in control is defined as a change in the company ownership structure.

Share Buyback Impact on Incentive Program Metrics

General Recommendation: Vote case-by-case on proposals requesting the company exclude the impact of share buybacks from the calculation of incentive program metrics, considering the following factors:

- The frequency and timing of the company's share buybacks;
- The use of per-share metrics in incentive plans;
- The effect of recent buybacks on incentive metric results and payouts; and
- Whether there is any indication of metric result manipulation.

Supplemental Executive Retirement Plans (SERPs)

General Recommendation: Generally vote for shareholder proposals requesting to put extraordinary benefits contained in SERP agreements to a shareholder vote unless the company's executive pension plans do not contain excessive benefits beyond what is offered under employee-wide plans.

Generally vote for shareholder proposals requesting to limit the executive benefits provided under the company's supplemental executive retirement plan (SERP) by limiting covered compensation to a senior executive's annual salary or those pay elements covered for the general employee population.

Tax Gross-Up Proposals

General Recommendation: Generally vote for proposals calling for companies to adopt a policy of not providing tax gross-up payments to executives, except in situations where gross-ups are provided pursuant to a plan, policy, or arrangement applicable to management employees of the company, such as a relocation or expatriate tax equalization policy.

Termination of Employment Prior to Severance Payment/Eliminating Accelerated Vesting of Unvested Equity

General Recommendation: Vote case-by-case on shareholder proposals seeking a policy requiring termination of employment prior to severance payment and/or eliminating accelerated vesting of unvested equity.

The following factors will be considered:

- The company's current treatment of equity upon employment termination and/or in change-in-control situations (i.e., vesting is double triggered and/or pro rata, does it allow for the assumption of equity by acquiring company, the treatment of performance shares, etc.);
- Current employment agreements, including potential poor pay practices such as gross-ups embedded in those agreements.

Generally vote for proposals seeking a policy that prohibits automatic acceleration of the vesting of equity awards to senior executives upon a voluntary termination of employment or in the event of a change in control (except for pro rata vesting considering the time elapsed and attainment of any related performance goals between the award date and the change in control).

6. Routine/Miscellaneous

Adjourn Meeting

General Recommendation: Generally vote against proposals to provide management with the authority to adjourn an annual or special meeting absent compelling reasons to support the proposal.

Vote for proposals that relate specifically to soliciting votes for a merger or transaction if supporting that merger or transaction. Vote against proposals if the wording is too vague or if the proposal includes "other business."

Amend Quorum Requirements

General Recommendation: Vote against proposals to reduce quorum requirements for shareholder meetings below a majority of the shares outstanding unless there are compelling reasons to support the proposal.

Amend Minor Bylaws

General Recommendation: Vote for bylaw or charter changes that are of a housekeeping nature (updates or corrections).

Change Company Name

General Recommendation: Vote for proposals to change the corporate name unless there is compelling evidence that the change would adversely impact shareholder value.

Change Date, Time, or Location of Annual Meeting

General Recommendation: Vote for management proposals to change the date, time, or location of the annual meeting unless the proposed change is unreasonable.

Vote against shareholder proposals to change the date, time, or location of the annual meeting unless the current scheduling or location is unreasonable.

Other Business

General Recommendation: Vote against proposals to approve other business when it appears as a voting item.

7. Social and Environmental Issues

Global Approach

Issues covered under the policy include a wide range of topics, including consumer and product safety, environment and energy, labor standards and human rights, workplace and board diversity, and corporate political issues. While a variety of factors goes into each analysis, the overall principle guiding all vote recommendations focuses on how the proposal may enhance or protect shareholder value in either the short or long term.

General Recommendation: Generally vote case-by-case, examining primarily whether implementation of the proposal is likely to enhance or protect shareholder value. The following factors will be considered:

- If the issues presented in the proposal are more appropriately or effectively dealt with through legislation or government regulation;
- If the company has already responded in an appropriate and sufficient manner to the issue(s) raised in the proposal;
- Whether the proposal's request is unduly burdensome (scope or timeframe) or overly prescriptive;
- The company's approach compared with any industry standard practices for addressing the issue(s) raised by the proposal;
- Whether there are significant controversies, fines, penalties, or litigation associated with the company's environmental or social practices;
- If the proposal requests increased disclosure or greater transparency, whether reasonable and sufficient information is currently available to shareholders from the company or from other publicly available sources; and
- If the proposal requests increased disclosure or greater transparency, whether implementation would reveal proprietary or confidential information that could place the company at a competitive disadvantage.

Endorsement of Principles

General Recommendation: Generally vote against proposals seeking a company's endorsement of principles that support a particular public policy position. Endorsing a set of principles may require a company to take a stand on an issue that is beyond its own control and may limit its flexibility with respect to future developments. Management and the board should be afforded the flexibility to make decisions on specific public policy positions based on their own assessment of the most beneficial strategies for the company.

Animal Welfare

Animal Welfare Policies

General Recommendation: Generally vote for proposals seeking a report on a company’s animal welfare standards, or animal welfare-related risks, unless:

- The company has already published a set of animal welfare standards and monitors compliance;
- The company’s standards are comparable to industry peers; and
- There are no recent significant fines, litigation, or controversies related to the company’s and/or its suppliers' treatment of animals.

Animal Testing

General Recommendation: Generally vote against proposals to phase out the use of animals in product testing, unless:

- The company is conducting animal testing programs that are unnecessary or not required by regulation;
- The company is conducting animal testing when suitable alternatives are commonly accepted and used by industry peers; or
- There are recent, significant fines or litigation related to the company's treatment of animals.

Animal Slaughter

General Recommendation: Generally vote against proposals requesting the implementation of Controlled Atmosphere Killing (CAK) methods at company and/or supplier operations unless such methods are required by legislation or generally accepted as the industry standard.

Vote case-by-case on proposals requesting a report on the feasibility of implementing CAK methods at company and/or supplier operations considering the availability of existing research conducted by the company or industry groups on this topic and any fines or litigation related to current animal processing procedures at the company.

Consumer Issues

Genetically Modified Ingredients

General Recommendation: Generally vote against proposals requesting that a company voluntarily label genetically engineered (GE) ingredients in its products. The labeling of products with GE ingredients is best left to the appropriate regulatory authorities.

Vote case-by-case on proposals asking for a report on the feasibility of labeling products containing GE ingredients, taking into account:

- The potential impact of such labeling on the company's business;
- The quality of the company's disclosure on GE product labeling, related voluntary initiatives, and how this disclosure compares with industry peer disclosure; and
- Company's current disclosure on the feasibility of GE product labeling.

Generally vote against proposals seeking a report on the social, health, and environmental effects of genetically modified organisms (GMOs). Studies of this sort are better undertaken by regulators and the scientific community.

Generally vote against proposals to eliminate GE ingredients from the company's products, or proposals asking for reports outlining the steps necessary to eliminate GE ingredients from the company's products. Such decisions are more appropriately made by management with consideration of current regulations.

Reports on Potentially Controversial Business/Financial Practices

General Recommendation: Vote case-by-case on requests for reports on a company's potentially controversial business or financial practices or products, taking into account:

- Whether the company has adequately disclosed mechanisms in place to prevent abuses;
- Whether the company has adequately disclosed the financial risks of the products/practices in question;
- Whether the company has been subject to violations of related laws or serious controversies; and
- Peer companies' policies/practices in this area.

Pharmaceutical Pricing, Access to Medicines, and Prescription Drug Reimportation

General Recommendation: Generally vote against proposals requesting that companies implement specific price restraints on pharmaceutical products unless the company fails to adhere to legislative guidelines or industry norms in its product pricing practices.

Vote case-by-case on proposals requesting that a company report on its product pricing or access to medicine policies, considering:

- The potential for reputational, market, and regulatory risk exposure;
- Existing disclosure of relevant policies;
- Deviation from established industry norms;
- Relevant company initiatives to provide research and/or products to disadvantaged consumers;
- Whether the proposal focuses on specific products or geographic regions;
- The potential burden and scope of the requested report;
- Recent significant controversies, litigation, or fines at the company.

Generally vote for proposals requesting that a company report on the financial and legal impact of its prescription drug reimportation policies unless such information is already publicly disclosed.

Generally vote against proposals requesting that companies adopt specific policies to encourage or constrain prescription drug reimportation. Such matters are more appropriately the province of legislative activity and may place the company at a competitive disadvantage relative to its peers.

Product Safety and Toxic/Hazardous Materials

General Recommendation: Generally vote for proposals requesting that a company report on its policies, initiatives/procedures, and oversight mechanisms related to toxic/hazardous materials or product safety in its supply chain, unless:

- The company already discloses similar information through existing reports such as a supplier code of conduct and/or a sustainability report;
- The company has formally committed to the implementation of a toxic/hazardous materials and/or product safety and supply chain reporting and monitoring program based on industry norms or similar standards within a specified time frame; and
- The company has not been recently involved in relevant significant controversies, fines, or litigation.

Vote case-by-case on resolutions requesting that companies develop a feasibility assessment to phase-out of certain toxic/hazardous materials, or evaluate and disclose the potential financial and legal risks associated with utilizing certain materials, considering:

- The company's current level of disclosure regarding its product safety policies, initiatives, and oversight mechanisms;
- Current regulations in the markets in which the company operates; and
- Recent significant controversies, litigation, or fines stemming from toxic/hazardous materials at the company.

Generally vote against resolutions requiring that a company reformulate its products.

Tobacco-Related Proposals

General Recommendation: Vote case-by-case on resolutions regarding the advertisement of tobacco products, considering:

- Recent related fines, controversies, or significant litigation;
- Whether the company complies with relevant laws and regulations on the marketing of tobacco;

- Whether the company's advertising restrictions deviate from those of industry peers;
- Whether the company entered into the Master Settlement Agreement, which restricts marketing of tobacco to youth; and
- Whether restrictions on marketing to youth extend to foreign countries.

Vote case-by-case on proposals regarding second-hand smoke, considering;

- Whether the company complies with all laws and regulations;
- The degree that voluntary restrictions beyond those mandated by law might hurt the company's competitiveness; and
- The risk of any health-related liabilities.

Generally vote against resolutions to cease production of tobacco-related products, to avoid selling products to tobacco companies, to spin-off tobacco-related businesses, or prohibit investment in tobacco equities. Such business decisions are better left to company management or portfolio managers.

Generally vote against proposals regarding tobacco product warnings. Such decisions are better left to public health authorities.

Climate Change

Say on Climate (SoC) Management Proposals

General Recommendation: Vote case-by-case on management proposals that request shareholders to approve the company's climate transition action plan[22], taking into account the completeness and rigor of the plan. Information that will be considered where available includes the following:

- The extent to which the company's climate related disclosures are in line with TCFD recommendations and meet other market standards;
- Disclosure of its operational and supply chain GHG emissions (Scopes 1, 2, and 3);
- The completeness and rigor of company's short-, medium-, and long-term targets for reducing operational and supply chain GHG emissions (Scopes 1, 2, and 3 if relevant);
- Whether the company has sought and received third-party approval that its targets are science-based;
- Whether the company has made a commitment to be "net zero" for operational and supply chain emissions (Scopes 1, 2, and 3) by 2050;
- Whether the company discloses a commitment to report on the implementation of its plan in subsequent years;
- Whether the company's climate data has received third-party assurance;
- Disclosure of how the company's lobbying activities and its capital expenditures align with company strategy;
- Whether there are specific industry decarbonization challenges; and
- The company's related commitment, disclosure, and performance compared to its industry peers.

Say on Climate (SoC) Shareholder Proposals

General Recommendation: Vote case-by-case on shareholder proposals that request the company to disclose a report providing its GHG emissions levels and reduction targets and/or its upcoming/approved climate transition action plan and provide shareholders the opportunity to express approval or disapproval of its GHG emissions reduction plan, taking into account information such as the following:

[22] Variations of this request also include climate transition related ambitions, or commitment to reporting on the implementation of a climate plan.

- The completeness and rigor of the company's climate-related disclosure;
- The company's actual GHG emissions performance;
- Whether the company has been the subject of recent, significant violations, fines, litigation, or controversy related to its GHG emissions; and
- Whether the proposal's request is unduly burdensome (scope or timeframe) or overly prescriptive.

Climate Change/Greenhouse Gas (GHG) Emissions

General Recommendation: Generally vote for resolutions requesting that a company disclose information on the financial, physical, or regulatory risks it faces related to climate change on its operations and investments or on how the company identifies, measures, and manages such risks, considering:

- Whether the company already provides current, publicly-available information on the impact that climate change may have on the company as well as associated company policies and procedures to address related risks and/or opportunities;
- The company's level of disclosure compared to industry peers; and
- Whether there are significant controversies, fines, penalties, or litigation associated with the company's climate change-related performance.

Generally vote for proposals requesting a report on greenhouse gas (GHG) emissions from company operations and/or products and operations, unless:

- The company already discloses current, publicly-available information on the impacts that GHG emissions may have on the company as well as associated company policies and procedures to address related risks and/or opportunities;
- The company's level of disclosure is comparable to that of industry peers; and
- There are no significant, controversies, fines, penalties, or litigation associated with the company's GHG emissions.

Vote case-by-case on proposals that call for the adoption of GHG reduction goals from products and operations, taking into account:

- Whether the company provides disclosure of year-over-year GHG emissions performance data;
- Whether company disclosure lags behind industry peers;
- The company's actual GHG emissions performance;
- The company's current GHG emission policies, oversight mechanisms, and related initiatives; and
- Whether the company has been the subject of recent, significant violations, fines, litigation, or controversy related to GHG emissions.

Energy Efficiency

General Recommendation: Generally vote for proposals requesting that a company report on its energy efficiency policies, unless:

- The company complies with applicable energy efficiency regulations and laws, and discloses its participation in energy efficiency policies and programs, including disclosure of benchmark data, targets, and performance measures; or
- The proponent requests adoption of specific energy efficiency goals within specific timelines.

Renewable Energy

General Recommendation: Generally vote for requests for reports on the feasibility of developing renewable energy resources unless the report would be duplicative of existing disclosure or irrelevant to the company's line of business.

Generally vote against proposals requesting that the company invest in renewable energy resources. Such decisions are best left to management's evaluation of the feasibility and financial impact that such programs may have on the company.

Generally vote against proposals that call for the adoption of renewable energy goals, taking into account:

- The scope and structure of the proposal;
- The company's current level of disclosure on renewable energy use and GHG emissions; and
- The company's disclosure of policies, practices, and oversight implemented to manage GHG emissions and mitigate climate change risks.

Diversity

Board Diversity

General Recommendation: Generally vote for requests for reports on a company's efforts to diversify the board, unless:

- The gender and racial minority representation of the company's board is reasonably inclusive in relation to companies of similar size and business; and
- The board already reports on its nominating procedures and gender and racial minority initiatives on the board and within the company.

Vote case-by-case on proposals asking a company to increase the gender and racial minority representation on its board, taking into account:

- The degree of existing gender and racial minority diversity on the company's board and among its executive officers;
- The level of gender and racial minority representation that exists at the company's industry peers;
- The company's established process for addressing gender and racial minority board representation;
- Whether the proposal includes an overly prescriptive request to amend nominating committee charter language;
- The independence of the company's nominating committee;
- Whether the company uses an outside search firm to identify potential director nominees; and
- Whether the company has had recent controversies, fines, or litigation regarding equal employment practices.

Equality of Opportunity

General Recommendation: Generally vote for proposals requesting a company disclose its diversity policies or initiatives, or proposals requesting disclosure of a company's comprehensive workforce diversity data, including requests for EEO-1 data, unless:

- The company publicly discloses equal opportunity policies and initiatives in a comprehensive manner;
- The company already publicly discloses comprehensive workforce diversity data; and
- The company has no recent significant EEO-related violations or litigation.

Generally vote against proposals seeking information on the diversity efforts of suppliers and service providers. Such requests may pose a significant burden on the company.

Gender Identity, Sexual Orientation, and Domestic Partner Benefits

General Recommendation: Generally vote for proposals seeking to amend a company's EEO statement or diversity policies to prohibit discrimination based on sexual orientation and/or gender identity, unless the change would be unduly burdensome.

Generally vote against proposals to extend company benefits to, or eliminate benefits from, domestic partners. Decisions regarding benefits should be left to the discretion of the company.

Gender, Race/Ethnicity Pay Gap

General Recommendation: Vote case-by-case on requests for reports on a company's pay data by gender or race/ ethnicity, or a report on a company's policies and goals to reduce any gender or race/ethnicity pay gaps, taking into account:

- The company's current policies and disclosure related to both its diversity and inclusion policies and practices and its compensation philosophy on fair and equitable compensation practices;
- Whether the company has been the subject of recent controversy, litigation, or regulatory actions related to gender, race, or ethnicity pay gap issues;
- The company's disclosure regarding gender, race, or ethnicity pay gap policies or initiatives compared to its industry peers; and
- Local laws regarding categorization of race and/or ethnicity and definitions of ethnic and/or racial minorities.

Racial Equity and/or Civil Rights Audit Guidelines

General Recommendation: Vote case-by-case on proposals asking a company to conduct an independent racial equity and/or civil rights audit, taking into account:

- The company's established process or framework for addressing racial inequity and discrimination internally;
- Whether the company has issued a public statement related to its racial justice efforts in recent years, or has committed to internal policy review;
- Whether the company has engaged with impacted communities, stakeholders, and civil rights experts,
- The company's track record in recent years of racial justice measures and outreach externally;
- Whether the company has been the subject of recent controversy, litigation, or regulatory actions related to racial inequity or discrimination; and
- Whether the company's actions are aligned with market norms on civil rights, and racial or ethnic diversity.

Environment and Sustainability

Facility and Workplace Safety

General Recommendation: Vote case-by-case on requests for workplace safety reports, including reports on accident risk reduction efforts, taking into account:

- The company's current level of disclosure of its workplace health and safety performance data, health and safety management policies, initiatives, and oversight mechanisms;
- The nature of the company's business, specifically regarding company and employee exposure to health and safety risks;
- Recent significant controversies, fines, or violations related to workplace health and safety; and
- The company's workplace health and safety performance relative to industry peers.

Vote case-by-case on resolutions requesting that a company report on safety and/or security risks associated with its operations and/or facilities, considering:

- The company's compliance with applicable regulations and guidelines;
- The company's current level of disclosure regarding its security and safety policies, procedures, and compliance monitoring; and
- The existence of recent, significant violations, fines, or controversy regarding the safety and security of the company's operations and/or facilities.

General Environmental Proposals and Community Impact Assessments

General Recommendation: Vote case-by-case on requests for reports on policies and/or the potential (community) social and/or environmental impact of company operations, considering:

- Current disclosure of applicable policies and risk assessment report(s) and risk management procedures;
- The impact of regulatory non-compliance, litigation, remediation, or reputational loss that may be associated with failure to manage the company's operations in question, including the management of relevant community and stakeholder relations;
- The nature, purpose, and scope of the company's operations in the specific region(s);
- The degree to which company policies and procedures are consistent with industry norms; and
- The scope of the resolution.

Hydraulic Fracturing

General Recommendation: Generally vote for proposals requesting greater disclosure of a company's (natural gas) hydraulic fracturing operations, including measures the company has taken to manage and mitigate the potential community and environmental impacts of those operations, considering:

- The company's current level of disclosure of relevant policies and oversight mechanisms;
- The company's current level of such disclosure relative to its industry peers;
- Potential relevant local, state, or national regulatory developments; and
- Controversies, fines, or litigation related to the company's hydraulic fracturing operations.

Operations in Protected Areas

General Recommendation: Generally vote for requests for reports on potential environmental damage as a result of company operations in protected regions, unless:

- Operations in the specified regions are not permitted by current laws or regulations;
- The company does not currently have operations or plans to develop operations in these protected regions; or
- The company's disclosure of its operations and environmental policies in these regions is comparable to industry peers.

Recycling

General Recommendation: Vote case-by-case on proposals to report on an existing recycling program, or adopt a new recycling program, taking into account:

- The nature of the company's business;
- The current level of disclosure of the company's existing related programs;
- The timetable and methods of program implementation prescribed by the proposal;
- The company's ability to address the issues raised in the proposal; and
- How the company's recycling programs compare to similar programs of its industry peers.

Sustainability Reporting

General Recommendation: Generally vote for proposals requesting that a company report on its policies, initiatives, and oversight mechanisms related to social, economic, and environmental sustainability, unless:

- The company already discloses similar information through existing reports or policies such as an environment, health, and safety (EHS) report; a comprehensive code of corporate conduct; and/or a diversity report; or
- The company has formally committed to the implementation of a reporting program based on Global Reporting Initiative (GRI) guidelines or a similar standard within a specified time frame.

Water Issues

General Recommendation: Vote case-by-case on proposals requesting a company report on, or adopt a new policy on, water-related risks and concerns, taking into account:

- The company's current disclosure of relevant policies, initiatives, oversight mechanisms, and water usage metrics;
- Whether or not the company's existing water-related policies and practices are consistent with relevant internationally recognized standards and national/local regulations;
- The potential financial impact or risk to the company associated with water-related concerns or issues; and
- Recent, significant company controversies, fines, or litigation regarding water use by the company and its suppliers.

General Corporate Issues

Charitable Contributions

General Recommendation: Vote against proposals restricting a company from making charitable contributions. Charitable contributions are generally useful for assisting worthwhile causes and for creating goodwill in the community. In the absence of bad faith, self-dealing, or gross negligence, management should determine which, and if, contributions are in the best interests of the company.

Data Security, Privacy, and Internet Issues

General Recommendation: Vote case-by-case on proposals requesting the disclosure or implementation of data security, privacy, or information access and management policies and procedures, considering:

- The level of disclosure of company policies and procedures relating to data security, privacy, freedom of speech, information access and management, and Internet censorship;
- Engagement in dialogue with governments or relevant groups with respect to data security, privacy, or the free flow of information on the Internet;
- The scope of business involvement and of investment in countries whose governments censor or monitor the Internet and other telecommunications;
- Applicable market-specific laws or regulations that may be imposed on the company; and
- Controversies, fines, or litigation related to data security, privacy, freedom of speech, or Internet censorship.

Environmental, Social, and Governance (ESG) Compensation-Related Proposals

General Recommendation: Vote case-by-case on proposals to link, or report on linking, executive compensation to sustainability (environmental and social) criteria, considering:

- The scope and prescriptive nature of the proposal;
- Whether the company has significant and/or persistent controversies or regulatory violations regarding social and/or environmental issues;
- Whether the company has management systems and oversight mechanisms in place regarding its social and environmental performance;

- The degree to which industry peers have incorporated similar non-financial performance criteria in their executive compensation practices; and
- The company's current level of disclosure regarding its environmental and social performance.

Human Rights, Human Capital Management, and International Operations

Human Rights Proposals

General Recommendation: Generally vote for proposals requesting a report on company or company supplier labor and/or human rights standards and policies unless such information is already publicly disclosed.

Vote case-by-case on proposals to implement company or company supplier labor and/or human rights standards and policies, considering:

- The degree to which existing relevant policies and practices are disclosed;
- Whether or not existing relevant policies are consistent with internationally recognized standards;
- Whether company facilities and those of its suppliers are monitored and how;
- Company participation in fair labor organizations or other internationally recognized human rights initiatives;
- Scope and nature of business conducted in markets known to have higher risk of workplace labor/human rights abuse;
- Recent, significant company controversies, fines, or litigation regarding human rights at the company or its suppliers;
- The scope of the request; and
- Deviation from industry sector peer company standards and practices.

Vote case-by-case on proposals requesting that a company conduct an assessment of the human rights risks in its operations or in its supply chain, or report on its human rights risk assessment process, considering:

- The degree to which existing relevant policies and practices are disclosed, including information on the implementation of these policies and any related oversight mechanisms;
- The company's industry and whether the company or its suppliers operate in countries or areas where there is a history of human rights concerns;
- Recent significant controversies, fines, or litigation regarding human rights involving the company or its suppliers, and whether the company has taken remedial steps; and
- Whether the proposal is unduly burdensome or overly prescriptive.

Mandatory Arbitration

General Recommendation: Vote case-by-case on requests for a report on a company's use of mandatory arbitration on employment-related claims, taking into account:

- The company's current policies and practices related to the use of mandatory arbitration agreements on workplace claims;
- Whether the company has been the subject of recent controversy, litigation, or regulatory actions related to the use of mandatory arbitration agreements on workplace claims; and
- The company's disclosure of its policies and practices related to the use of mandatory arbitration agreements compared to its peers.

Operations in High Risk Markets

General Recommendation: Vote case-by-case on requests for a report on a company's potential financial and reputational risks associated with operations in "high-risk" markets, such as a terrorism-sponsoring state or politically/socially unstable region, taking into account:

- The nature, purpose, and scope of the operations and business involved that could be affected by social or political disruption;
- Current disclosure of applicable risk assessment(s) and risk management procedures;
- Compliance with U.S. sanctions and laws;
- Consideration of other international policies, standards, and laws; and
- Whether the company has been recently involved in recent, significant controversies, fines, or litigation related to its operations in "high-risk" markets.

Outsourcing/Offshoring

General Recommendation: Vote case-by-case on proposals calling for companies to report on the risks associated with outsourcing/plant closures, considering:

- Controversies surrounding operations in the relevant market(s);
- The value of the requested report to shareholders;
- The company's current level of disclosure of relevant information on outsourcing and plant closure procedures; and
- The company's existing human rights standards relative to industry peers.

Sexual Harassment

General Recommendation: Vote case-by-case on requests for a report on company actions taken to strengthen policies and oversight to prevent workplace sexual harassment, or a report on risks posed by a company's failure to prevent workplace sexual harassment, taking into account:

- The company's current policies, practices, oversight mechanisms related to preventing workplace sexual harassment;
- Whether the company has been the subject of recent controversy, litigation, or regulatory actions related to workplace sexual harassment issues; and
- The company's disclosure regarding workplace sexual harassment policies or initiatives compared to its industry peers.

Weapons and Military Sales

General Recommendation: Vote against reports on foreign military sales or offsets. Such disclosures may involve sensitive and confidential information. Moreover, companies must comply with government controls and reporting on foreign military sales.

Generally vote against proposals asking a company to cease production or report on the risks associated with the use of depleted uranium munitions or nuclear weapons components and delivery systems, including disengaging from current and proposed contracts. Such contracts are monitored by government agencies, serve multiple military and non-military uses, and withdrawal from these contracts could have a negative impact on the company's business.

Political Activities

Lobbying

General Recommendation: Vote case-by-case on proposals requesting information on a company's lobbying (including direct, indirect, and grassroots lobbying) activities, policies, or procedures, considering:

- The company's current disclosure of relevant lobbying policies, and management and board oversight;
- The company's disclosure regarding trade associations or other groups that it supports, or is a member of, that engage in lobbying activities; and
- Recent significant controversies, fines, or litigation regarding the company's lobbying-related activities.

Political Contributions

General Recommendation: Generally vote for proposals requesting greater disclosure of a company's political contributions and trade association spending policies and activities, considering:

- The company's policies, and management and board oversight related to its direct political contributions and payments to trade associations or other groups that may be used for political purposes;
- The company's disclosure regarding its support of, and participation in, trade associations or other groups that may make political contributions; and
- Recent significant controversies, fines, or litigation related to the company's political contributions or political activities.

Vote against proposals barring a company from making political contributions. Businesses are affected by legislation at the federal, state, and local level; barring political contributions can put the company at a competitive disadvantage.

Vote against proposals to publish in newspapers and other media a company's political contributions. Such publications could present significant cost to the company without providing commensurate value to shareholders.

Political Ties

General Recommendation: Generally vote against proposals asking a company to affirm political nonpartisanship in the workplace, so long as:

- There are no recent, significant controversies, fines, or litigation regarding the company's political contributions or trade association spending; and
- The company has procedures in place to ensure that employee contributions to company-sponsored political action committees (PACs) are strictly voluntary and prohibit coercion.

Vote against proposals asking for a list of company executives, directors, consultants, legal counsels, lobbyists, or investment bankers that have prior government service and whether such service had a bearing on the business of the company. Such a list would be burdensome to prepare without providing any meaningful information to shareholders.

8. Mutual Fund Proxies

Election of Directors

General Recommendation: Vote case-by-case on the election of directors and trustees, following the same guidelines for uncontested directors for public company shareholder meetings. However, mutual fund boards do not usually have compensation committees, so do not withhold for the lack of this committee.

Closed End Funds- Unilateral Opt-In to Control Share Acquisition Statutes

General Recommendation: For closed-end management investment companies (CEFs), vote against or withhold from nominating/governance committee members (or other directors on a case-by-case basis) at CEFs that have not provided a compelling rationale for opting-in to a Control Share Acquisition statute, nor submitted a by-law amendment to a shareholder vote.

Converting Closed-end Fund to Open-end Fund

General Recommendation: Vote case-by-case on conversion proposals, considering the following factors:

- Past performance as a closed-end fund;
- Market in which the fund invests;
- Measures taken by the board to address the discount; and
- Past shareholder activism, board activity, and votes on related proposals.

Proxy Contests

General Recommendation: Vote case-by-case on proxy contests, considering the following factors:

- Past performance relative to its peers;
- Market in which the fund invests;
- Measures taken by the board to address the issues;
- Past shareholder activism, board activity, and votes on related proposals;
- Strategy of the incumbents versus the dissidents;
- Independence of directors;
- Experience and skills of director candidates;
- Governance profile of the company;
- Evidence of management entrenchment.

Investment Advisory Agreements

General Recommendation: Vote case-by-case on investment advisory agreements, considering the following factors:

- Proposed and current fee schedules;
- Fund category/investment objective;
- Performance benchmarks;
- Share price performance as compared with peers;
- Resulting fees relative to peers;
- Assignments (where the advisor undergoes a change of control).

Approving New Classes or Series of Shares

General Recommendation: Vote for the establishment of new classes or series of shares.

Preferred Stock Proposals

General Recommendation: Vote case-by-case on the authorization for or increase in preferred shares, considering the following factors:

- Stated specific financing purpose;
- Possible dilution for common shares;
- Whether the shares can be used for antitakeover purposes.

1940 Act Policies

General Recommendation: Vote case-by-case on policies under the Investment Advisor Act of 1940, considering the following factors:

- Potential competitiveness;
- Regulatory developments;
- Current and potential returns; and
- Current and potential risk.

Generally vote for these amendments as long as the proposed changes do not fundamentally alter the investment focus of the fund and do comply with the current SEC interpretation.

Changing a Fundamental Restriction to a Nonfundamental Restriction

General Recommendation: Vote case-by-case on proposals to change a fundamental restriction to a non-fundamental restriction, considering the following factors:

- The fund's target investments;
- The reasons given by the fund for the change; and
- The projected impact of the change on the portfolio.

Change Fundamental Investment Objective to Nonfundamental

General Recommendation: Vote against proposals to change a fund's fundamental investment objective to non-fundamental.

Name Change Proposals

General Recommendation: Vote case-by-case on name change proposals, considering the following factors:

- Political/economic changes in the target market;
- Consolidation in the target market; and
- Current asset composition.

Change in Fund's Subclassification

General Recommendation: Vote case-by-case on changes in a fund's sub-classification, considering the following factors:

- Potential competitiveness;
- Current and potential returns;
- Risk of concentration;
- Consolidation in target industry.

Business Development Companies—Authorization to Sell Shares of Common Stock at a Price below Net Asset Value

General Recommendation: Vote for proposals authorizing the board to issue shares below Net Asset Value (NAV) if:

- The proposal to allow share issuances below NAV has an expiration date no more than one year from the date shareholders approve the underlying proposal, as required under the Investment Company Act of 1940;
- The sale is deemed to be in the best interests of shareholders by (1) a majority of the company's independent directors and (2) a majority of the company's directors who have no financial interest in the issuance; and

- The company has demonstrated responsible past use of share issuances by either:
- Outperforming peers in its 8-digit GICS group as measured by one- and three-year median TSRs; or
- Providing disclosure that its past share issuances were priced at levels that resulted in only small or moderate discounts to NAV and economic dilution to existing non-participating shareholders.

Disposition of Assets/Termination/Liquidation

General Recommendation: Vote case-by-case on proposals to dispose of assets, to terminate or liquidate, considering the following factors:

- Strategies employed to salvage the company;
- The fund's past performance;
- The terms of the liquidation.

Changes to the Charter Document

General Recommendation: Vote case-by-case on changes to the charter document, considering the following factors:

- The degree of change implied by the proposal;
- The efficiencies that could result;
- The state of incorporation;
- Regulatory standards and implications.

Vote against any of the following changes:

- Removal of shareholder approval requirement to reorganize or terminate the trust or any of its series;
- Removal of shareholder approval requirement for amendments to the new declaration of trust;
- Removal of shareholder approval requirement to amend the fund's management contract, allowing the contract to be modified by the investment manager and the trust management, as permitted by the 1940 Act;
- Allow the trustees to impose other fees in addition to sales charges on investment in a fund, such as deferred sales charges and redemption fees that may be imposed upon redemption of a fund's shares;
- Removal of shareholder approval requirement to engage in and terminate subadvisory arrangements;
- Removal of shareholder approval requirement to change the domicile of the fund.

Changing the Domicile of a Fund

General Recommendation: Vote case-by-case on re-incorporations, considering the following factors:

- Regulations of both states;
- Required fundamental policies of both states;
- The increased flexibility available.

Authorizing the Board to Hire and Terminate Subadvisers Without Shareholder Approval

General Recommendation: Vote against proposals authorizing the board to hire or terminate subadvisers without shareholder approval if the investment adviser currently employs only one subadviser.

Distribution Agreements

General Recommendation: Vote case-by-case on distribution agreement proposals, considering the following factors:

- Fees charged to comparably sized funds with similar objectives;
- The proposed distributor's reputation and past performance;
- The competitiveness of the fund in the industry;
- The terms of the agreement.

Master-Feeder Structure

General Recommendation: Vote for the establishment of a master-feeder structure.

Mergers

General Recommendation: Vote case-by-case on merger proposals, considering the following factors:

- Resulting fee structure;
- Performance of both funds;
- Continuity of management personnel;
- Changes in corporate governance and their impact on shareholder rights.

Shareholder Proposals for Mutual Funds

Establish Director Ownership Requirement

General Recommendation: Generally vote against shareholder proposals that mandate a specific minimum amount of stock that directors must own in order to qualify as a director or to remain on the board.

Reimburse Shareholder for Expenses Incurred

General Recommendation: Vote case-by-case on shareholder proposals to reimburse proxy solicitation expenses. When supporting the dissidents, vote for the reimbursement of the proxy solicitation expenses.

Terminate the Investment Advisor

General Recommendation: Vote case-by-case on proposals to terminate the investment advisor, considering the following factors:

- Performance of the fund's Net Asset Value (NAV);
- The fund's history of shareholder relations;
- The performance of other funds under the advisor's management.

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DEFINED CONTRIBUTION PLANS

State of Missouri Deferred Compensation Plan (MO Deferred Comp)

&

The College & University Retirement Plan (CURP)

Presented By:

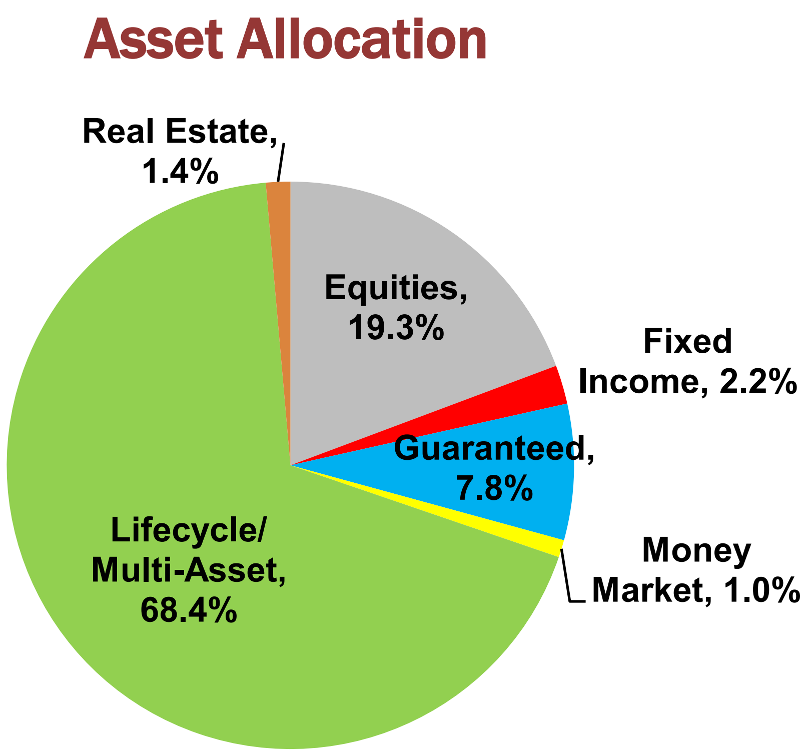
Cindy Rehmeier

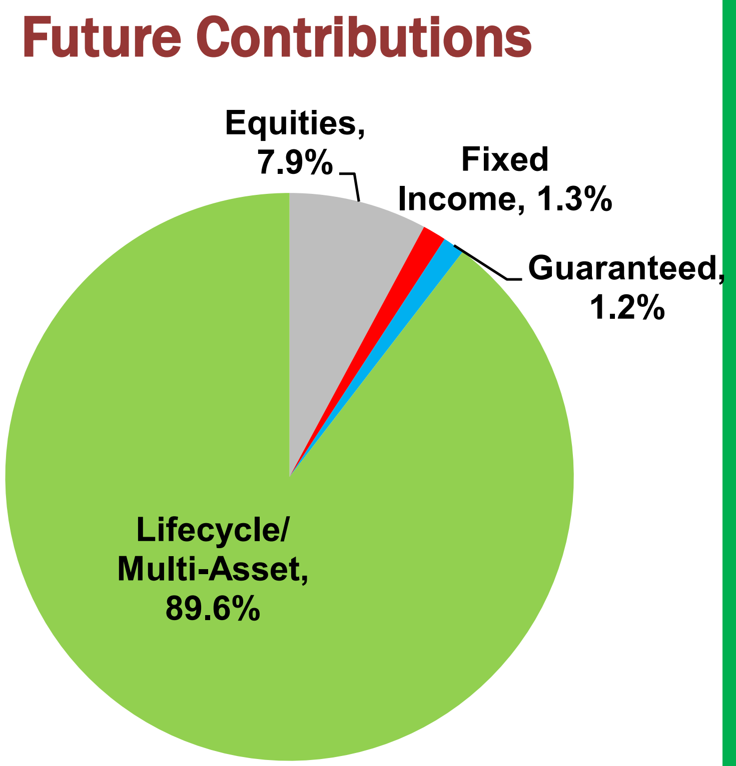
Manager of Defined Contribution Plans

Plan data as of April 30, 2022, except where noted

COLLEGE & UNIVERSITY RETIREMENT PLAN (CURP)

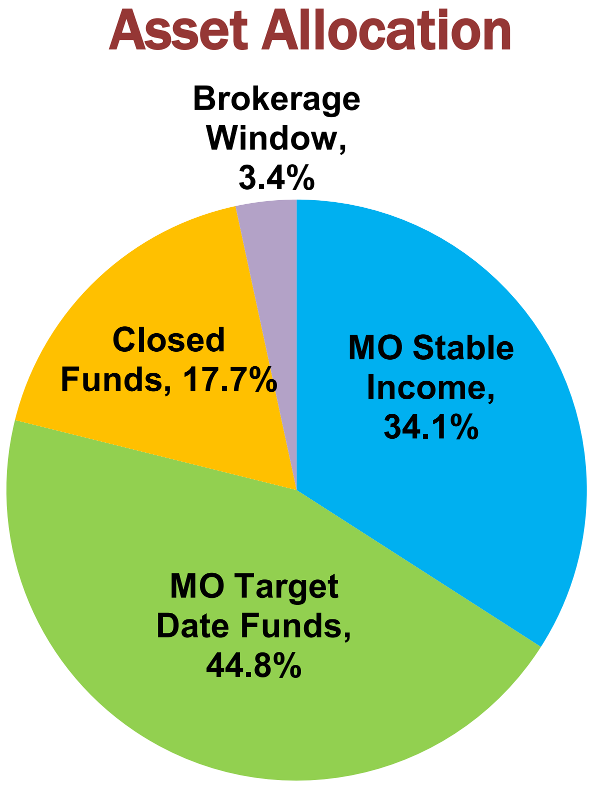
- Mandatory 401(a) plan for University Faculty (7/1/02):
  - 6% Employer contribution
  - 2% employee contribution (for new employees hired on/after 7/1/18)
- $137 million
- 3,387 participants – 2,193 active, 1,586 ER contributing (619 EE)
- 742 eligible to transfer to a MOSERS Defined Benefit Plan
- 507 transfers as of 03/31/22
- 8 Investment Options – Target Date Funds as default
- Cost = Avg Inv Mgmt 0.11% + Admin Fee of 0.21% = 0.32%

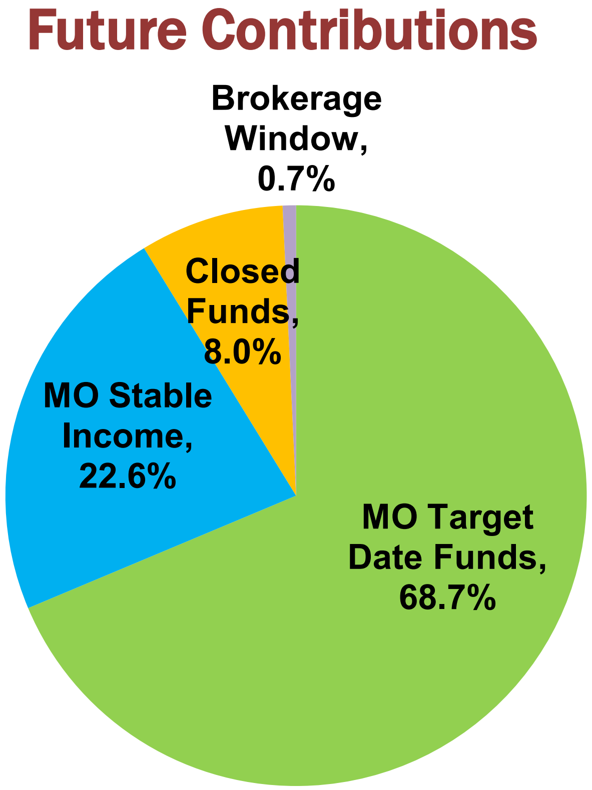




MO DEFERRED COMP

- Consisting of 457 & 401(a) plans
  - 457: Employee contributions & rollovers
  - 401(a): Employer match & rollovers
- **$2.6** Billion
  - **$2.0** billion 457
  - **$640** million 401(a)
- **69,106** participants – **36,377** active
- Roth Participants: 8,587
- Roth Assets: $74.1 Million
- Nearly **80%** state employee participation.
- Simplified investment line-up-Target Date Funds as default
- Cost = Avg Inv Mgmt 0.14% + Admin Fee of 0.10% = 0.24%





AVERAGE BALANCE – MO DEFERRED COMP

- Average Active balance: **$24,619**
- By Age:

	35 & Under	36 to 49	50 & Over	Annual Income*
All	$3,781	$17,963	$42,624	$2,158
Male	$4,387	$21,172	$53,749	$2,721
Female	$3,105	$14,682	$35,424	$1,793

- By Years of Service:

	0-5	5-10	10-15	15-20	20-25	25+	Annual Income*
ALL	$6,096	$11,783	$21,490	$31,069	$43,159	$92,390	$4,678
Male	$6,966	$14,324	$26,198	$33,306	$49,701	$109,059	$5,522
Female	$5,466	$9,879	$17,949	$29,090	$37,837	$77,904	$3,944

*25 years in retirement, 4% annual return, 2% inflation

AVERAGE CONTRIBUTION – MO DEFERRED COMP

Average Contribution per month: $177/4.9%

By Age:

	35 & under	36 to 49	50 & Over
ALL	$99/3.3%	$161/4.5%	$226/6.2%
Male	$113/3.6%	$187/4.8%	$265/6.4%
Female	$86/3.1%	$142/4.1%	$198/5.9%

By Years of Service:

	0-5	5-10	10-15	15-20	20-25	25+
ALL	$106/3.7%	$167/4.8%	$240/6.4%	$213/5.5%	$213/5.3%	$293/6.4%
Male	$121/3.9%	$192/5.2%	$284/7.1%	$230/5.5%	$238/5.5%	$333/6.6%
Female	$94/3.5%	$149/4.5%	$207/5.8%	$198/5.4%	$193/5.2%	$259/6.3%

15 YEAR ANNIVERSARY!

	THEN - August 2007	NOW
	STATE OF MISSOURI DEFERRED COMPENSATION PLAN	modeferred comp
Plan Assets	$1.4 Billion	$2.7 Billion
Participants	57,089	69,106
Participation rate	63%	78%
Avg. Monthly Contribution	$123	$177
Cost	0.98%	0.24%

CONTINUED…

	THEN - August 2007	NOW
Investment Line-up	Confusing - 30 options (20 Equity)	Simplified – Diversified Target Date, Stable Income, Brokerage
Roth Assets	N/A	$74 million
Roth Participants	N/A	8,587 – 18.2%
Automatic Enrollment	No	Yes – 1%, low opt out
Voluntary Automatic Increase	No	Yes – 10% participation
Percent-of-Pay Contributions	No	Yes – 58.4%

WHY IS SUPPLEMENTAL SAVINGS IMPORTANT & REQUIRE ONGOING ACTION?

- Significant employee turnover in state government – career changes
- Not all employees are created equal
- To replace necessary income in retirement not fulfilled by pension and social security
- Health Insurance and healthcare costs
  - Average $300,000 out of pocket in retirement
  - Insurance premiums before and after retirement
    - Single - increase range of $222 - $856/month
    - Employee w/spouse – increase range of $367-$1,532/month
- Help combat Inflation – Inflation is real
- Recognition of numerous other regular & unexpected expenses in retirement

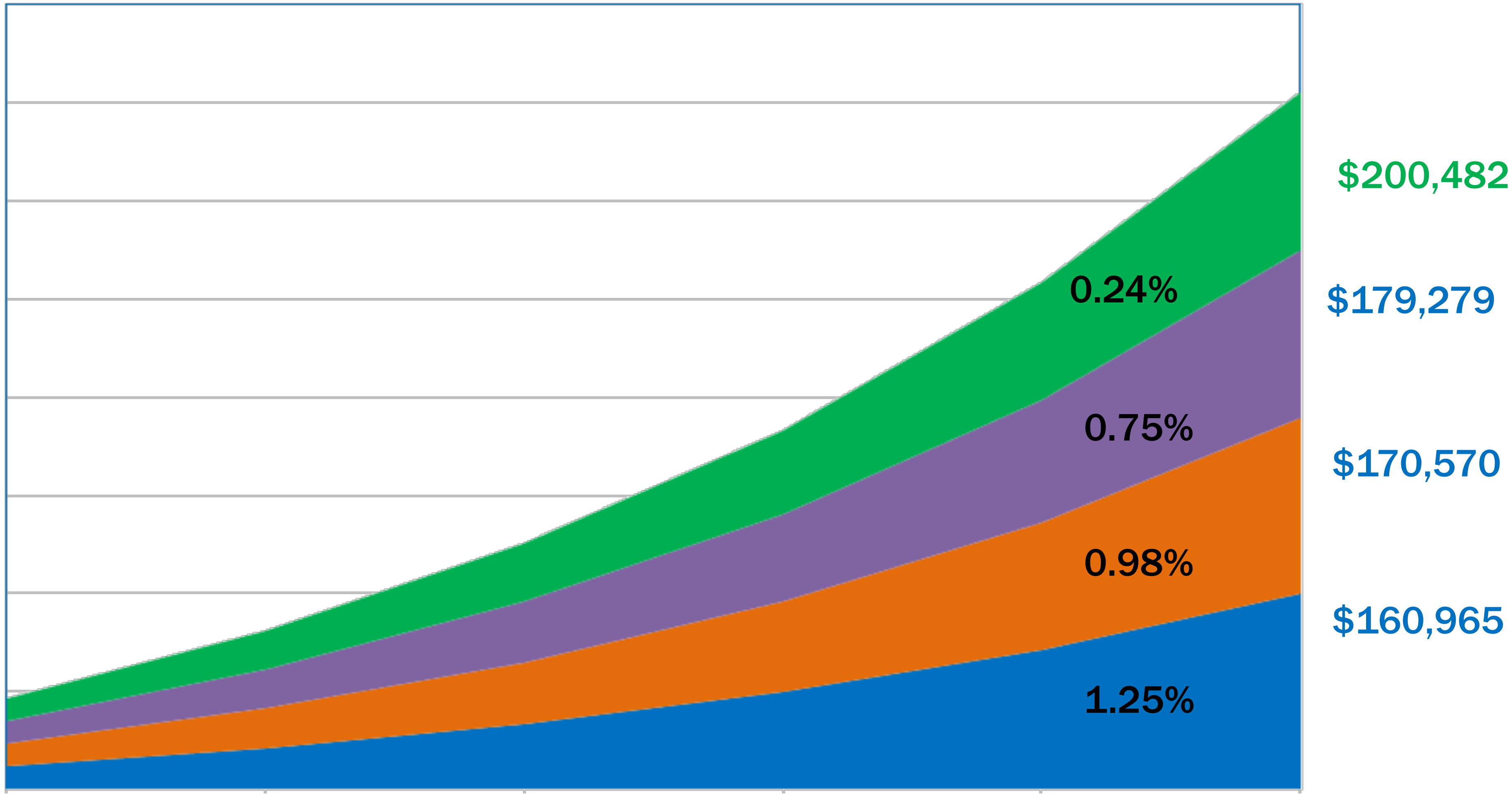
2021 FINANCIAL WELLNESS SURVEY RESULTS

- 59% of employees were not happy with their current financial situation
- 68% of employees did not believe that they were currently saving enough to achieve financial independence and live comfortably in retirement
- Only 13% of employees ALWAYS stick to a monthly budget
- Only 41% spend within their means
- 89% stated they were willing to spend time planning for their future retirement
- Top 2 areas where employees claim they need assistance
  - Calculating how much to save for retirement
  - Determining the age they can afford to retire

WHAT ARE SOME DIFFERENCE MAKERS?

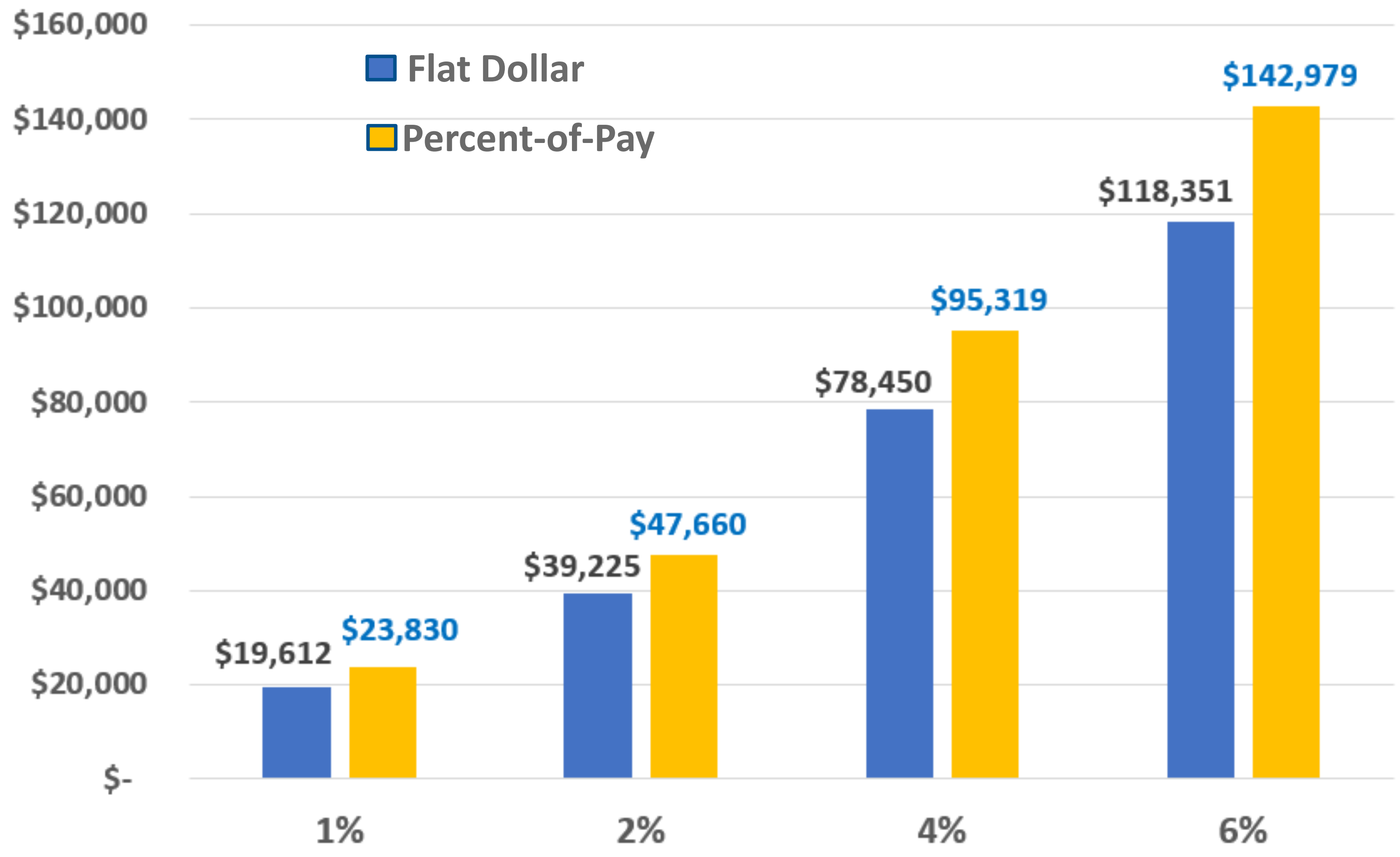
- Providing a low cost plan for savers
- Saving a percent-of-pay v. dollar contributions - Over 58% of participants already are!
- Employee savings incentive (match)
- Automatic increase

THE IMPACT OF LOWER COSTS



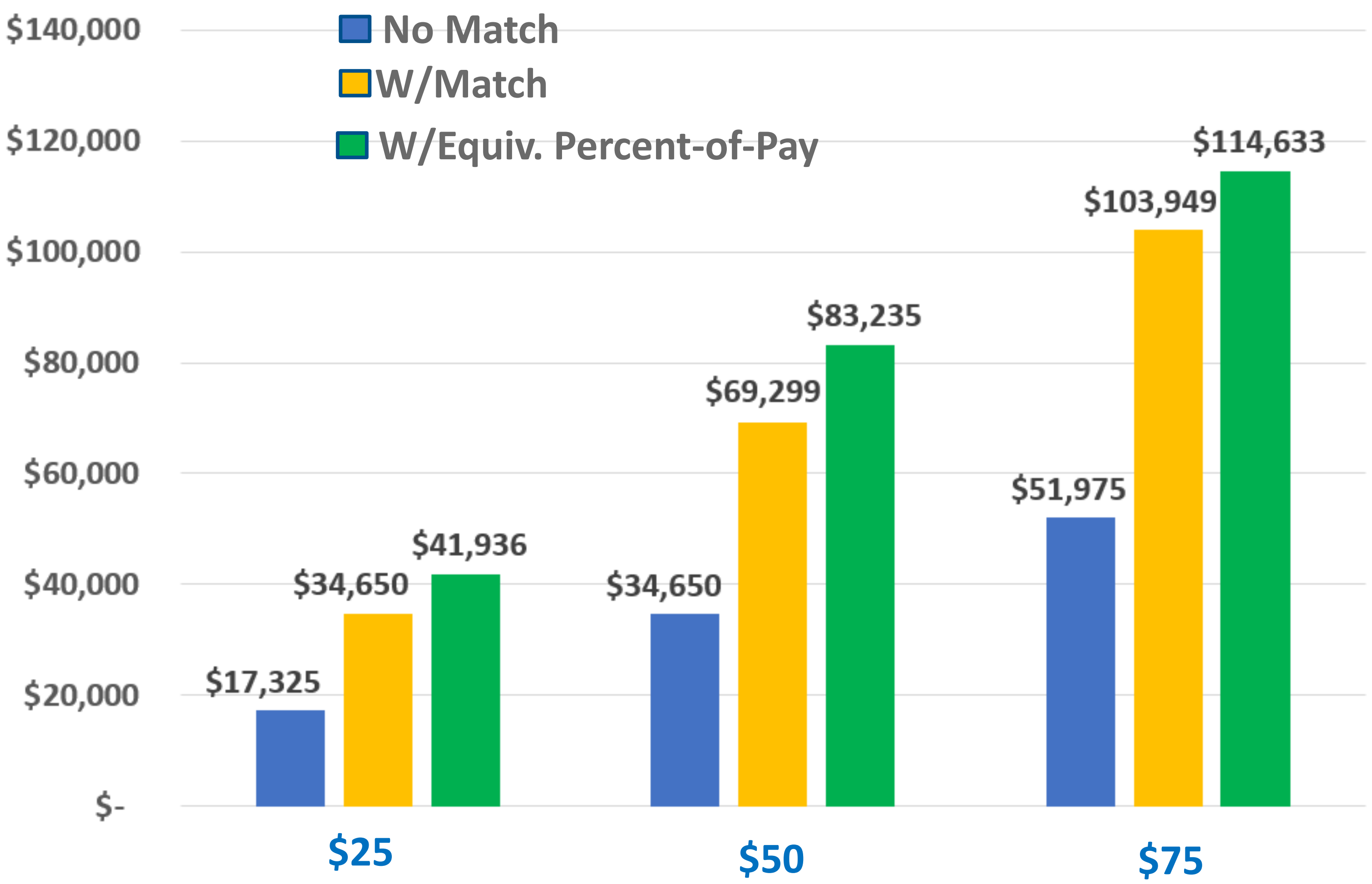
Assumes a $10,000 beginning balance, $75 contribution per semimonthly pay period, 6% annual return over 30 years

SAVING A PERCENT OF PAY



Assumes a $35,000 starting salary, 2% annual average salary increases, 6% annual rate of return on investments over 25 years

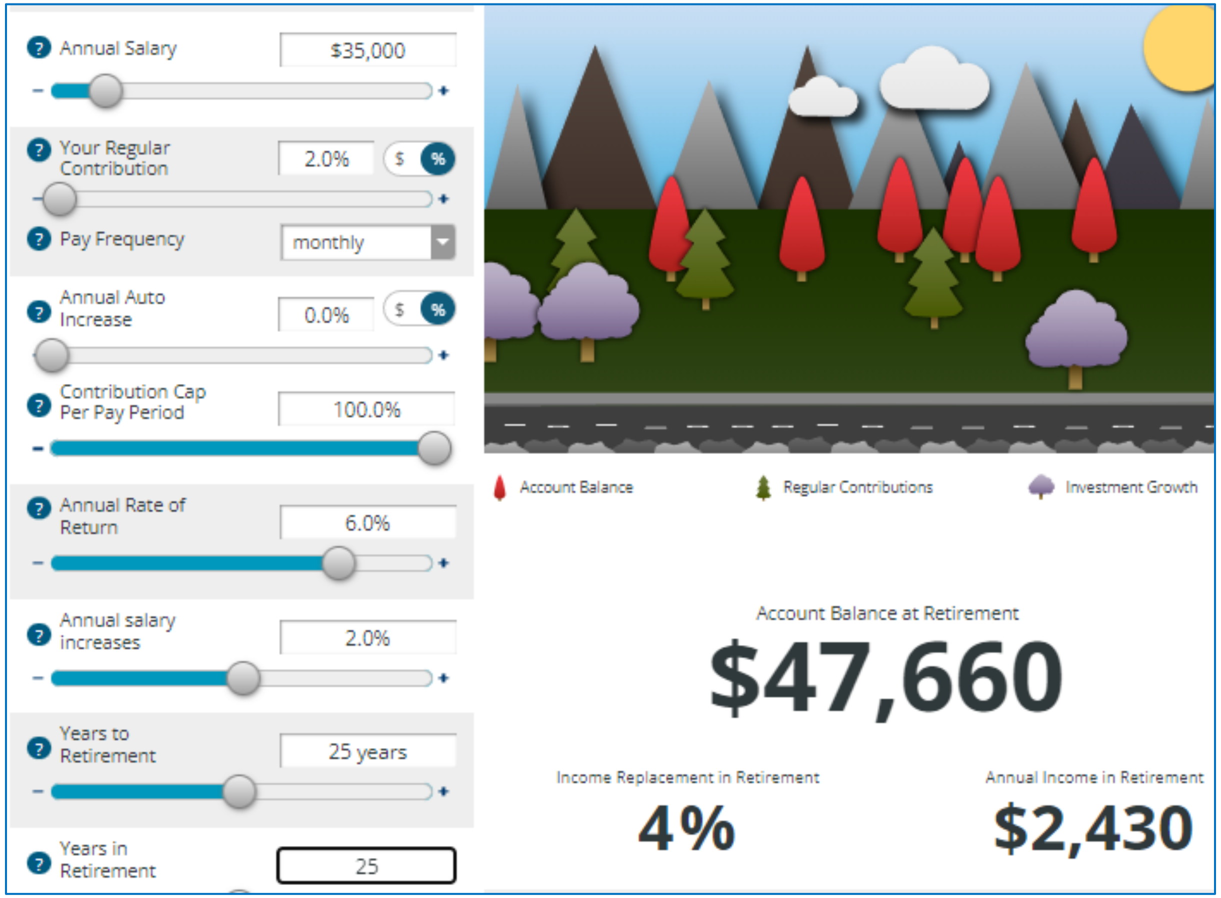
POTENTIAL EMPLOYER INCENTIVE (MATCH) CAN PROVIDE A BOOST!



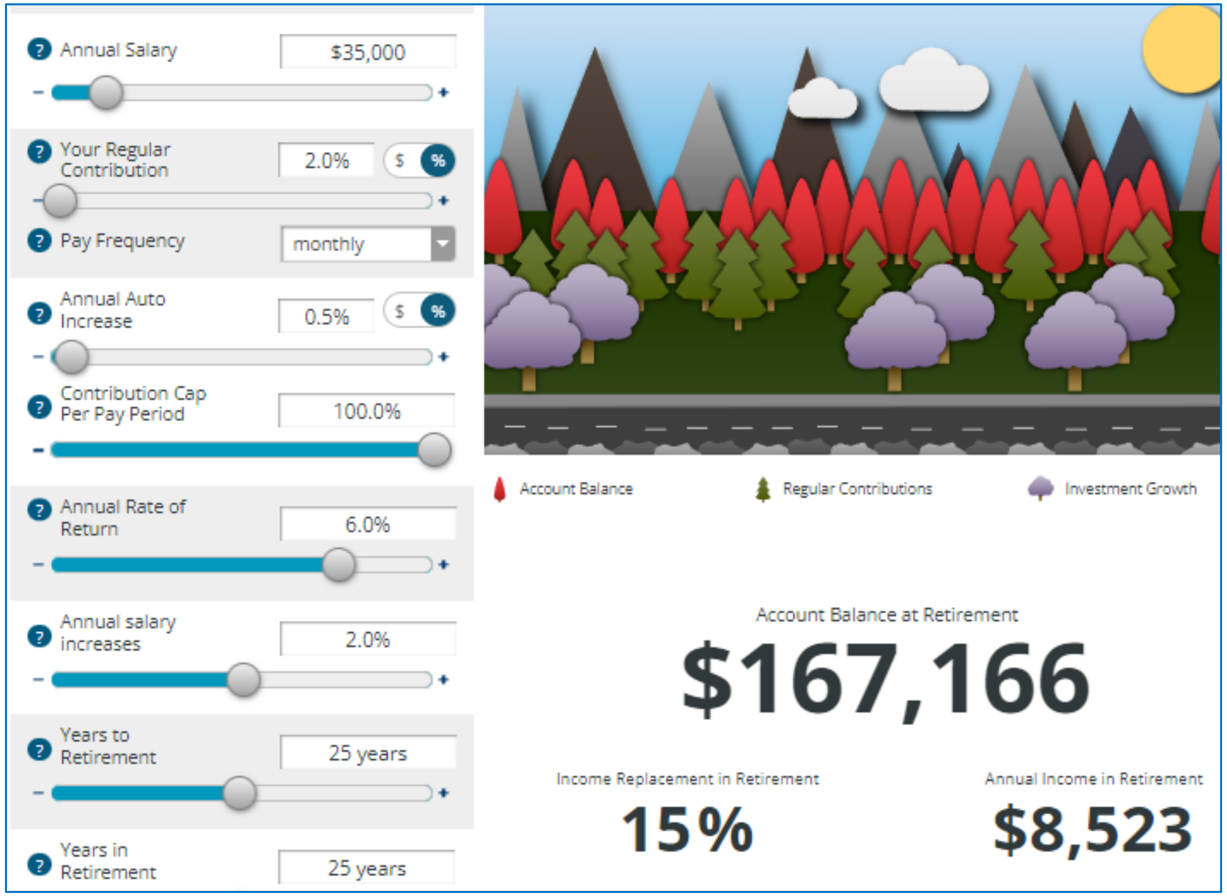
Assumes 25 years, 6% annual return and $35,000 starting salary with 2% annual salary increases and monthly employer match up to $75

AUTO INCREASE

2% Contribution



2% starting contribution w/ 0.5% auto increase



DC CREW

Cindy Rehmeier,
Manager of DC Plans

Callie Simmons,
Associate DC Plans Coordinator

Brooke Rowden,
DC Plans Marketing & Education Coordinator

Don Wilson,
Sr. Financial Education Professional

David Gibson,
Financial Education Professional

Kelsey Harris,
DC Plans Marketing & Social Media Technologist

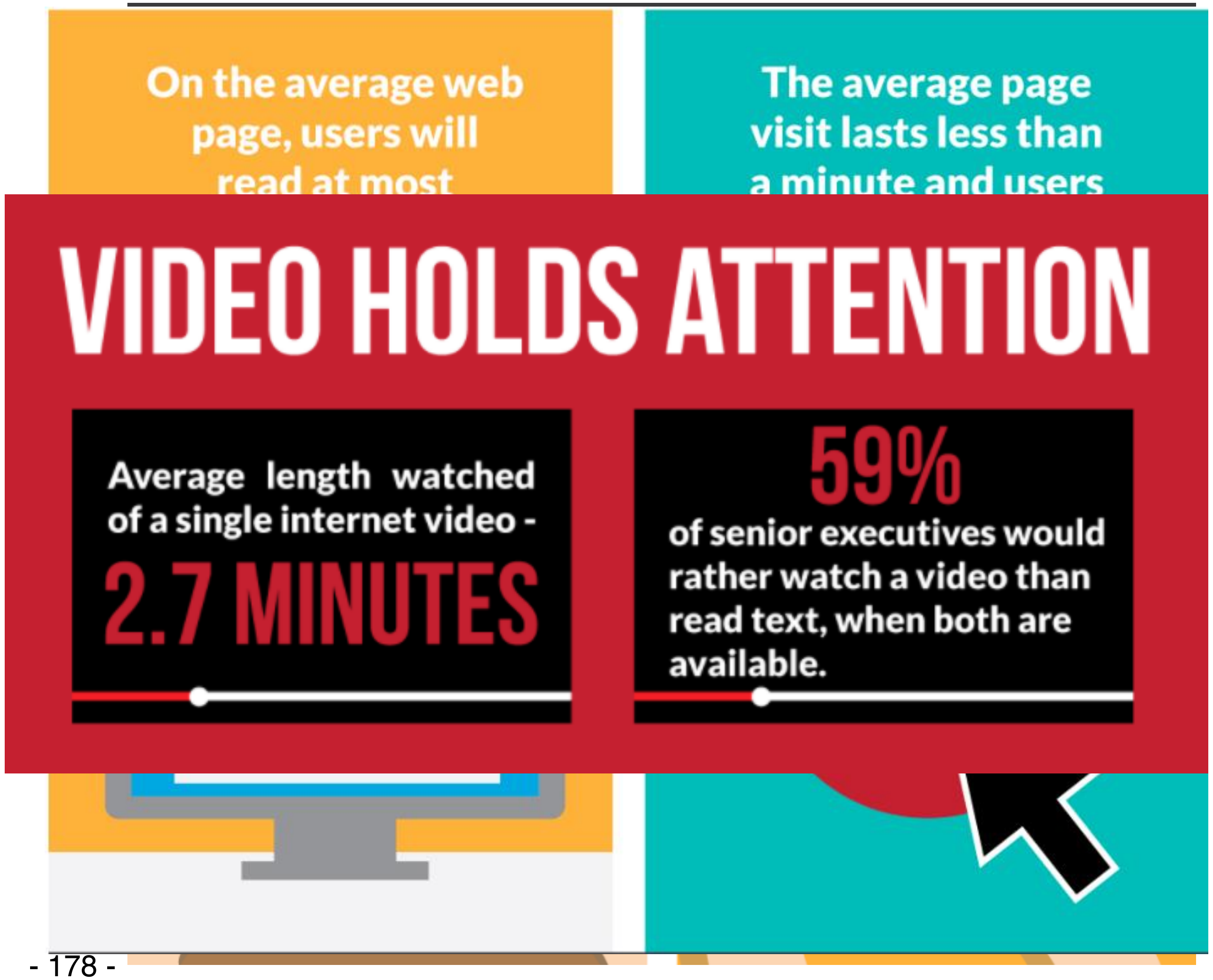
Ronda Peterson,
Financial Education Professional

Tanner Gentges,
Financial Education Professional

Tammara Carter,
Financial Education Professional

FINANCIAL EDUCATION CHALLENGES

- Sustained, Selective & Divided attention – made more difficult by the digital environment
- Short attention spans making it important to GET TO THE POINT!
- Need to provide shorter education sessions with multiple takeaways.



https://www.wyzowl.com/human-attention-span/

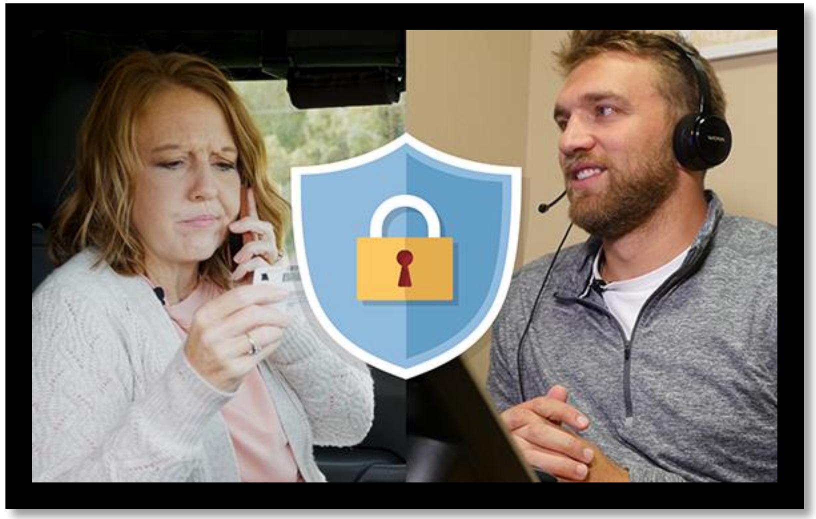
TACTICAL APPROACH

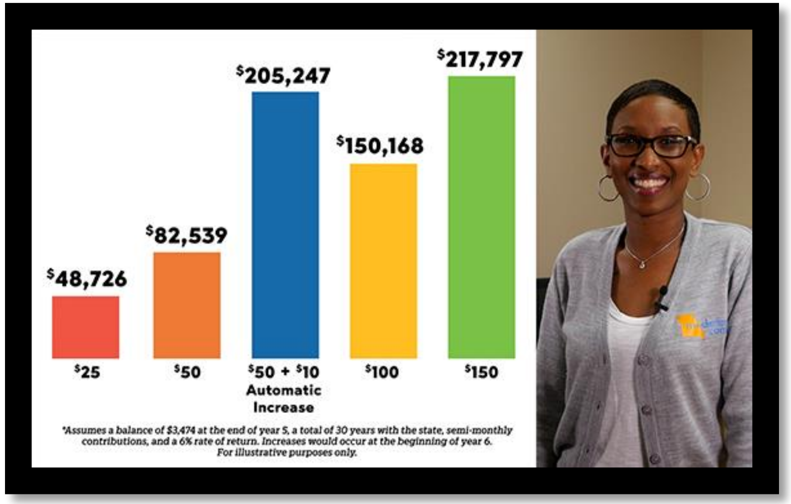
- Starts with Benefit recognition –

MO Deferred Comp is not a vendor

- Print/Digital/Video Marketing Strategies for the shorter attention span
  - Less Text
  - Fun/relatable graphics
  - Summary points
  - Calculations

VIDEO EDUCATION

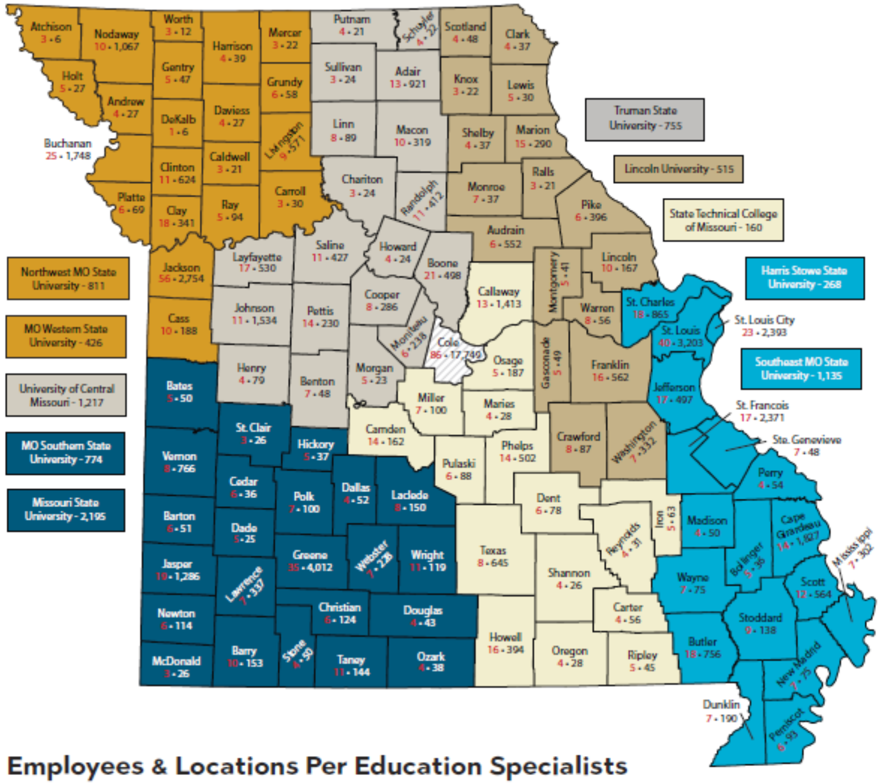




Active

State of Missouri Employee Map by County

Active Full & Part-Time Employees ONLY - As of 12/31/21



Employees & Locations Per Education Specialists

Includes College & Universities

David Gibson
Employees...... 7,778
Agencies........ 194

Ronda Peterson
Employees...... 7,967
Agencies........ 185

Tammara Carter
Employees..... 12,781
Agencies........ 204

Tanner Gentges
Employees...... 9,470
Agencies........ 144

Callie Simmons
Employees..... 10,233
Agencies........ 175

Don Wilson
Employees..... 11,161
Agencies........ 184

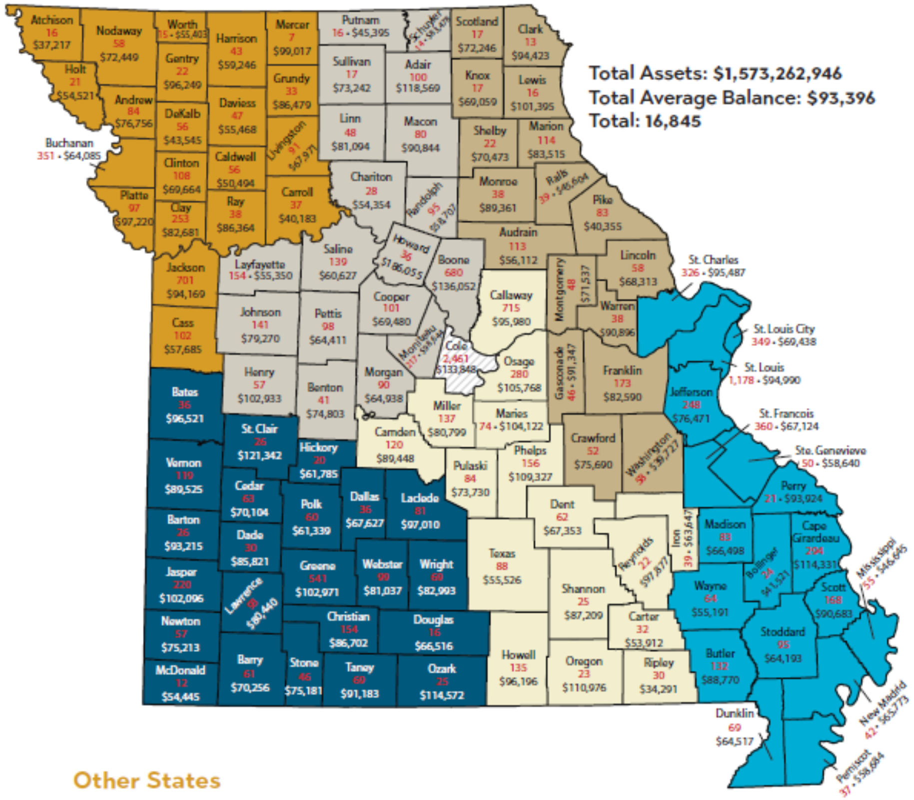
Total Employees
MOSERS........ 42,587
MPERS.......... 8,547
Universities..... 8,256
TOTAL.......... 59,390

Total Locations
MOSERS 815
MPERS 272
Universities 10
TOTAL........... 1,097

- Contribution & Transfer Transactions
- Investment Education
- Projection Calculations/ Scenarios
- Rollovers
- Cost comparisons
- Beneficiaries
- Account updates
- Assistance with External Resources

Retired

MO Deferred Comp Plan Separated-From-Service Participants Age 55 & Older (with a balance) - As of 12/31/2021



Total Assets: $1,573,262,946
Total Average Balance: $93,396
Total: 16,845

Other States

AE	3 • $375,188	KS	205 • $108,770	OK	35 • $67,040
AK	2 • $7,279.21	KY	23 • $74,742	OR	15 • $183,923
AL	27 • $65,818	LA	11 • $54,777	PA	5 • $29,354
AR	65 • $100,891	MA	8 • $14,549	PR	2 • $10,478
AZ	48 • $121,967	MD	18 • $38,758	RI	2 • $112,852
CA	45 • $55,963	ME	2 • $4,274	SC	15 • $170,111
CO	32 • $74,077	MI	19 • $44,267	SD	14 • $151,282
CT	2 • $291,899	MN	21 • $32,179	TN	40 • $66,831
DC	5 • $19,348	MS	10 • $157,597	TX	136 • $70,777
DE	1 • $152,016	MT	8 • $58,977	UT	6 • $7,922
FC	6 • $172,665	NC	28 • $84,669	VA	19 • $78,262
FL	175 • $111,059	ND	4 • $206,946	VI	4 • $152,876
GA	29 • $62,147	NE	11 • $73,424	VT	2 • $92,221
HI	3 • $155,272	NJ	8 • $90,190	WA	22 • $77,366
IA	38 • $38,295	NM	12 • $140,758	WI	17 • $48,152
ID	9 • $23,485	NV	10 • $37,375	WV	2 • $19,390
IL	198 • $67,575	NY	14 • $123,718	WY	4 • $357,280
IN	27 • $74,072	OH	8 • $77,847		

OUTREACH DATA

- **Individual Consultations**

Average of 5,900 per year/492 per month

- **Financial Webinars/Seminars**

Average of 520 per year/43 per month

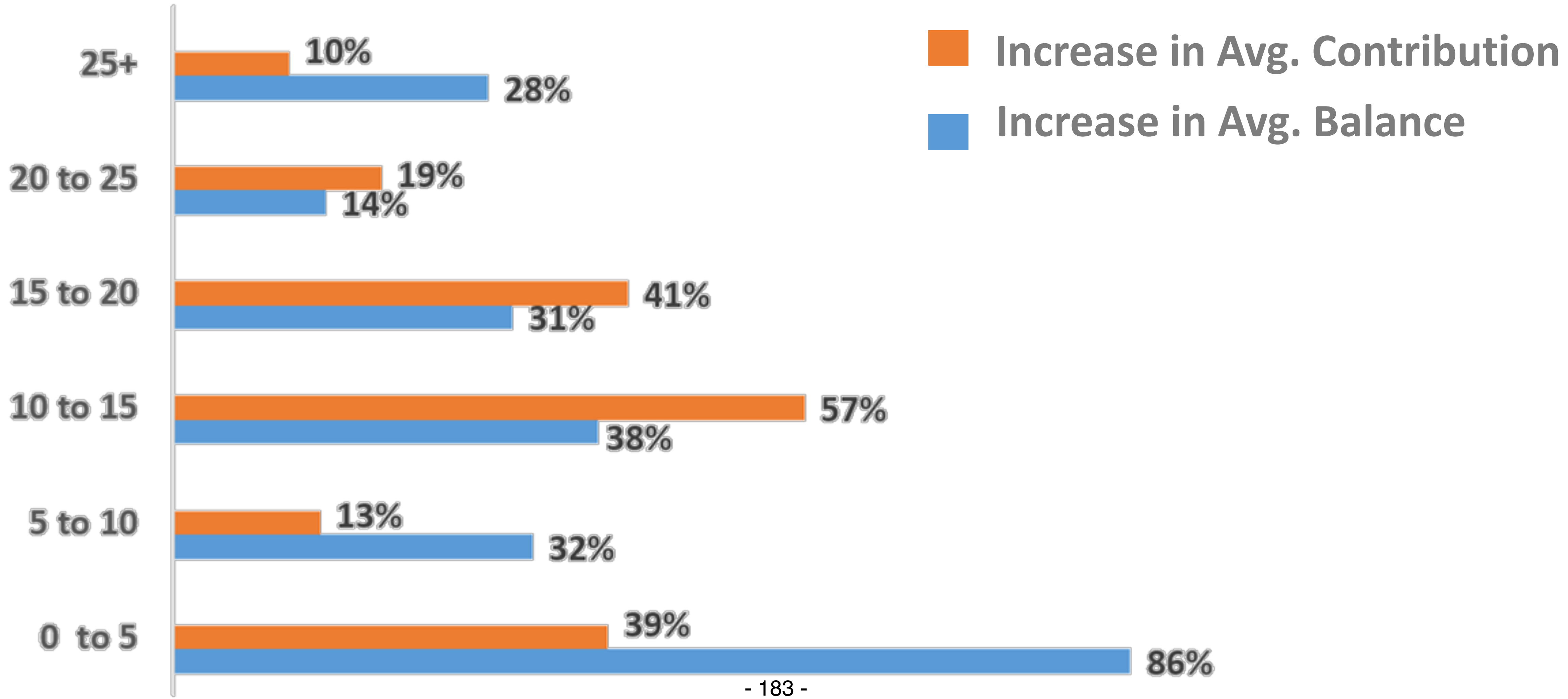
- **Email**

Average of 1.7 million per year/142,000 per month

- **Video**

219 videos to date – 253,000 minutes watched

POSITIVE TRENDS OVER PAST 5 YEARS



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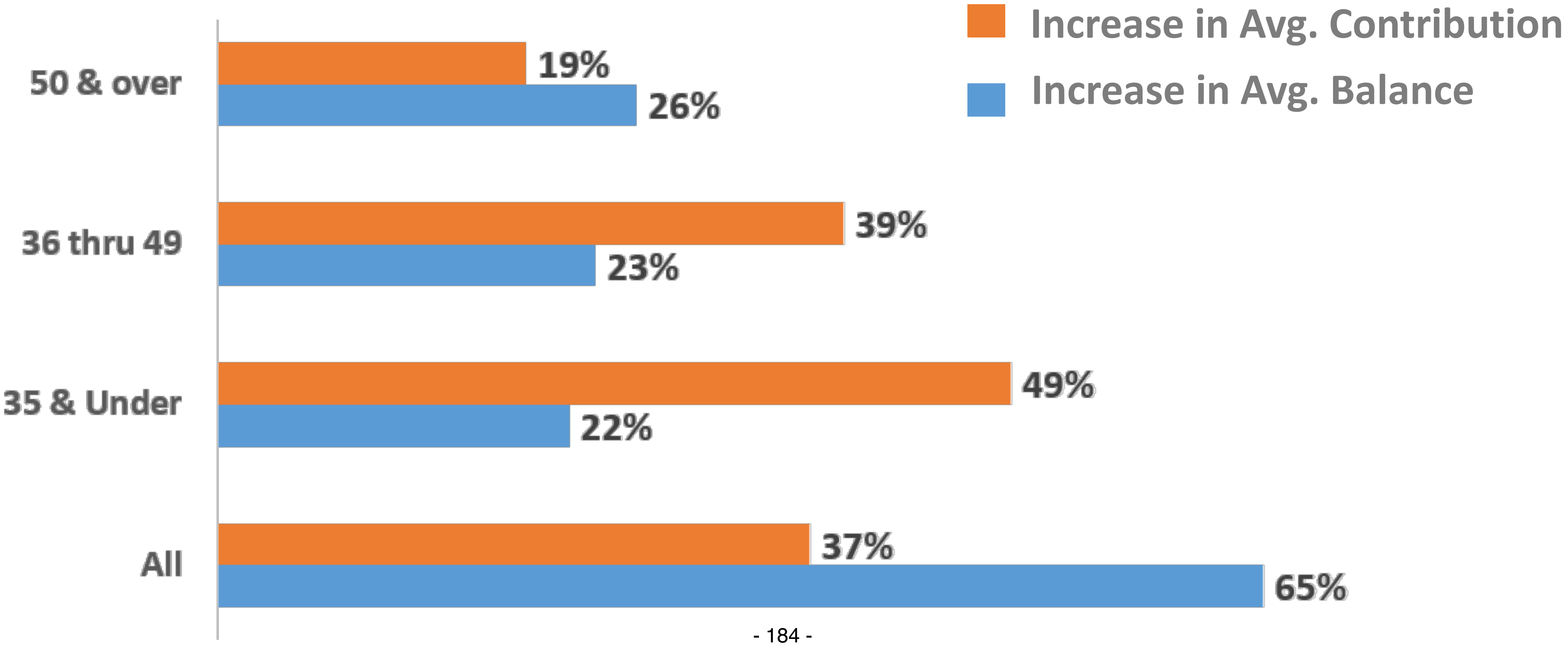

Increase in Avg. Contribution
Increase in Avg. Balance
50 & over
19%
26%
36 thru 49
39%
23%
35 & Under
49%
22%
All
37%
65%

EVALUATIONS

Individual Consultations – 524 Responses	
Question	**Average Rating** Scale = 1 (strongly disagree) to 5 (strongly agree)
During my appointment, my questions and/or concerns were addressed in a clear and understandable manner.	4.8
The amount of time with the financial education professional was appropriate for my needs.	4.7
The financial education professional was knowledgeable about the deferred compensation plan benefit.	4.9

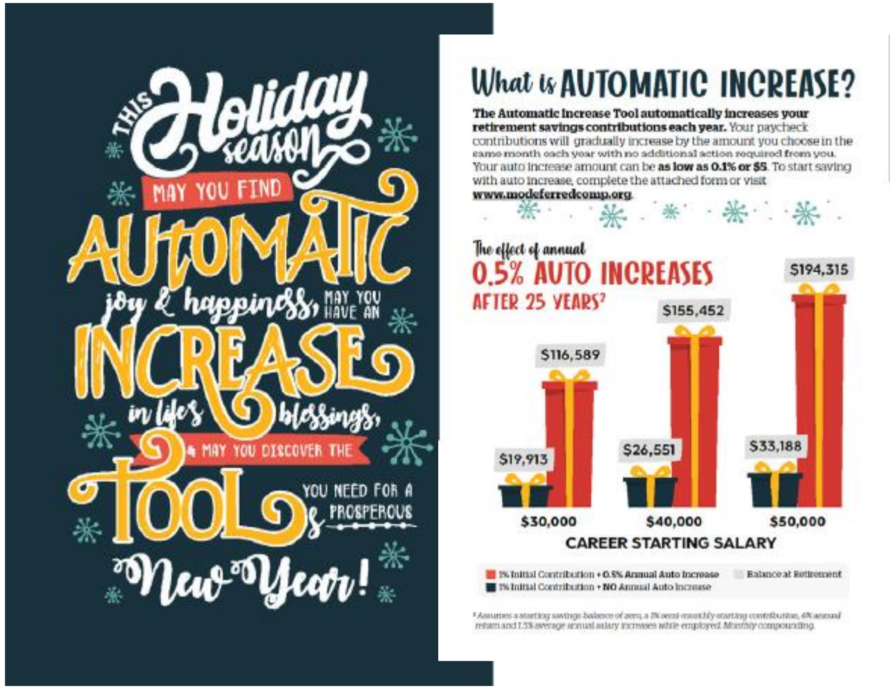
Seminars/Webinars– 476 Responses	
Question	**Average Rating** Scale = 1 (strongly disagree) to 5 (strongly agree)
The financial education professional presented the seminar or webinar in a clear and understandable manner.	4.6
The financial education professional was knowledgeable about the deferred compensation plan benefit.	4.8
The financial education professional increased my understanding of saving for retirement.	4.4

PENSIONS & INVESTMENTS EDDY'S

Special Projects:

1st Place - 2021 America Saves Week – Retirement Savings Tip Toks

2nd Place - Holiday Auto-increase Mailer



NAGDCA LEADERSHIP AWARD

Participant Education & Communication–
Holiday Auto-increase Mailer

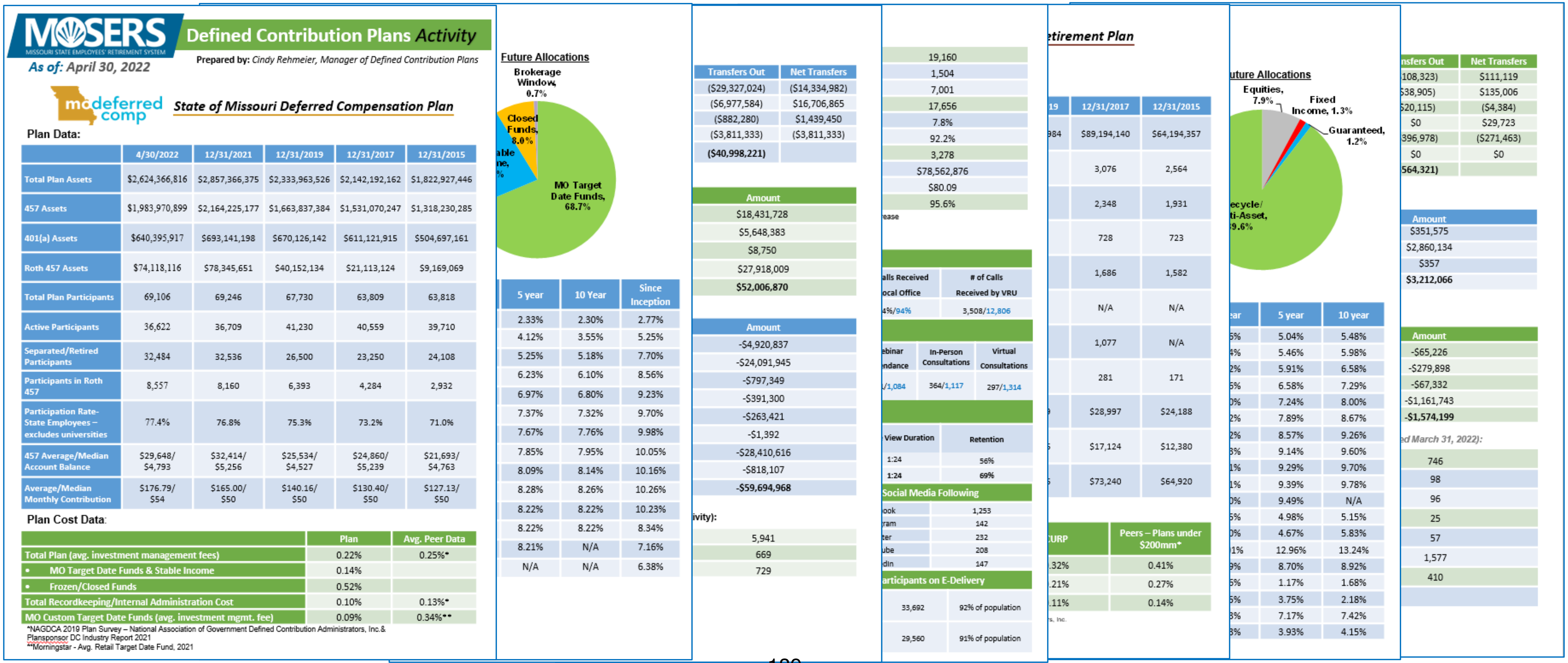
2022 COMMUNICATOR AWARD OF DISTINCTION

27th Annual Marketing Effectiveness Distinction

The Communicator Awards

Interactive Marketing Effectiveness – *Holiday Auto-increase Mailer*

DC PLANS BOARD REPORT – PG
PLAN SUMMARY STATS & PERFORMANCE DATA



MOSERS MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Defined Contribution Plans *Activity*

As of: April 30, 2022

Prepared by: *Cindy Rehmeier, Manager of Defined Contribution Plans*

modeferred comp

State of Missouri Deferred Compensation Plan

Plan Data:

	4/30/2022	12/31/2021	12/31/2019	12/31/2017	12/31/2015
Total Plan Assets	$2,624,366,816	$2,857,366,375	$2,333,963,526	$2,142,192,162	$1,822,927,446
457 Assets	$1,983,970,899	$2,164,225,177	$1,663,837,384	$1,531,070,247	$1,318,230,285
401(a) Assets	$640,395,917	$693,141,198	$670,126,142	$611,121,915	$504,697,161
Roth 457 Assets	$74,118,116	$78,345,651	$40,152,134	$21,113,124	$9,169,069
Total Plan Participants	69,106	69,246	67,730	63,809	63,818
Active Participants	36,622	36,709	41,230	40,559	39,710
Separated/Retired Participants	32,484	32,536	26,500	23,250	24,108
Participants in Roth 457	8,557	8,160	6,393	4,284	2,932
Participation Rate-State Employees – excludes universities	77.4%	76.8%	75.3%	73.2%	71.0%
457 Average/Median Account Balance	$29,648/ $4,793	$32,414/ $5,256	$25,534/ $4,527	$24,860/ $5,239	$21,693/ $4,763
Average/Median Monthly Contribution	$176.79/ $54	$165.00/ $50	$140.16/ $50	$130.40/ $50	$127.13/ $50

Plan Cost Data:

	Plan	Avg. Peer Data
Total Plan (avg. investment management fees)	0.22%	0.25%*
• MO Target Date Funds & Stable Income	0.14%	
• Frozen/Closed Funds	0.52%	
Total Recordkeeping/Internal Administration Cost	0.10%	0.13%*
MO Custom Target Date Funds (avg. investment mgmt. fee)	0.09%	0.34%**

*NAGDCA 2019 Plan Survey – National Association of Government Defined Contribution Administrators, Inc.&
Plansponsor DC Industry Report 2021
**Morningstar - Avg. Retail Target Date Fund, 2021

MOSERS

Missouri State Employees' Retirement System
Board of Trustees Meeting
MOSERS Office Building, 907 Wildwood Drive, Jefferson City, MO
www.gotomeeting.com, Meeting ID 729-609-221
September 22, 2022 – 9:00 a.m.
Agenda

		Page
Open Session		
• Approval of Minutes (Action)	Wessing	1
○ June 15, 2022 Board Educational Conference		
○ June 16, 2022 Board of Trustees Meeting		
○ July 18, 2022 Board of Trustees Special Meeting		
• 2023 Board Meeting Schedule (Action)	Stegmann	9
• Executive Director Evaluation Criteria for FY23 (Action)	Wessing	11
• Adoption of FY24 Contribution Rate (Action)	Cavanaugh Macdonald	17
• Investment Committee Report	Keifer	71
○ Adoption of Proposed Proxy Voting Policy (Action)		
• Strategic Planning and Governance Committee Report	Metzger	85
○ Strategic Plan Update		
• Audit Committee Report	Jacobs	89
• Summary Performance Report	Neill/Carlson	91
• Investment Risk Report	Hankins	129
• Legislative Report	Stegmann	147
• Director's Comments	Stegmann	
Executive Session		
Closed session per RSMo 610.021 (1), (3), & (13)		
• Approval of Minutes (Action)	Wessing	
○ June 16, 2022 Board of Trustees Meeting		
○ July 18, 2022 Board of Trustees Special Meeting		
• Legal/Litigation Update	Spieler	
• Personnel	Stegmann	
Informational Only		
• Defined Contribution Plans Report	Rehmeier	151
• Operations Activity Report	Smith	159

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
BOARD EDUCATIONAL CONFERENCE
REGULAR SESSION MINUTES
MISSOURI STATE CAPITOL, SENATE LOUNGE, JEFFERSON CITY, MO
WITH OPTIONAL CONFERENCE CALL
JUNE 15, 2022 – 9:00 A.M.

Ms. Crystal Wessing, Mr. Gary Findlay, Commissioner Ken Zellers, Rep. Rusty Black, Sen. Paul Wieland, Mr. Joe Keifer, Ms. Jenny Jacobs, Treasurer Scott Fitzpatrick, and Mr. Gary Metzger attended in person. Rep. John Wiemann attended via telephone. Ms. Stacy Neal, designee of the Commissioner, and Mr. Mike Price, designee of the Treasurer, attended in person as guests.

Attending from MOSERS: Ronda Stegmann, Executive Director; Abby Spieler, Deputy Executive Director/General Counsel; TJ Carlson, Chief Investment Officer; Tyson Rehfeld, Deputy Chief Investment Officer; Scott Hankins, Managing Director – Investment Risk & Operations; Cindy Rehmeier, Manager of Defined Contribution Plans; Paul Moyer, Chief Technology Officer; Lisa Verslues, Human Resources Officer; and Melissa Johnson, Board Administrator. Nicki Russell, Chief Auditor; Patrick Morgan, Legal and Compliance Counsel; Shelby Murdock-Kempf, Associate Counsel; Candy Smith, Communications and Public Information Officer; Andrea Binkley, Chief Benefits Officer; Lindsey Evers, Internal Auditor; Jeremy Pond, Chief Financial Officer; and Pettina Duenckel, Executive Project Coordinator, attended via telephone.

Tom Litz, Thompson Coburn; Eileen Neill, Verus Investments; Pat Beckham, and Bryan Hogue, Cavanaugh Macdonald Consulting; and Vivek Ramaswamy, Strive Asset Management, attended in person.

The Board held its annual educational conference in the Senate Lounge of the Missouri State Capitol.

The topics listed on the attached agenda were presented and discussed.

Senator Wieland moved to adjourn the meeting. Ms. Jacobs seconded. Motion carried.

Crystal Wessing, Chairwoman | Ronda Stegmann, Executive Director

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
BOARD OF TRUSTEES MEETING
REGULAR SESSION MINUTES
MOSERS OFFICE, 907 WILDWOOD DRIVE, JEFFERSON CITY, MO
WITH OPTIONAL CONFERENCE CALL
JUNE 16, 2022 – 9:00 A.M.

Ms. Crystal Wessing, Mr. Gary Findlay, Mr. Joe Keifer, Mr. Gary Metzger, Ms. Jenny Jacobs, Commissioner Ken Zellers, Treasurer Scott Fitzpatrick, and Sen. Paul Wieland attended in person. Rep. John Wiemann and Sen. John Rizzo attended via telephone. Mr. Mike Price, designee of the Treasurer, and Ms. Stacy Neal, designee of the Commissioner, attended the meeting in person, as guests.

Attending from MOSERS: Ronda Stegmann, Executive Director; Abby Spieler, Deputy Executive Director/General Counsel; TJ Carlson, Chief Investment Officer; Tyson Rehfeld, Deputy Chief Investment Officer; Scott Hankins, Managing Director – Investment Risk & Operations; Cindy Rehmeier, Manager of Defined Contribution Plans; Jeremy Pond, Chief Financial Officer; Paul Moyer, Chief Technology Officer; Pettina Duenckel, Executive Project Coordinator; and Melissa Johnson, Board Administrator. Nicki Russell, Chief Auditor; Patrick Morgan, Legal and Compliance Counsel; Shelby Murdock-Kempf, Associate Counsel; Candy Smith, Communications and Public Information Officer; Andrea Binkley, Chief Benefits Officer; and Lisa Verslues, Human Resources Officer, attended via telephone.

Pat Beckham, Cavanaugh MacDonald Consulting; Tom Litz, Thompson Coburn; and Eileen Neill, Verus Investments, attended in person.

Attendance roll call was taken.

Mr. Metzger moved to approve the regular session minutes from the February 18, 2022 Board meeting. Mr. Findlay seconded. Motion carried.

Mr. Findlay moved to approve the regular session minutes from the March 3, 2022 Special Board Meeting. Mr. Metzger seconded. Motion carried.

Ms. Beckham provided information on how the passage of HB 3005, which provides an extraordinary payment of $500 million to MOSERS, would impact the employer contribution rate for FY24. Mr. Findlay moved to recognize the $500 million dollar payment immediately to lower the assumption rate. Mr. Jacobs seconded. Mr. Findlay withdrew his motion. Ms. Jacobs withdrew her second. Mr. Findlay moved to recognize half of the $500 million dollar payment to lower the assumption rate. Ms. Jacobs seconded. Mr. Findlay withdrew his motion. Ms. Jacobs withdrew her second. After Board discussion, Sen. Rizzo moved to accept the $500 million dollar payment and reduce the unfunded liability. Treasurer Fitzpatrick seconded. Motion carried.

Ms. Stegmann discussed two proposed budget amendments. Mr. Metzger moved to approve an FY23 budget amendment of $57,600 to cover an increase in MOSERS employer match for Deferred Compensation, should such a match be signed by the Governor. Commissioner Zellers seconded. Motion carried. Ms. Jacobs moved to approve a FY23 budget amendment of $50,000 to increase the actuarial services budget for additional analysis of a legislative proposal to materially modify the future membership of the system. Mr. Metzger seconded. Motion carried.

Ms. Neill presented MOSERS 1st Quarter summary performance report.

Mr. Carlson presented MOSERS 1st Quarter investment summary report.

Ms. Stegmann discussed potential revisions to the Investment Policy Statement regarding development of a proxy voting policy.

In accordance with Section 610.021, RSMo, Treasurer Fitzpatrick moved to go into executive session for the purpose of hearing legal advice regarding the proxy voting policy and the Investment Policy Statement. Mr. Keifer seconded. A roll call vote was taken. Mr. Findlay, Treasurer Fitzpatrick, Ms. Jacobs, Mr. Keifer, Mr. Metzger, Sen. Rizzo, Sen. Wieland, Rep. Wiemann, Ms. Wessing, and Commissioner Zellers voted in favor of the motion. Motion carried.

Upon return to open session, Sen. Wieland moved to instruct Blackrock to send us our proxies and for the Investment Committee and MOSERS staff to develop a proxy voting policy. Treasurer Fitzpatrick seconded. Mr. Keifer moved to amend the motion to instruct Blackrock to stop voting our proxies, send us our proxies, and for the Investment Committee and MOSERS staff to develop a proxy voting policy. Treasurer Fitzpatrick seconded. Treasurer Fitpatrick moved to amend the motion to instruct Blackrock to stop voting our proxies, send us our proxies, and instructed staff to abstain from voting those proxies while the proxy voting policy is being considered and adopted by the Board through the Investment Committee. Sen. Wieland seconded. Mr. Metzger moved to amend the motion to instruct Blackrock, and NISA as it applies to our REITS portfolio, to stop voting our proxies, send us our proxies, and instructed staff to abstain from voting those proxies while the proxy voting policy is being considered and adopted by the Board through the Investment Committee. Treasurer Fitzpatrick seconded. Motion carried.

Mr. Hankins presented the quarterly risk report.

Mr. Keifer provided the Investment Committee report. Mr. Keifer moved to approve the proposed private equity benchmark modifications, as presented. Mr. Metzger seconded. Motion carried.

Mr. Metzger provided the Strategic Planning and Governance Committee report. Mr. Metzger moved to adopt the FY23-25 Strategic Plan, as presented. Mr. Keifer seconded. Motion carried.

Ms. Stegmann discussed proposed revisions to the MOSERS Governance Manual. Mr. Metzger moved to approve proposed revisions to the Board Expense Reimbursement Policy. Mr. Findlay seconded. Motion carried. Mr. Metzger moved to approve proposed revisions to the Personal Trading Policy. Mr. Keifer seconded. Motion carried.

Ms. Jacobs provided the Audit Committee report.

Ms. Stegmann provided the legislative report.

Ms. Wessing discussed the proposed FY23 Executive Director Performance Evaluation. Mr. Metzger moved to approve the FY23 Executive Director Performance Evaluation, as presented. Mr. Findlay seconded. Motion carried.

In accordance with Section 610.021, RSMo, Mr. Findlay moved to go into executive session for the purpose of approving the minutes, discussing service provider contracts, hearing the legal/litigation report, and discussing personnel matters. Mr. Keifer seconded. A roll call vote was taken. Rep. Black, Mr. Findlay, Treasurer Fitzpatrick, Ms. Jacobs, Mr. Keifer, Mr. Metzger, Sen. Wieland, Ms. Wessing, and Commissioner Zellers voted in favor of the motion. Motion carried.

Upon return to open session, Mr. Metzger moved to adjourn the meeting. Mr. Findlay seconded. Motion carried.

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Crystal Wessing, Chairwoman Ronda Stegmann, Executive Director

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
BOARD OF TRUSTEES MEETING
REGULAR SESSION MINUTES
MOSERS OFFICE, 907 WILDWOOD DRIVE, JEFFERSON CITY, MO
WITH OPTIONAL CONFERENCE CALL
JULY 18, 2022 – 12:30 P.M.

Ms. Crystal Wessing, Mr. Gary Findlay, Mr. Gary Metzger, Ms. Jenny Jacobs, Mr. Mike Price, designee of the Treasurer, and Commissioner Ken Zellers attended in person. Rep. Rusty Black, Sen. John Rizzo, and Mr. Joe Keifer attended the meeting via telephone.

Attending from MOSERS: Ronda Stegmann, Executive Director; and Melissa Johnson, Board Administrator.

Tom Litz, Thompson Coburn, attended in person.

In accordance with Section 610.021, RSMo, Mr. Metzger moved to go into executive session to discuss personnel matters. Mr. Findlay seconded. A roll call vote was taken. Rep. Black, Mr. Findlay, Mr. Price, Ms. Jacobs, Mr. Keifer, Mr. Metzger, Sen. Rizzo, Ms. Wessing, and Commissioner Zellers voted in favor of the motion. Motion carried.

Upon return to open session, Mr. Metzger moved to adjourn the meeting. Ms. Jacobs seconded. Motion carried.

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Crystal Wessing, Chairwoman Ronda Stegmann, Executive Director

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Tentative Schedule for MOSERS 2023 Board Meetings

Friday, February 17, 2023	**9:00 a.m.**	**First Quarter Board Meeting**
Friday, April 21, 2023	**9:00 a.m.**	**Tentative – If Needed**
Wednesday, June 14, 2023	**TBD**	**Board Educational Conference**
Thursday, June 15, 2023	**9:00 a.m.**	**Second Quarter Board Meeting**
Thursday, September 21, 2023	**9:00 a.m.**	**Third Quarter Board Meeting**
Thursday, November 16, 2023	**9:00 a.m.**	**Fourth Quarter Board Meeting**

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FY23 Executive Director
Performance Evaluation Criteria

September 22, 2022

Item Type: **Action**

Action: *Approval of the proposed FY23 Executive Director Performance Evaluation Criteria*

Executive Summary

In accordance with the Executive Director Evaluation governance policy, which in part states,

> "At the regularly scheduled Board meeting held in the second quarter, the Board, working with the Executive Director, should adopt a set of performance goals and criteria to be used in evaluating the performance of the Executive Director for the upcoming fiscal year."

As discussed at the June 2022 Board meeting, included in the Board materials is the proposed revision to the performance evaluation form for Incoming Director Spieler's FY23 performance evaluation which will be conducted in September 2023. This performance evaluation form is considered the "set of performance goals" described in the governance policy.

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Executive Director Evaluation Form

To facilitate MOSERS' governance model, the MOSERS Board of Trustees will provide the Executive Director with feedback regarding performance from the previous fiscal year during the 3rd quarter meeting of the Board. It is the opinion of the Board of Trustees that every MOSERS employee, including the leadership positions, benefits from a review of one's performance.

Instructions: Rate the Executive Director on each of the following items using the rating scale below.

Rating Scale:

5 Superior performance – performance consistently exceeds expectations, adds value to the job/task through anticipating risks and opportunities and works from a strategic position instead of a reactive position, performance is clearly outstanding and obvious to others.

4 Above average performance – performance frequently exceeds expectations, performance is consistent, direction is required for only the most difficult and/or critical tasks, anticipates and deals with problems independently.

3 Satisfactory performance – performance meets expectations, results are consistent, performs duties and responsibilities of the job in a capable manner with normal guidance.

2 Below expected performance, results achieved are below those expected of an experienced employee, required performance levels have been met (50-75% of the time), but not consistently or impactful underperformance in specific areas occurred.

1 Unsatisfactory performance, results achieved are below acceptable levels, required performance levels may have been met occasionally, and requires significant direction.

SECTION A: ORGANIZATIONAL MANAGEMENT

		High				Low
1	Administers the defined benefit, defined contribution, long-term disability, and life insurance plans according to policies and laws ensuring high customer service ratings and member engagement.	5	4	3	2	1
2	Ensures member communication for all benefits is complete, timely, and presented in an understandable level. Member communications delivery methods include websites, social media, publications, letters, emails, etc.	5	4	3	2	1
3	Ensures investment department operates efficiently, and in accordance with~~,~~ policies and the law.	5	4	3	2	1
4	Develops reasonable operating budgets and functions within approved budgetary limits, seeking exceptions and board input as needed.	5	4	3	2	1
5	Ensures proper risk management strategies are utilized including, but not limited to, audits, IT security strategies, organization insurance coverage, and business continuity planning.	5	4	3	2	1
6	Identifies administrative issues and resolves problems appropriately.	5	4	3	2	1
7	Ensures organizational policies are developed, relevant, updated, and adhered to throughout the organization.	5	4	3	2	1

Comments relative to Organizational Management:

SECTION B: LEADERSHIP

		High				Low
1	Develops and maintains effective relationships with the Board, staff, members of the general assembly, Governor and his/her staff members, other retirement systems, and other benefit providers.	5	4	3	2	1
2	Develops effective relationships with the media, responds appropriately to media requests and maintains a positive public image.	5	4	3	2	1
3	Demonstrates an ability to foresee ~~problems~~ challenges and utilizes preventative problem-solving strategies.	5	4	3	2	1
4	Ensures Board and Committee Chairs have appropriate meeting dynamic information, such as timing of motions.	5	4	3	2	1
5	Communicates with the Board to ensure compliance with statutory, fiduciary, and governance policy requirements. Notifies the Board of any instances of noncompliance by Board members or staff regarding Board policies, laws, or regulations in a timely manner.	5	4	3	2	1
6	Participates in relevant and worthwhile professional organizations.	5	4	3	2	1
7	Ensures the efficient and effective functioning of the System through delegation to the executive team.	5	4	3	2	1

Comments relative to Leadership:

SECTION C: COMMUNICATION

		High				Low
1	Transparent and candid communication to the Board on all issues affecting the plans and system.	5	4	3	2	1
2	Properly implements Board directives.	5	4	3	2	1
3	Works with Board and Committee chairs to develop agendas and provide appropriate and clear materials for meetings.	5	4	3	2	1
4	Represents MOSERS in an approachable and transparent manner.	5	4	3	2	1
5	Provides updates, guidance, and technical support on legislative and appropriation bills to Board members, policy makers, and other stakeholders.	5	4	3	2	1
6	Facilitates positive relationships and strives to educate MOSERS many constituencies.	5	4	3	2	1
7	Responds to Board members' questions and comments to enhance Board member~~'~~s' understanding of system matters.	5	4	3	2	1

Comments relative to Communication:

SECTION D: STAFF ENGAGEMENT & DEVELOPMENT

		High				Low
1	Ensures staff are well trained by providing and supporting ongoing opportunities for continued development.	5	4	3	2	1
2	Prepares appropriately for turnover to ensure the continuation of high-productivity at reasonable costs. Ensures appropriate cross-training within the organization.	5	4	3	2	1
3	Effectively recruits, motivates, retains, disciplines, and when necessary, terminates staff.	5	4	3	2	1
4	Creates and maintains a strong culture that encourages staff retention and employee satisfaction and staff engagement.	5	4	3	2	1
5	Ensures employees have access to various modes of professional development and certifications (i.e. online classes, in person training, self-study materials, etc.)	5	4	3	2	1
6	Ensures staff receive adequate feedback regarding performance through regular communication and at least an annual, formal performance review.	5	4	3	2	1
7	Ensures sections are staffed appropriately to manage workloads and meet organizational goals.	5	4	3	2	1

Comments relative to Staff Engagement & Development:

SECTION E: MOSERS' STRATEGIC PLAN

		High				Low
1	Facilitates the strategic planning process with the Board.	5	4	3	2	1
2	Conducts a SWOT analysis and establishes goals accordingly.	5	4	3	2	1
3	Establishes organizational goals (business plan) to ensure the implementation and achievement of strategic planning goals.	5	4	3	2	1
4	Communicates progress on the strategic plan to the Board.	5	4	3	2	1
5	Achieves strategic plan goals. The Executive Director shall not be held accountable for missed strategic plan deadlines IF the missed deadlines are a result of shifting priorities from the MOSERS Board of Trustees or due to significant unexpected events that take precedent over strategic planning goals. Examples include litigation, business interruption, legislation, and investment market crash.	5	4	3	2	1
6	Engages staff in the development and implementation of the strategic plan.	5	4	3	2	1

Comments relative to MOSERS' Strategic Plan:

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Adoption of FY24 Contribution Rates

September 22, 2022

Item Type: **Action**

Executive Summary: *At this meeting, the Board will certify the FY24 employer contribution rates for the MSEP and the Judicial Plan.*

Per Sections 104.436(2) and 104.1066(2), RSMo, at least ninety days before each regular session of the general assembly, the board shall certify to the division of budget the contribution rate necessary to cover the liabilities of the plan administered by the system, including costs of administration, expected to accrue during the next appropriation period. The commissioner of administration shall request appropriation of the amount calculated pursuant to the provisions of this subsection.

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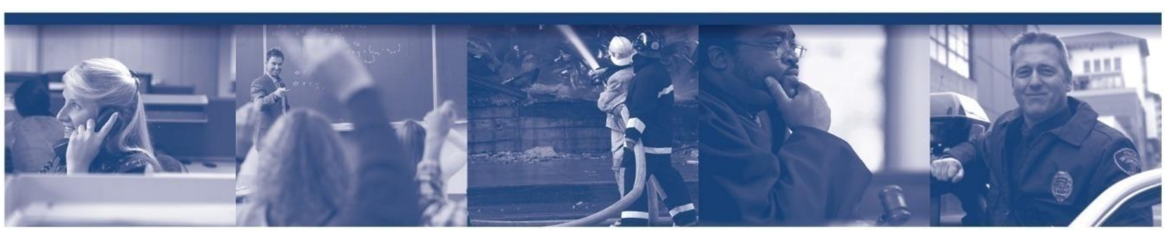
Missouri State Employees' Retirement System
June 30, 2022 Actuarial Valuation Results

Presented by

Patrice Beckham, FSA, EA, FCA, MAAA
Bryan Hoge, FSA, EA, FCA, MAAA

September 22, 2022



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Discussion Topics

- Legislation passed by 2022 General Assembly

- 2022 Actuarial Valuation Results for MSEP and Judicial (FY 2024 Contribution Rates)
  - Actual versus expected experience since June 30, 2021 valuation
  - Changes due to data refinement and programming changes resulting from actuarial audit recommendations

- Projections of future results

Legislation Passed in 2022 Session

- Legislation passed by 2022 General Assembly provided for an additional contribution of $500 million to MOSERS
  - Funds received on July 13, 2022
    - ✓ After the valuation date so not reflected in the asset values in this valuation.
    - ✓ In determining the actuarial contribution rate, the UAAL payment is calculated by rolling the UAAL forward one year. Absent the Board action in June, the additional contribution would have impacted the UAAL contribution rate and, therefore, the actuarial contribution rate.
    - ✓ In June, the Board elected not to reflect the additional contribution in setting the employer contribution rate.
  - June 30, 2022 valuation results: no impact on funded status (funded ratio and UAAL) or employer contribution rate

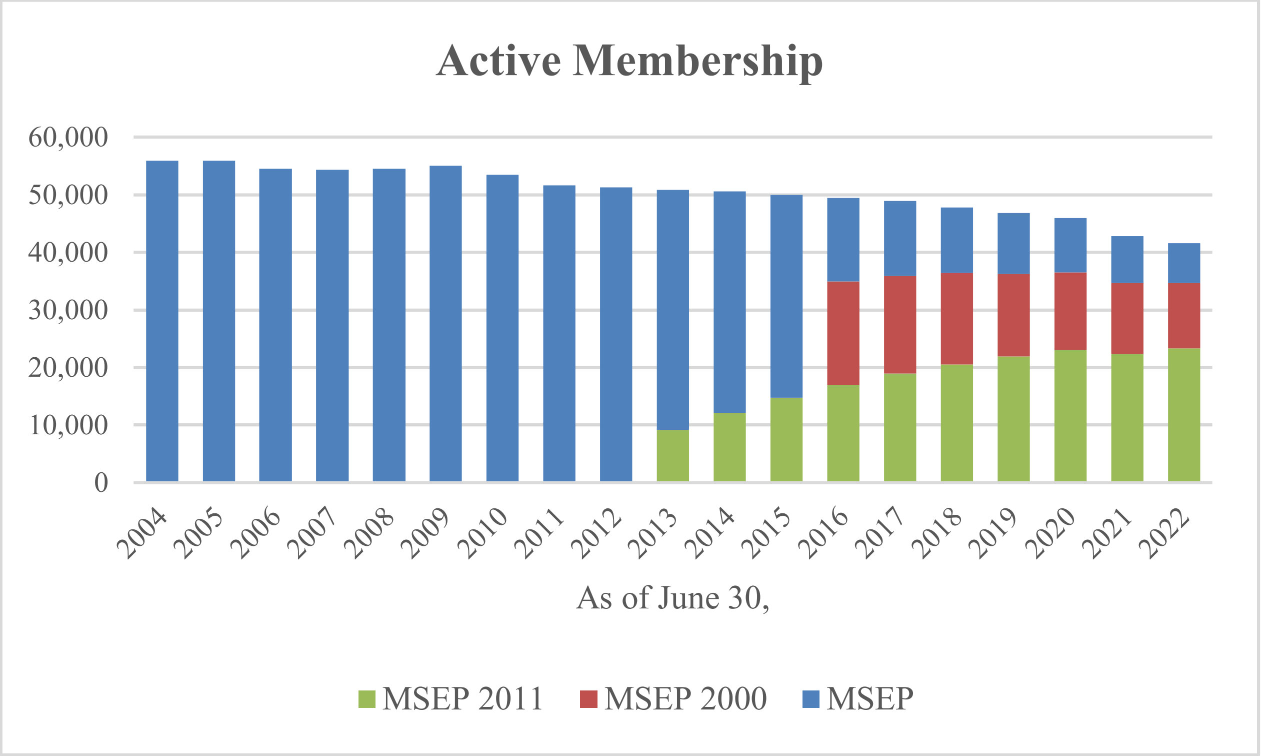
MSEP: Actual vs Expected Experience

- Investment return on market value basis for the year ending June 30, 2022 was -9.0%. With asset smoothing, the return on actuarial assets was 5.1%.
  - Resulted in $163M actuarial loss on actuarial assets
  - Deferred investment experience is now net loss of $646M vs net gain of $611M in 2021 valuation
  - Increased the actuarial contribution rate by 0.56%
- Net liability loss for fiscal year 2022 of $30M
  - Loss from larger salary increases than assumed
  - Loss from higher COLAs than anticipated
  - Increased the actuarial contribution rate by 0.10%
- Decline of 2.9% in active membership resulted in lower payroll growth than expected

MSEP Valuation Results

	June 30, 2022	June 30, 2021
Unfunded Actuarial Accrued Liability ($M)	$6,515	$6,201
Funded Ratio (Actuarial Assets)	57.72%	58.96%
Normal Cost Rate	8.81%	8.83%
UAAL Amortization Rate	20.49%	19.38%
Total Actuarial Required Contribution Rate	29.30%	28.21%
Member Contribution Rate	(2.04%)	(1.88%)
Employer Contribution Rate	27.26%	26.33%
Employer Contribution Amount ($M)	$576.3	$552.7

Total MSEP Active Membership



- 26% decline in the active membership since 2004 – majority since 2009. Nearly 3% decline from the 2021 to the 2022 valuation.
- MSEP 2011 currently has about 56% of the total actives in the plan

Note – Split between MSEP and MSEP 2000 is not available prior to June 30, 2016.
MSEP 2011 active counts are not available for June 30, 2011 or June 30, 2012.

Actuarial Value of Assets

- Market value not used directly in valuation

- Asset valuation method used to smooth the effect of market fluctuations
  - Goal is to provide more stability in contribution rates
  - Smoothed value is called *"actuarial value of assets"* and is used in all measurements in the valuation

- Change to closed five-year smoothing of actual versus expected return beginning in 2018 valuation, along with seven-year recognition of the deferred investment experience loss of $927 million as of June 30, 2017

Application of MSEP Asset Smoothing Method

Plan Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2017	(927,023,550)	(529,727,744)	(132,431,936) *	(264,863,870)
6/30/2018	(1,637,715)	(1,310,172)	(327,543)	0
6/30/2019	(253,470,489)	(152,082,294)	(50,694,098)	(50,694,097)
6/30/2020	(147,410,621)	(58,964,248)	(29,482,124)	(58,964,249)
6/30/2021	1,497,671,183	299,534,237	299,534,237	898,602,709
6/30/2022	(1,462,493,315)	0	(292,498,663)	(1,169,994,652)
Total	(1,294,364,507)	(442,550,221)	(205,900,127)	(645,914,159)

A. Market Value of Assets as of June 30, 2022	$	8,248,414,597
B. Total Deferred Investment Experience	$	(645,914,159)
C. Actuarial Value of Assets as of June 30, 2022 (A. - B.)	$	8,894,328,756
D. Ratio of Actuarial Value to Market Value		107.8%

* The unrecognized investment experience as of June 30, 2017 will be recognized over a closed seven-year period.

Estimated rate of return on the actuarial value was 5.1% which produced an actuarial loss of $163 million.

Schedule of Deferred Actuarial Investment Experience

- If all assumptions are met in the future, this schedule shows how the deferred experience will be reflected in the actuarial value of assets over the next four years.

Plan Year Ended	Gain/(Loss) Deferred to Future Years	Gain/(Loss) to be Recognized in Plan Year Ending 2023	2024	2025	2026
6/30/2017	(264,863,870)	(132,431,936)	(132,431,934)		
6/30/2019	(50,694,097)	(50,694,098)			
6/30/2020	(58,964,249)	(29,482,124)	(29,482,125)		
6/30/2021	898,602,709	299,534,237	299,534,237	299,534,235	
6/30/2022	(1,169,994,652)	(292,498,663)	(292,498,663)	(292,498,663)	(292,498,663)
Total	(645,914,159)	(205,572,584)	(154,878,485)	7,035,572	(292,498,663)

MSEP: Actuarial and Market Value of Assets

	Market Value ($M)		Actuarial Value ($M)	
Net Assets, June 30, 2021	$	9,519.93	$	8,909.25
- Employer and Member Contributions	+	516.73	+	516.73
- Miscellaneous Income	+	0.01	+	0.01
- Benefit Payments	-	962.59	-	962.59
- Net Investment Income	-	816.42	+	440.18
- Administrative Expenses	-	9.25	-	9.25
Net Assets, June 30, 2022	$	8,248.41	$	8,894.33
Estimated Net Rate of Return		(9.0%)		5.1%

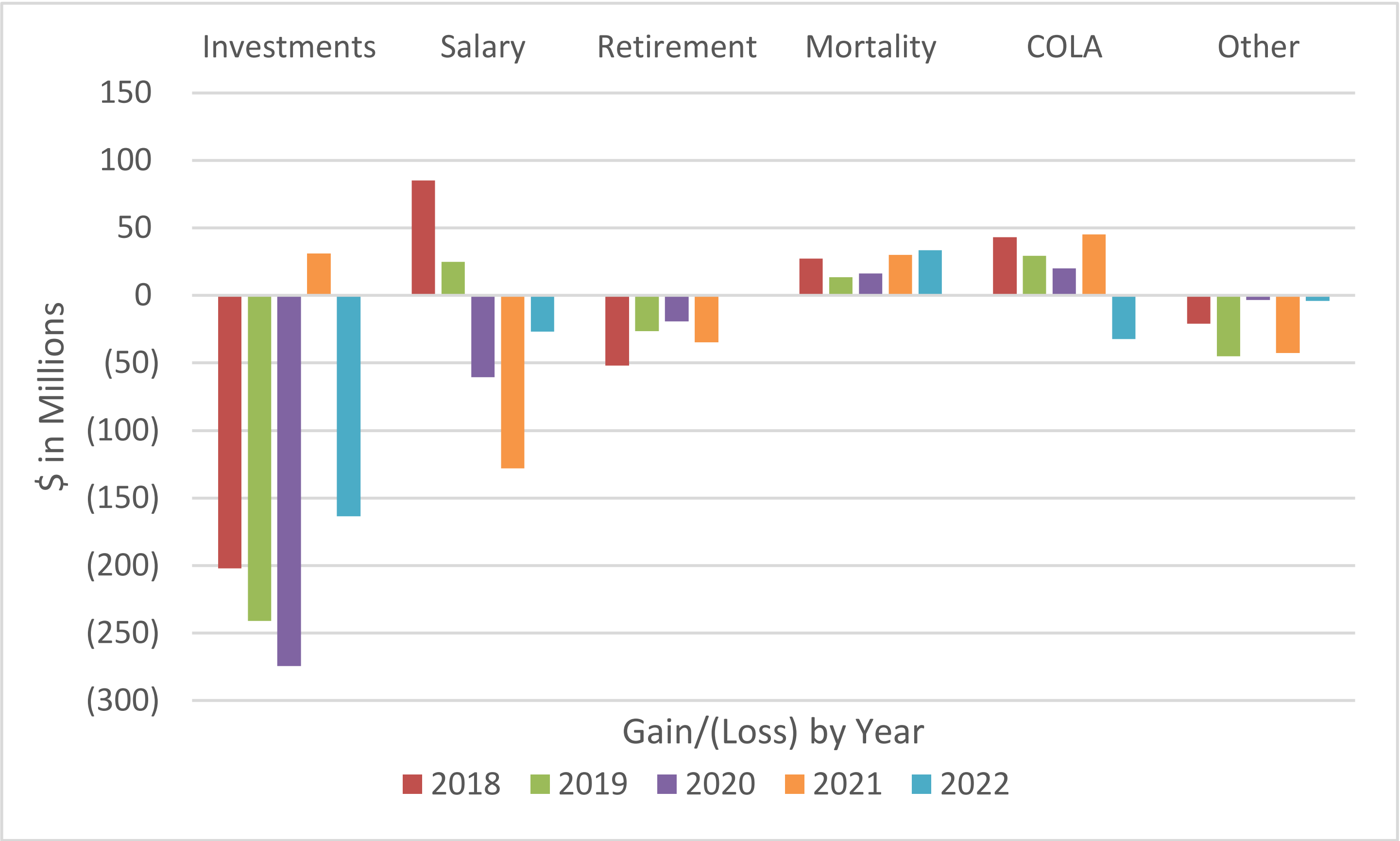
The return of 5.1% on the actuarial value of assets resulted in an actuarial loss of $163 million and changed the deferred investment experience from a net gain in last year's valuation to a net loss in the current valuation.

Change in MSEP Unfunded Actuarial Accrued Liability

	($ Millions)
Unfunded Actuarial Accrued Liability, June 30, 2021	$6,201.4
- Expected increase due to amortization method	81.1
- Investment experience	163.5
- Liability experience	30.1
- Data/Programming Refinement	41.7
- Other experience	(3.1)
Unfunded Actuarial Accrued Liability, June 30, 2022	$6,514.7

Note: liability loss of $30 million is about 0.2% of actuarial accrued liability.

MSEP Actuarial Gain/(Loss) By Source



- "Other" category includes Disability, Termination and all other liability experience.

MSEP Unfunded Actuarial Accrued Liability Contribution Rate

Amortization Base	Original Amount	Remaining Payments	Projected June 30, 2023 Balance	Annual Payment*
2018 Legacy UAAL	$ 4,861,507,879	26	$ 4,964,996,865	$ 327,423,886
2019 Assumption Changes	74,340,841	27	75,531,738	4,884,234
2019 Experience Base	259,714,456	27	263,874,929	17,063,383
2020 Assumption Changes	124,766,739	28	126,140,847	8,008,046
2020 Experience Base	196,930,919	28	199,099,800	12,639,841
2021 Assumption Changes	515,859,705	24	515,785,670	35,521,003
2021 Experience Base	152,907,202	24	152,885,257	10,528,865
2022 Experience Base	$ 254,311,768	25	254,311,768	17,126,032
Total			**$ 6,552,626,874**	**$ 433,195,290**

* Payment amount reflects mid-year timing.

1. Total UAAL Amortization Payments	$	433,195,290
2. Expected Payroll for FYE 2024	$	2,114,068,511
3. UAAL Amortization Payment Rate (1) / (2)		20.49%

Note: amortization period changed from 30 to 25 beginning in 2021 valuation

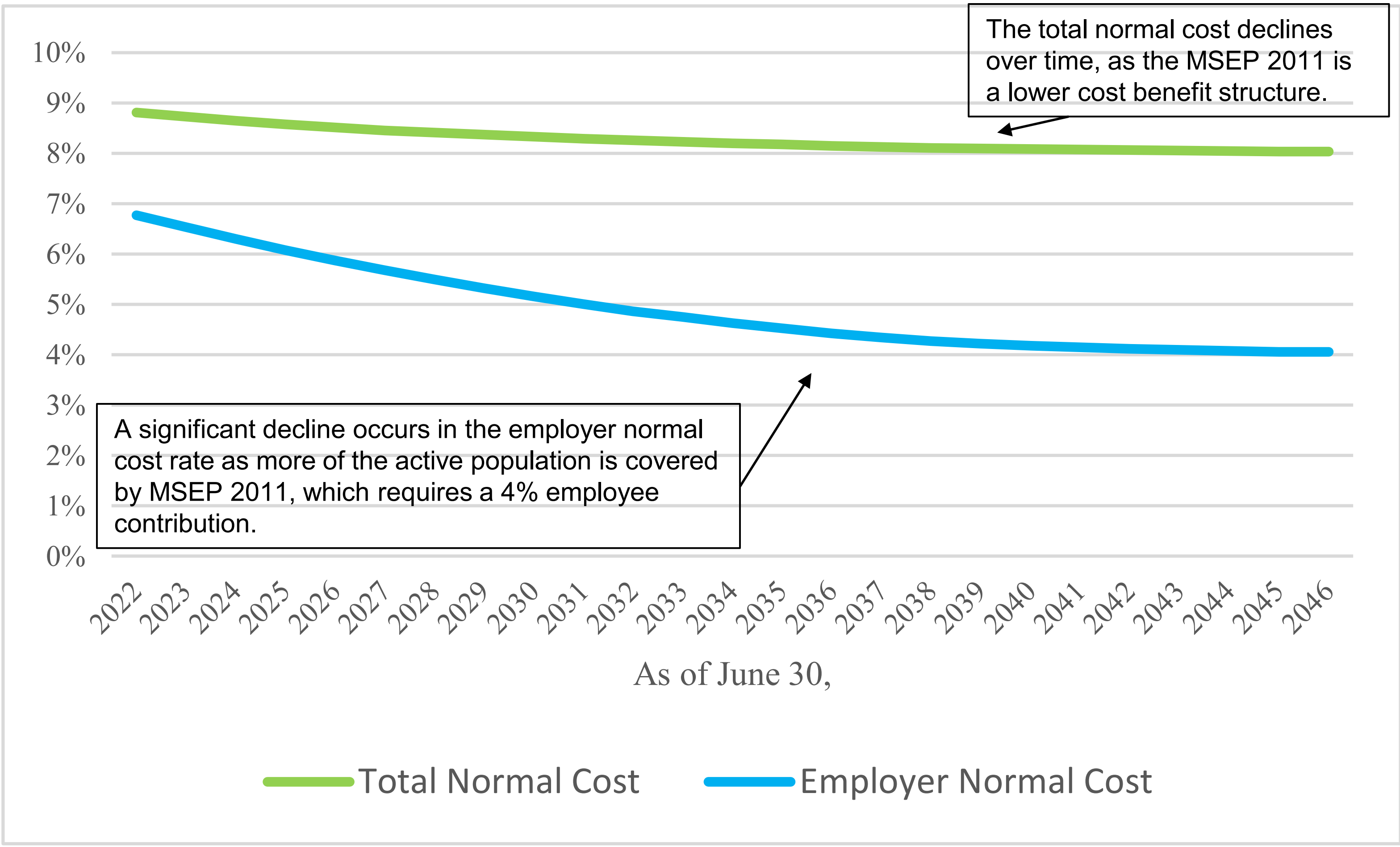
Development of MSEP Employer Normal Cost Rate

	Percent of Payroll		
	MSEP & MSEP 2000	MSEP 2011	Weighted Average
A. Normal Cost			
(1) Service retirement benefits	6.30 %	4.91 %	5.58 %
(2) Termination benefits	1.82	2.52	2.18
(3) Survivor benefits	0.11	0.16	0.14
(4) Disability benefits	0.46	0.46	0.46
(5) Administrative expenses	0.45	0.45	0.45
(6) Total	9.14	8.50	8.81
B. Less Member Contributions	0.00	4.00	2.04
C. Employer Normal Cost [A(6) - B]	9.14	4.50	6.77
D. Unfunded Actuarial Accrued Liabilities (UAAL) (level percent-of-payroll amortization with layered bases)			20.49
E. EMPLOYER CONTRIBUTION RATE [C. + D.]			**27.26 %**

- Employer Normal Cost rate is expected to decrease as more of the active population is covered by MSEP 2011. The reduction in the number of active members has limited the impact over time.

- Employers pay all the Normal Cost for MSEP and MSEP 2000 members and roughly 50% of the Normal Cost for MSEP 2011 members

Projection of MSEP Normal Cost Rate



Assumes all actuarial assumptions are met in the future.

MSEP Computed Employer Contribution Rate

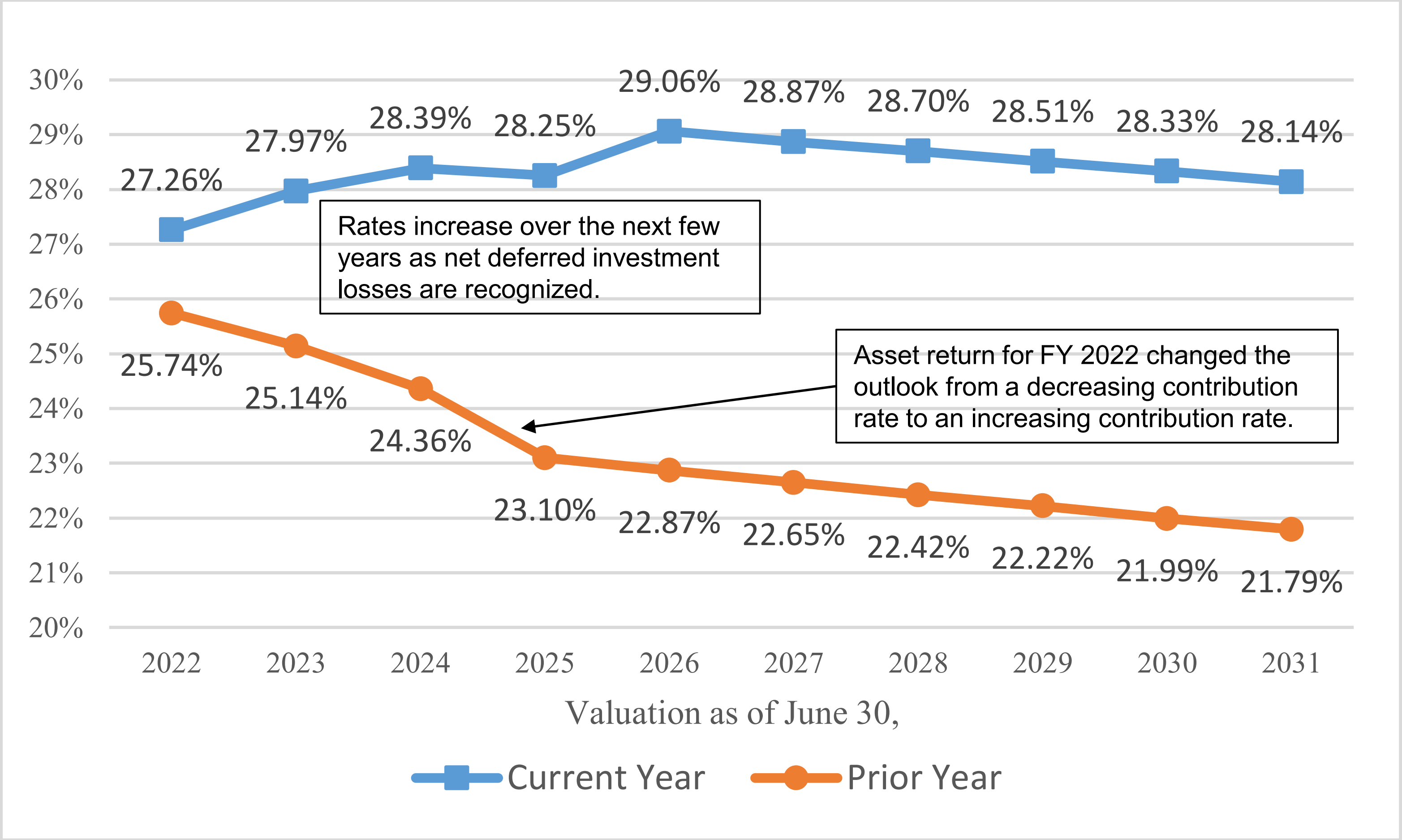
Valuation Date	June 30, 2021	June 30, 2022
Contribution for Fiscal Year Ending	June 30, 2023	June 30, 2024
Normal Cost Rate	8.83%	8.81%
UAAL Amortization Rate	19.38%	20.49%
Actuarial Contribution Rate	28.21%	29.30%
Member Contribution Rate	(1.88%)	(2.04%)
Employer Contribution Rate	**26.33%**	**27.26%**
Projected Payroll ($M)	**$2,099**	**$2,114**
Estimated Contribution ($M)	**$552.7**	**$576.3**

Change in Computed MSEP Employer Contribution Rates

	% of Payroll
6/30/2021 Employer Contribution Rate	**26.33%**
Asset (Gain)/Loss	0.56%
Liability (Gain)/Loss	0.10%
Data/Programming Refinement	0.22%
Projected Payroll Lower than Expected	0.32%
Change in Normal Cost Rate	(0.02%)
Change in Effective Member Contribution Rate	(0.16%)
Other Experience	(0.09%)
6/30/2022 Employer Contribution Rate	**27.26%**

The change in the contribution rate due to actual experience and lower than projected payroll pushed the employer contribution rate higher by nearly 1.00% of payroll.

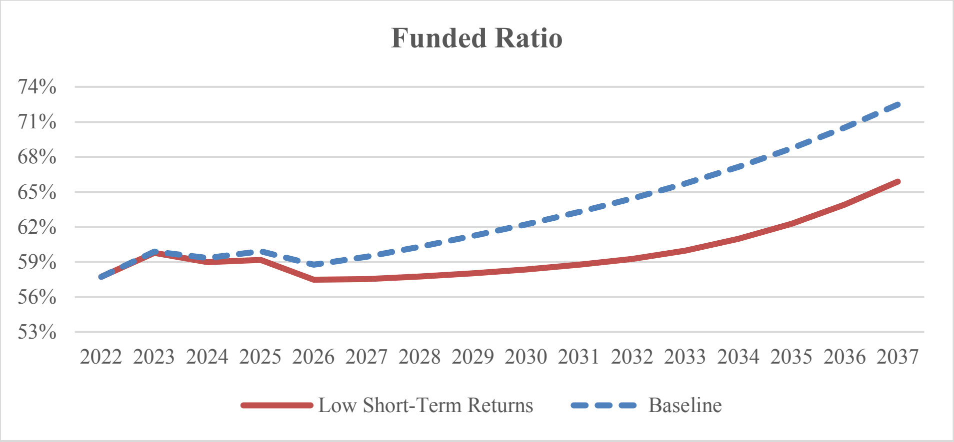
Projected MSEP Employer Contribution Rates



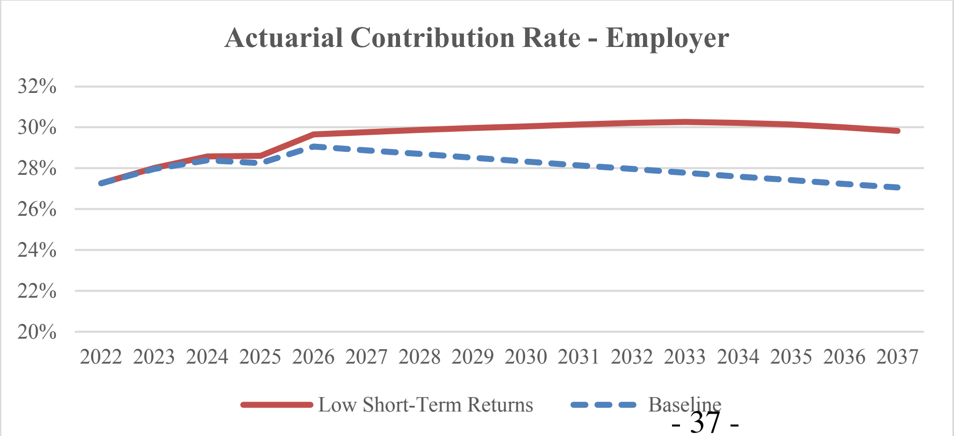
Assumes all actuarial assumptions are met in the future including a 6.95% return on the market value of assets.

MSEP Scenario Testing: Low Returns for Sustained Period

- Returns are 1% less than assumed (5.95%) over the next 10 years



Funded ratio improves as $500M additional contribution is received. Then declines for a few years as deferred asset losses are recognized. In the scenario with low returns, the funded ratio is about 7% lower than in the baseline scenario.



Employer contribution rates increase as deferred asset losses are recognized. In the scenario with low returns, the employer contribution rate remains steady around 30% of pay compared to a declining rate under the baseline scenario.

Sensitivity Analysis:
Cost-of-Living Adjustment

Estimate of future Cost-of-Living Adjustment impact on Actuarial Accrued Liability and Employer contribution rate in the 2023 valuation, based on different price inflation measurements.

Actual Price Inflation	**0.00%**	**2.25%**	**4.25%**	**6.25%**
Formula 1 COLA:	4.00%	4.00%	4.00%	5.00%
Formula 2 COLA:	0.00%	1.80%	3.40%	5.00%
Estimated Liability Gain/(Loss)	$130M	$0M	$(110M)	$(240M)
Estimated Impact on Employer Contribution Rate	(0.4%)	0.0%	0.4%	0.9%

Note: All other assumptions are unchanged for purposes of this sensitivity analysis.

JUDICIAL RETIREMENT SYSTEM

VALUATION RESULTS AND PROJECTIONS

Judicial: Actual vs Expected Experience

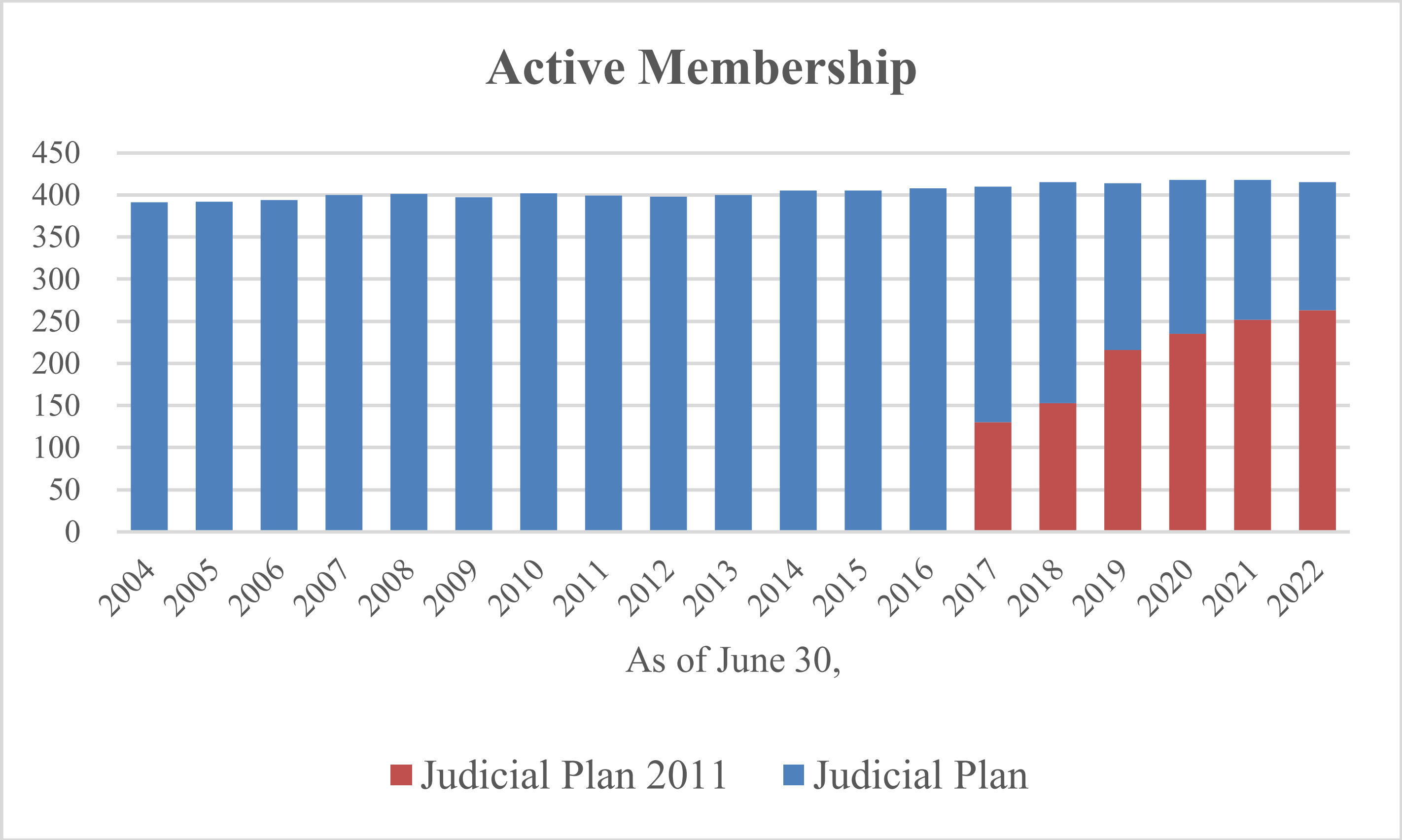
- Investment return on market value basis for the year ending June 30, 2022 was -9.0%. Due to asset smoothing, the return on actuarial assets was 5.6%.
  - Resulted in $2.6M actuarial loss on assets
  - Deferred investment experience is now net loss of $13.5M vs gain of $16.1M in 2021 valuation
  - Increased the actuarial contribution rate by 0.29%

- Net liability gain for fiscal year 2022 of $6M
  - Gains from lower salary increases than expected and more deaths than anticipated by the assumptions

Judicial Valuation Results

	June 30, 2022	June 30, 2021
Unfunded Actuarial Accrued Liability ($M)	$426.0	$431.3
Funded Ratio (Actuarial Assets)	32.4%	31.1%
Normal Cost Rate	20.25%	20.57%
UAAL Amortization Rate	42.16%	42.02%
Total Actuarial Required Contribution Rate	62.41%	62.59%
Member Contribution Rate	(2.58%)	(2.42%)
Employer Contribution Rate	59.83%	60.17%
Employer Contribution Amount ($M)	$39.9	$39.9

Active Membership



About 63% of active members are covered by the Judicial 2011 Plan in the June 30, 2022 valuation. Note: the split is not available prior to June 30, 2017.

Judicial: Actuarial and Market Value of Assets

		Market Value ($M)		Actuarial Value ($M)
Net Assets, June 30, 2021	$	211.08	$	194.99
- Employer and Member Contributions	+	40.78	+	40.78
- Benefit Payments	-	42.53	-	42.53
- Net Investment Income	-	18.80	+	10.84
- Administrative Expenses	-	0.08	-	0.08
Net Assets, June 30, 2022	$	190.45	$	204.00
Estimated Net Rate of Return		(9.0%)		5.6%

The return of 5.6% on the actuarial value of assets resulted in an actuarial loss of $2.6 million and changed the deferred investment experience from a net gain in last year's valuation to a net loss in the current valuation.

Change in Judicial Unfunded Actuarial Accrued Liability

	($ Millions)
Unfunded Actuarial Accrued Liability, June 30, 2021	$431.3
- Expected increase from amortization method	0.7
- Investment experience	2.6
- Liability experience	(6.1)
- Data/Programming Refinement	(3.0)
- Other experience	0.5
Unfunded Actuarial Accrued Liability, June 30, 2022	$426.0

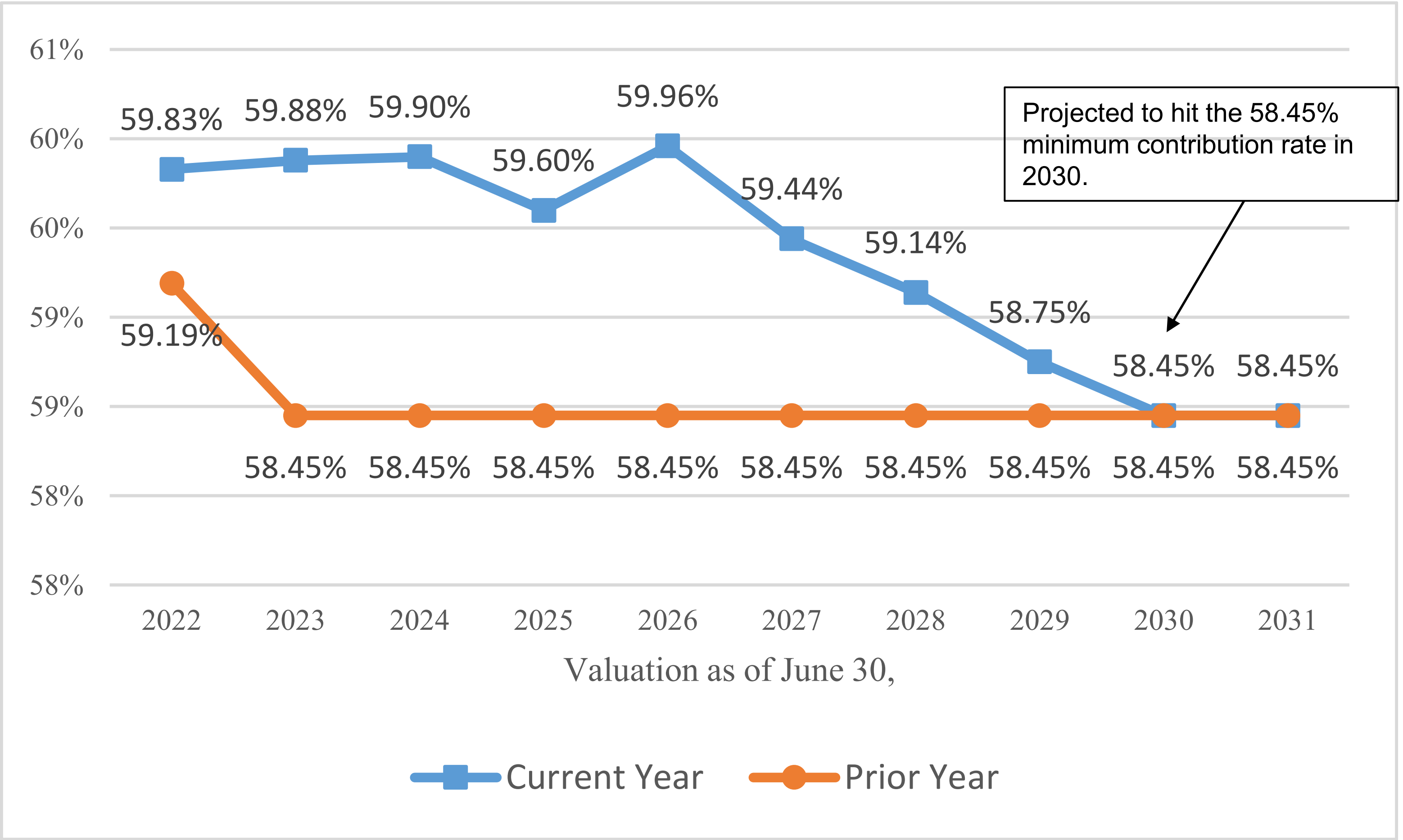
Judicial Computed Employer Contribution Rate

Valuation Date	June 30, 2021	June 30, 2022
Contribution for Fiscal Year Ending	**June 30, 2023**	**June 30, 2024**
Normal Cost Rate	20.57%	20.25%
UAAL Amortization Rate	42.02%	42.16%
Actuarial Contribution Rate	62.59%	62.41%
Member Contribution Rate	(2.42%)	(2.58%)
Employer Contribution Rate	**60.17%**	**59.83%**
Projected Payroll ($M)	**$66.4**	**$66.7**
Estimated Contribution ($M)	**$39.9**	**$39.9**

Change in Computed Judicial Employer Contribution Rates

	% of Payroll
6/30/2021 Employer Contribution Rate	**60.17%**
Asset (Gain)/Loss	0.29%
Liability (Gain)/Loss	(0.66%)
Data/Programming Refinement	(0.33%)
Projected Payroll Lower than Expected	0.80%
Change in Normal Cost Rate	(0.32%)
Change in Effective Member Contribution Rate	(0.16%)
Other Experience	0.04%
6/30/2022 Employer Contribution Rate	**59.83%**

Judicial: Projected Employer Contribution Rates



Assumes all actuarial assumptions are met in the future, including the investment return assumption of 6.95%.

Caveats and Disclosures

- Additional information regarding the assumptions and methods can be found in the MOSERS June 30, 2022 actuarial valuation report.
- The Appendix on the following pages shows some additional information that may be useful.
- The actuaries who prepared these results, Patrice Beckham, FSA, EA, MAAA, FCA, and Bryan Hoge, FSA, EA, MAAA, FCA, are members of the American Academy of Actuaries and are qualified to render the actuarial opinions presented herein.

APPENDIX

Supplemental Information from the June 30, 2022 Actuarial Valuation

Purpose of Actuarial Valuation

- Measurement of Assets and Liabilities

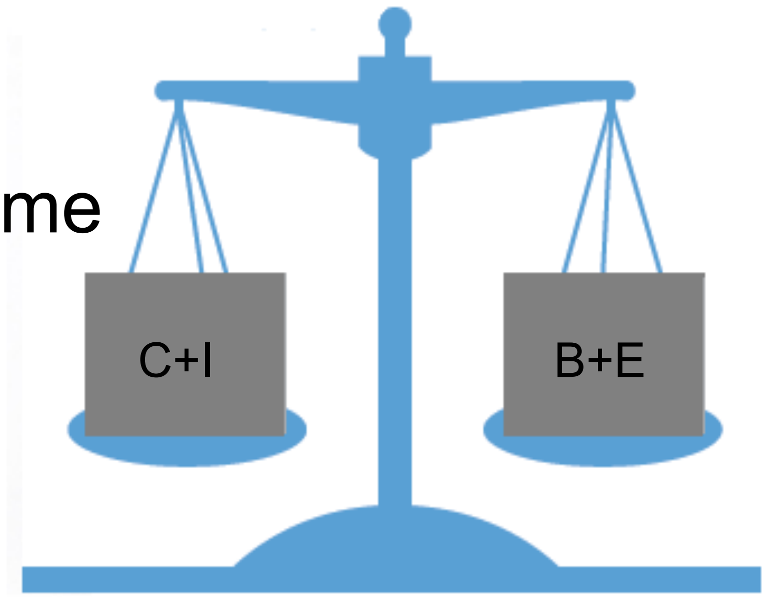
- Best Estimate of Ultimate Costs
  - Project expected future benefit payments using actuarial assumptions
  - Calculate present value of future benefits
  - Apply actuarial cost method to allocate benefit cost to periods of service for each member (past, current, future)

- Calculate Employer Contribution Rate for FYE June 30, 2024

Basic Retirement Funding Formula

$C + I = B + E$

C = contributions
I = investment income
B = benefits paid
E = expenses



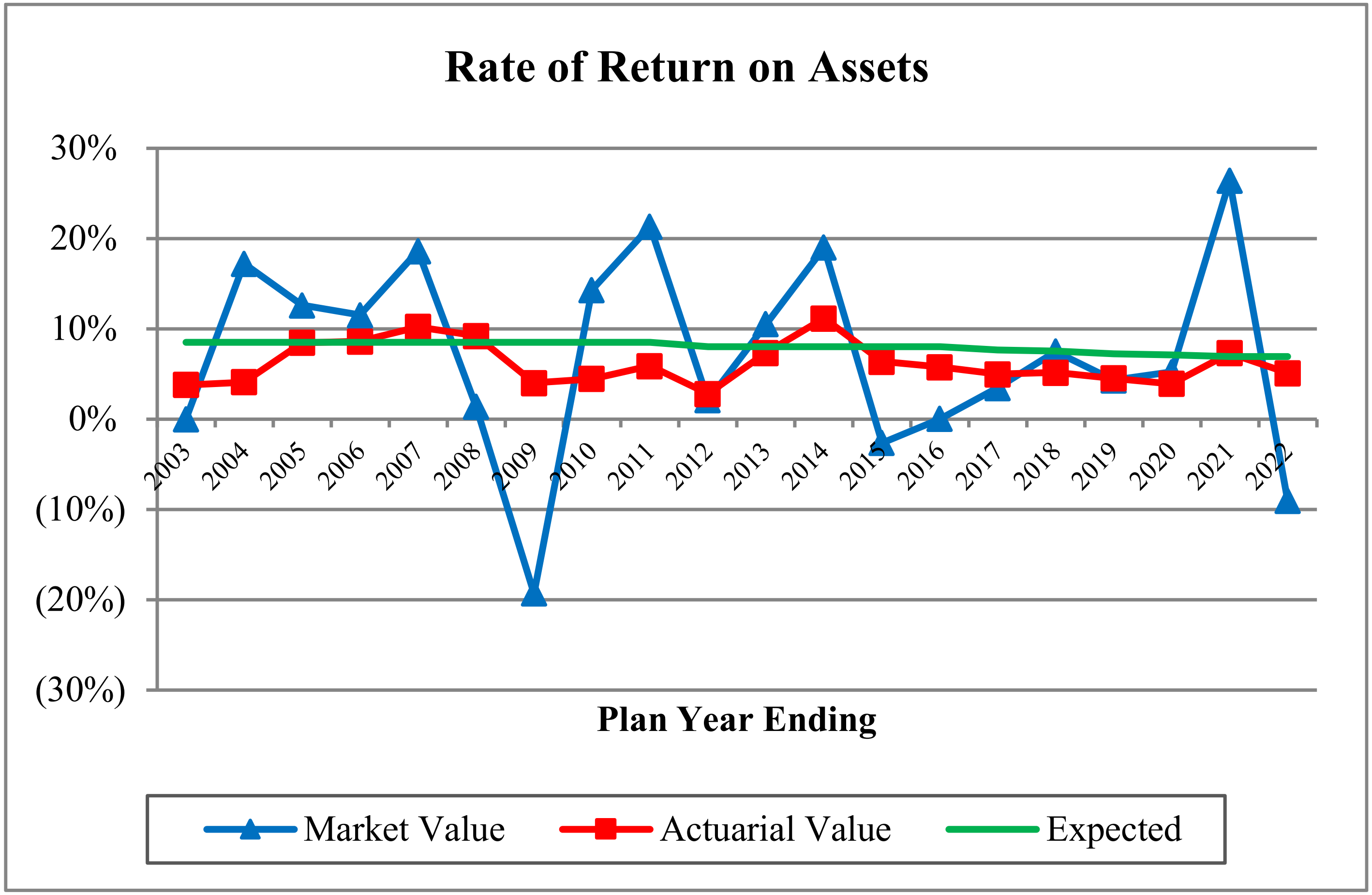
Cost = Obligations

MSEP Asset Experience for FY 2022

Fiscal Year End June 30,	2018	2019	2020	2021	2022
A. Market Value of Assets, Beginning of Year	$ 7,941,650,400	$ 8,034,508,424	$ 7,916,465,279	$ 7,910,830,533	$ 9,519,930,080
B. Contributions During Year	413,179,927	429,323,185	476,091,401	504,683,875	516,725,950
C. Miscellaneous Income	0	0	0	80,121	5,852
D. Benefit Payments and Expenses During Year	896,510,729	861,022,406	882,214,402	928,655,535	971,839,742
E. Expected Rate of Return	7.50%	7.25%	7.10%	6.95%	6.95%
F. Expected Net Investment Income	577,826,541	567,126,565	547,898,876	535,319,903	646,085,772
G. Expected Market Value of Assets, End of Year	8,036,146,139	8,169,935,768	8,058,241,154	8,022,258,897	9,710,907,912
H. Market Value of Assets, End of Year	8,034,508,424	7,916,465,279	7,910,830,533	9,519,930,080	8,248,414,597
I. Excess/(Shortfall) of Net Investment Income	$ (1,637,715)	$ (253,470,489)	$ (147,410,621)	$ 1,497,671,183	$ (1,462,493,315)

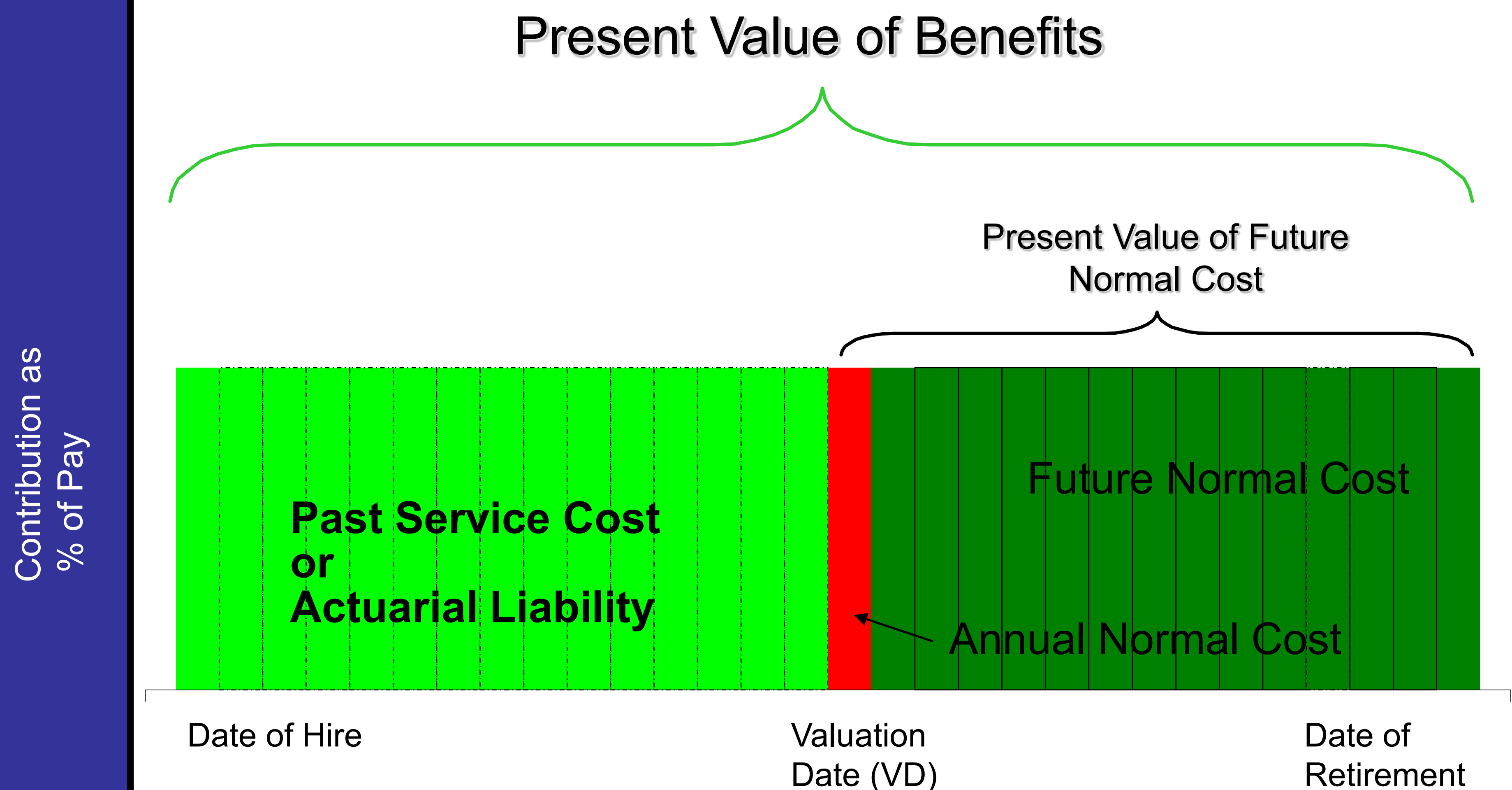
Note: the return shortfall in FY 2022 is almost equal to the excess return in FY 2021.

Historical Rates of Return



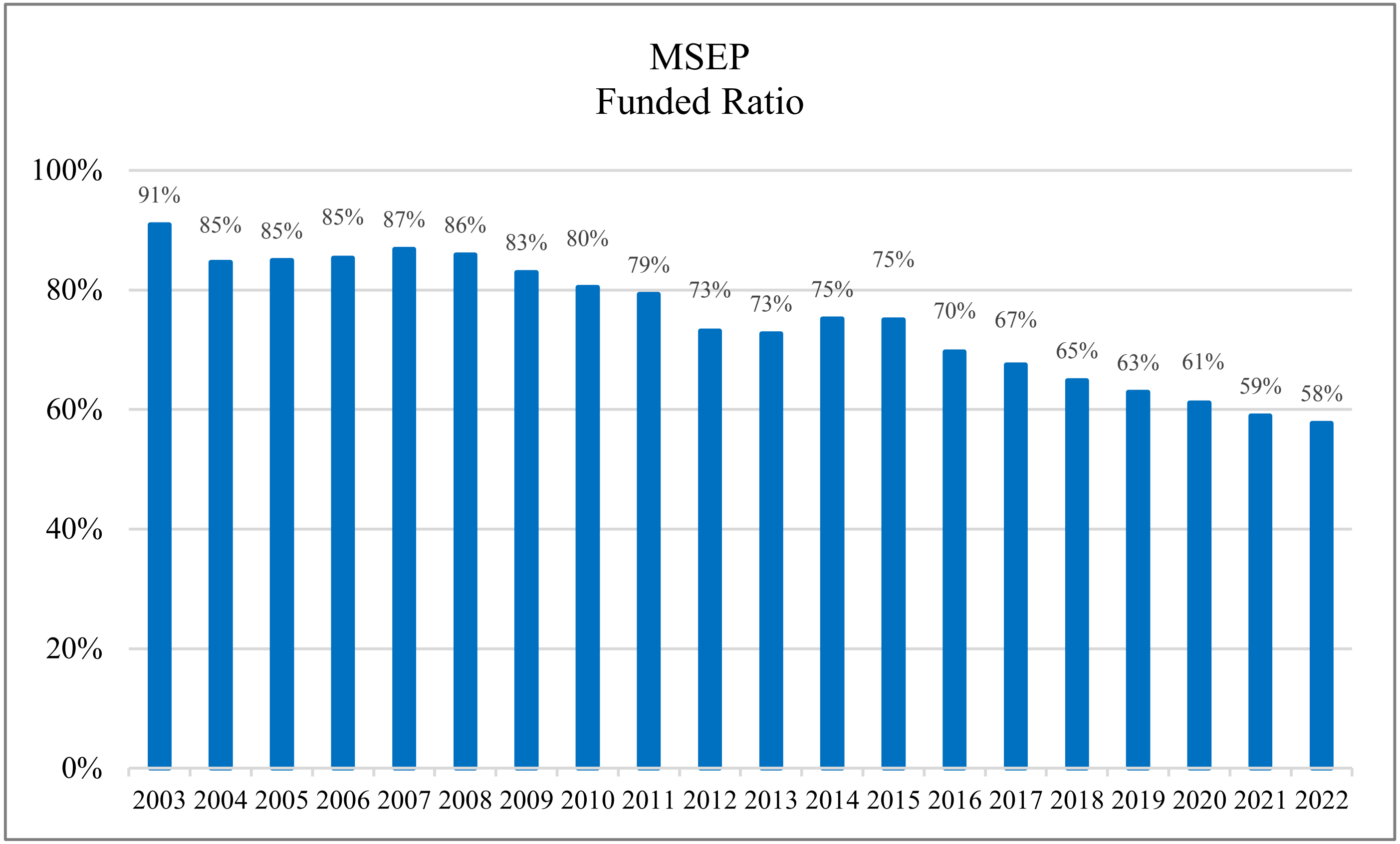
Note: Rates of return are dollar-weighted

Actuarial Funding Process



Actuarial Accrued Liability – Actuarial Assets = Unfunded Actuarial Accrued Liability

Historical Funded Ratio
(Actuarial Assets/Actuarial Accrued Liability)

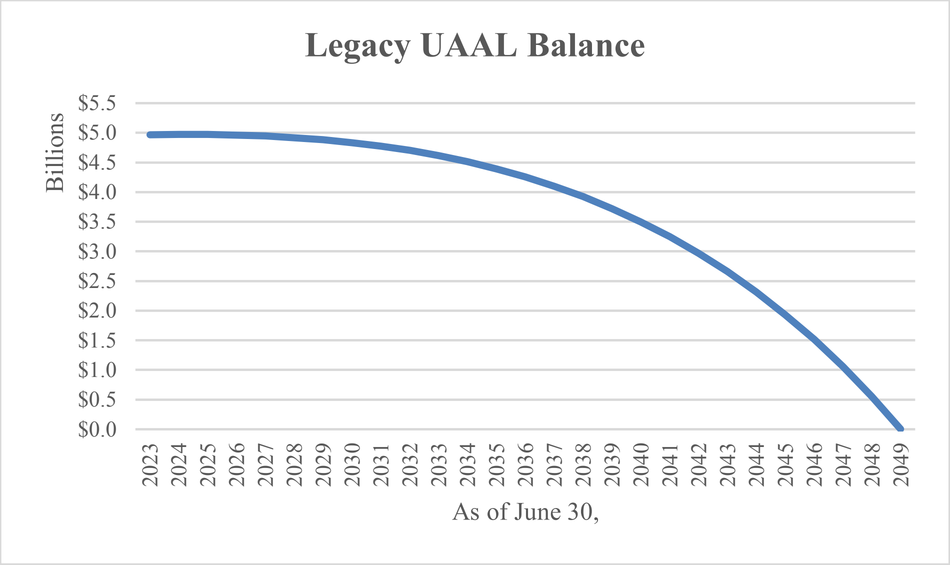


Numerous changes occurred during this period, including changes to the investment return assumption in:

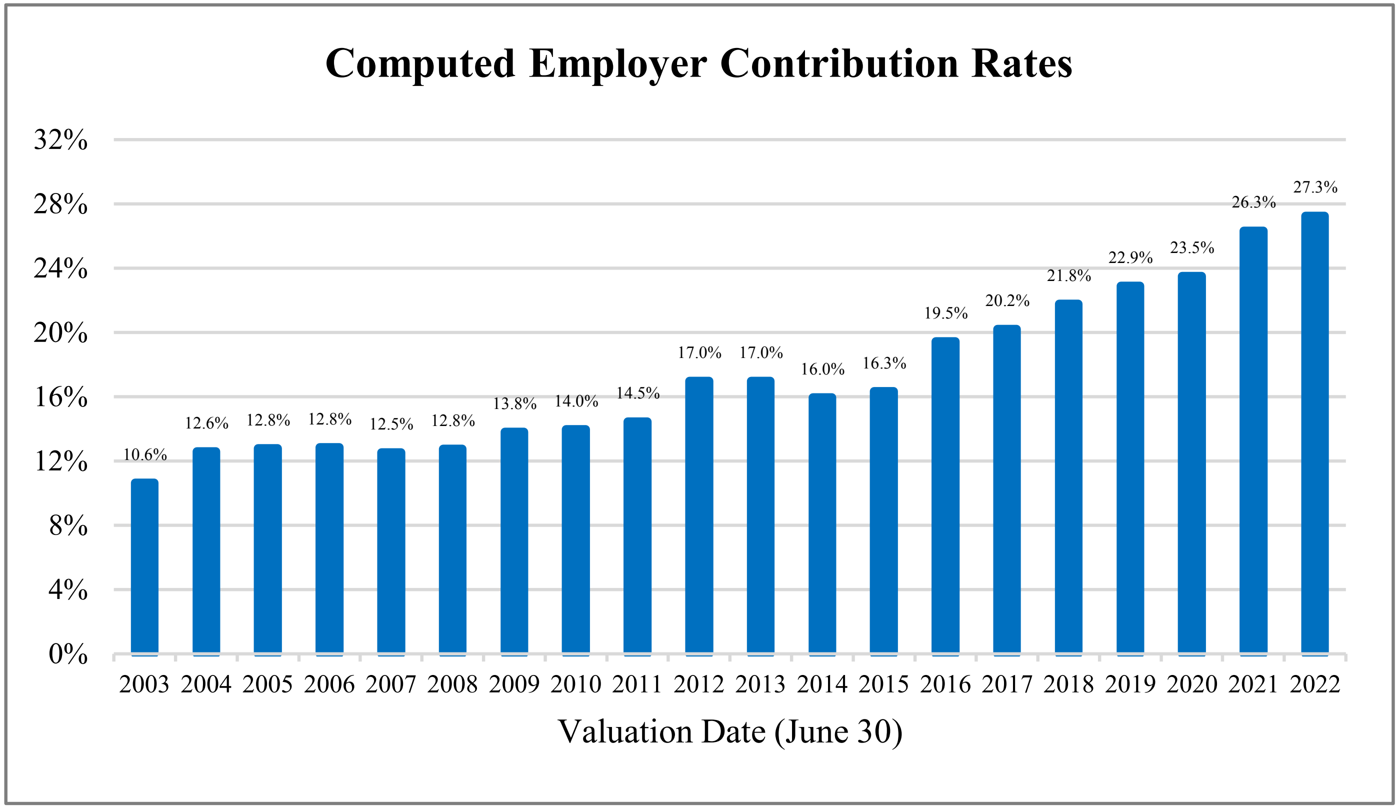
2012: 8.50% to 8.00%	2018: 7.50% to 7.25%
2016: 8.00% to 7.65%	2019: 7.25% to 7.10%
2017: 7.65% to 7.50%	2020: 7.10% to 6.95%

Unfunded Actuarial Accrued Liability

- Effective with the June 30, 2018 valuation, the Unfunded Actuarial Accrued Liability is amortized using a *"Layered"* approach
  - Eight "layers" in the current valuation, new layer(s) added each year
  - Payments in future years are assumed to increase 2.25% using the "level percent of pay" amortization methodology
  - UAAL balance holds steady in the short term before ultimately declining



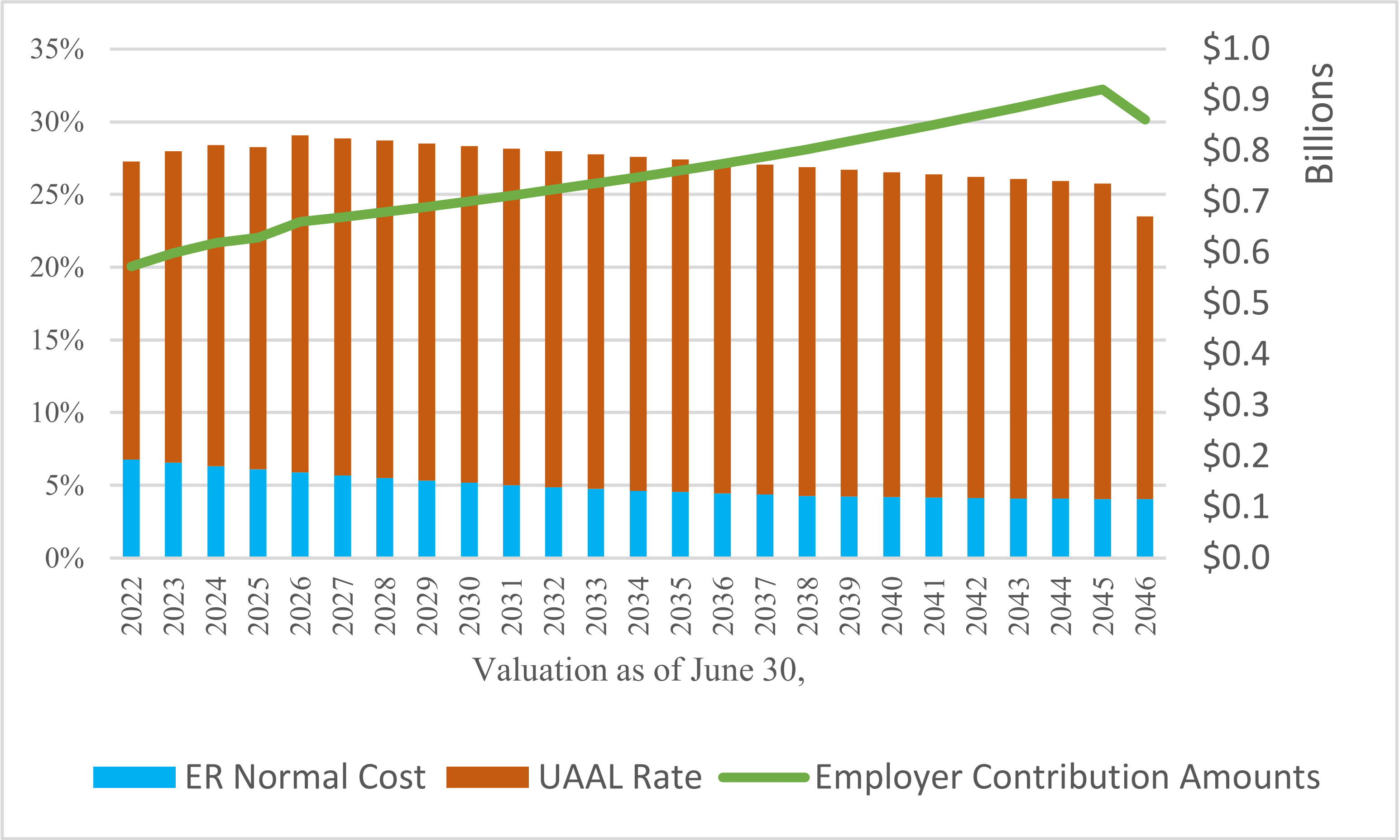
Historical MSEP Employer Contribution Rates



Numerous changes occurred during this period, including changes to the investment return assumption in:

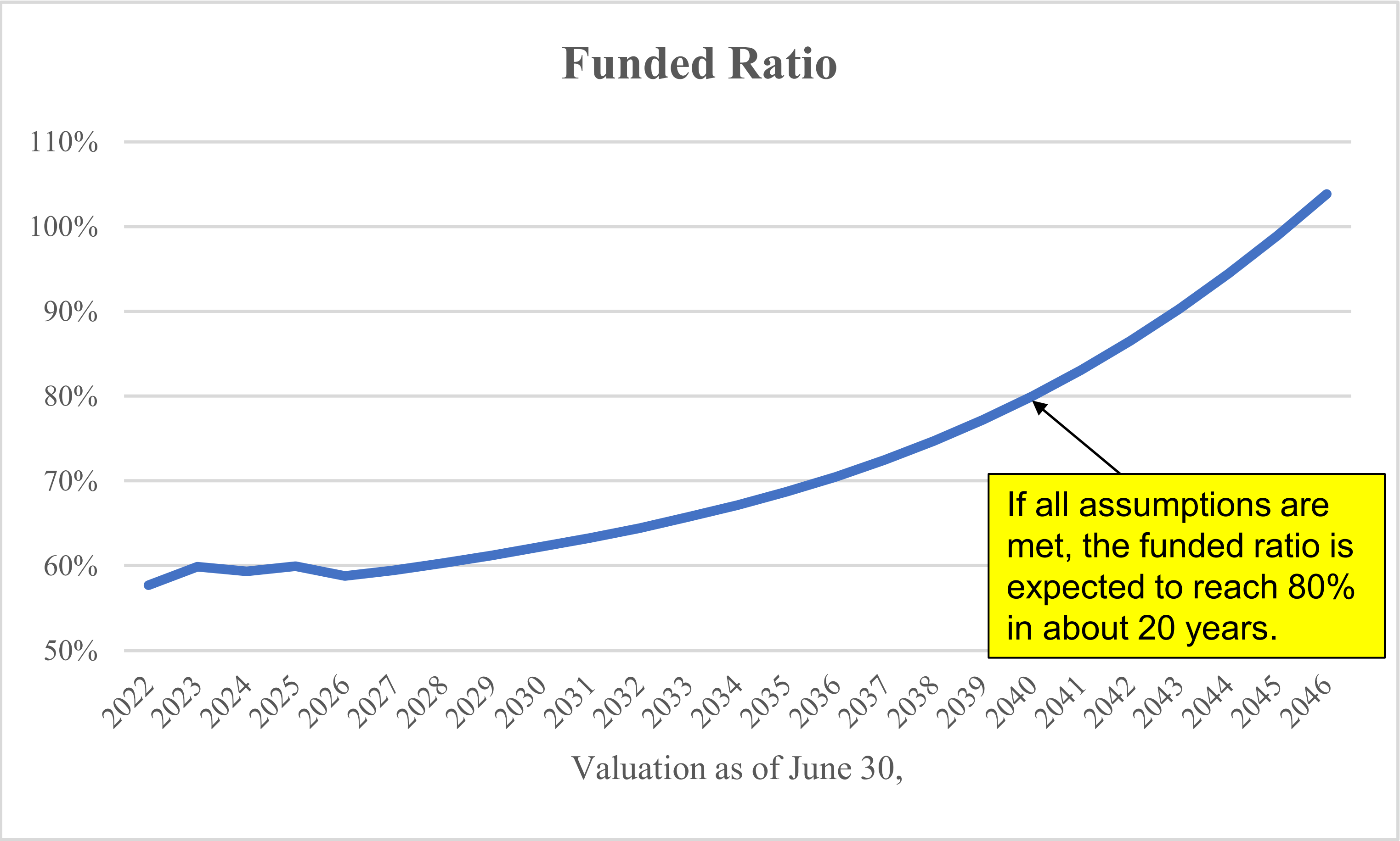
2012: 8.50% to 8.00%	2018: 7.50% to 7.25%
2016: 8.00% to 7.65%	2019: 7.25% to 7.10%
2017: 7.65% to 7.50%	2020: 7.10% to 6.95%

Projected MSEP Employer Contribution Rates by Component



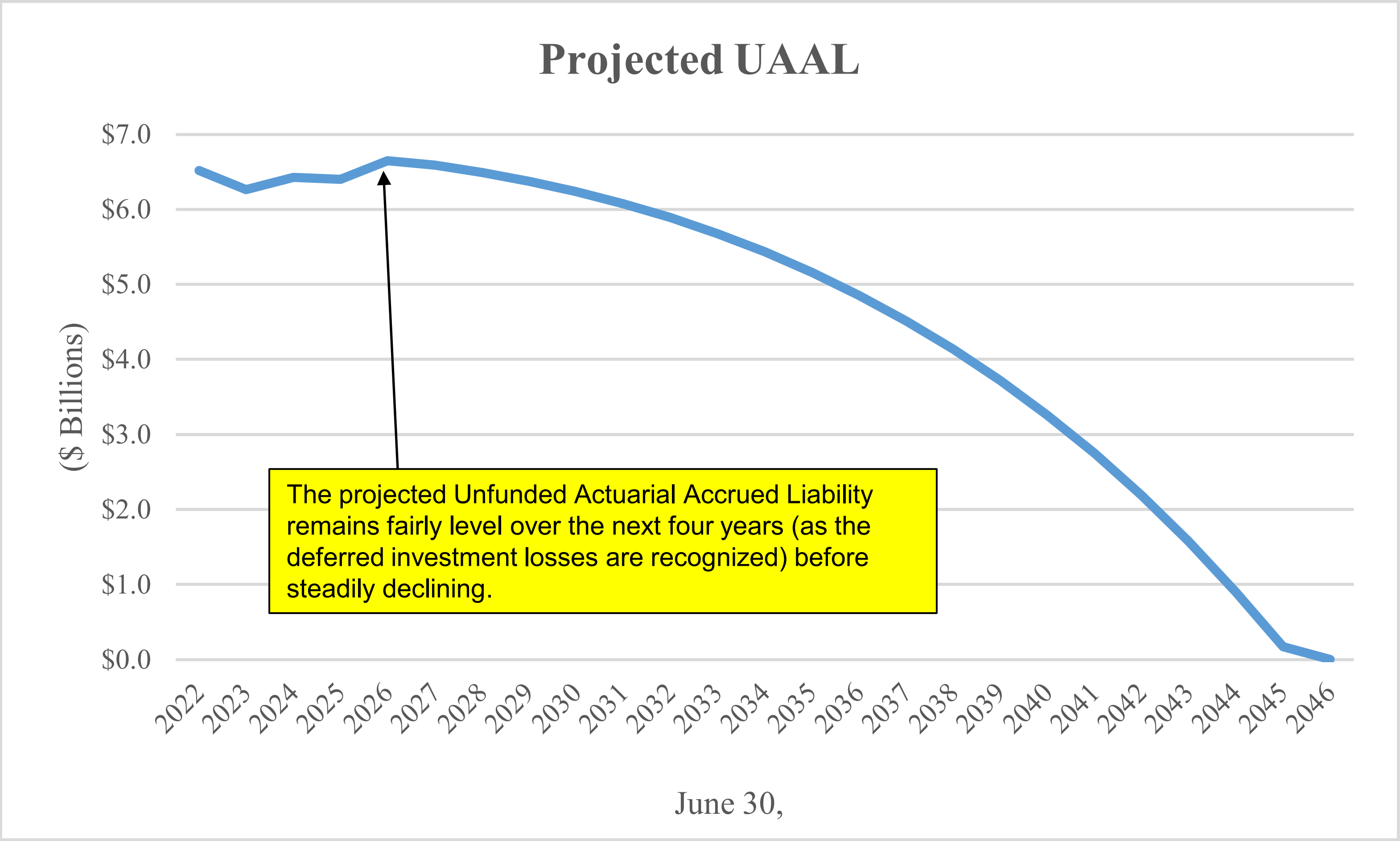
Assumes all actuarial assumptions are met in the future including a 6.95% return on the actuarial value of assets.

Projection of MSEP Funded Ratio



Assumes all actuarial assumptions are met including the 6.95% return on the market value of assets.

Projected MSEP Unfunded Actuarial Accrued Liability

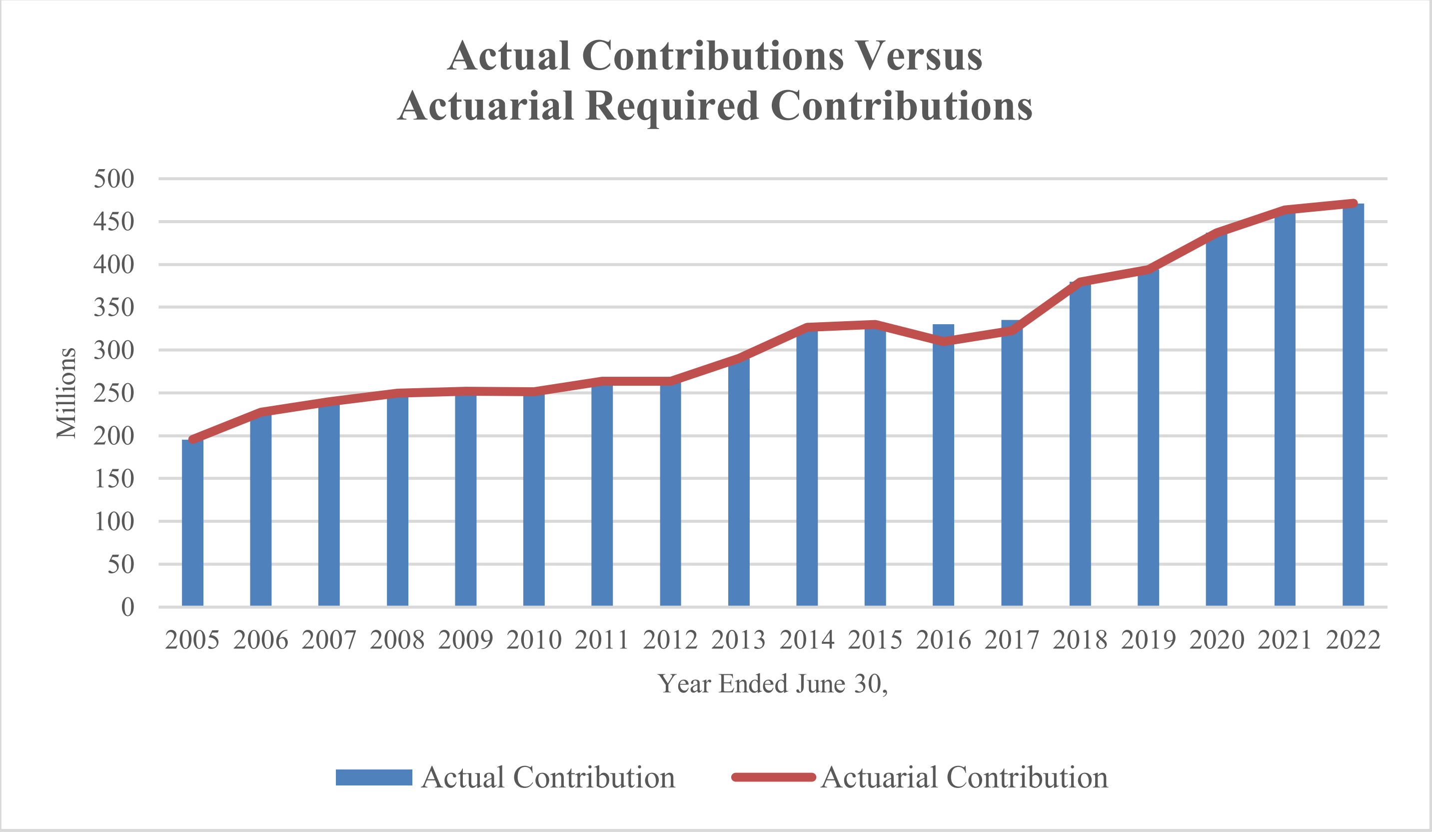


Assumes all actuarial assumptions are met including the 6.95% return on the market value of assets.

MSEP
RISK ANALYSIS

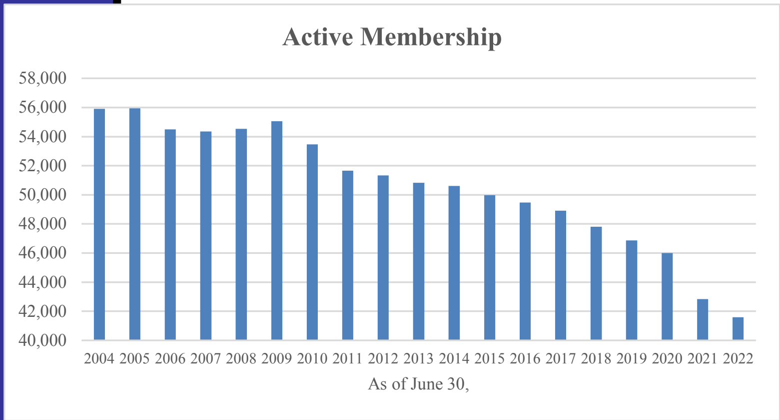
MSEP Actual and Actuarial Contributions

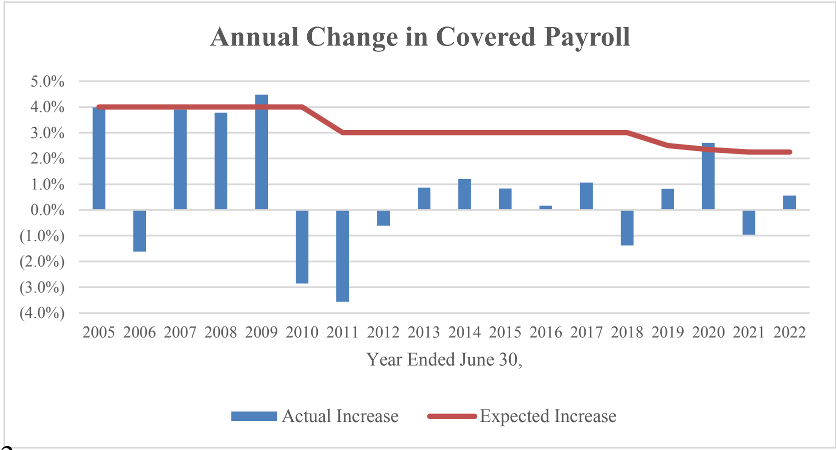
- Positive factor: State's commitment to contribute the full actuarial contribution rate



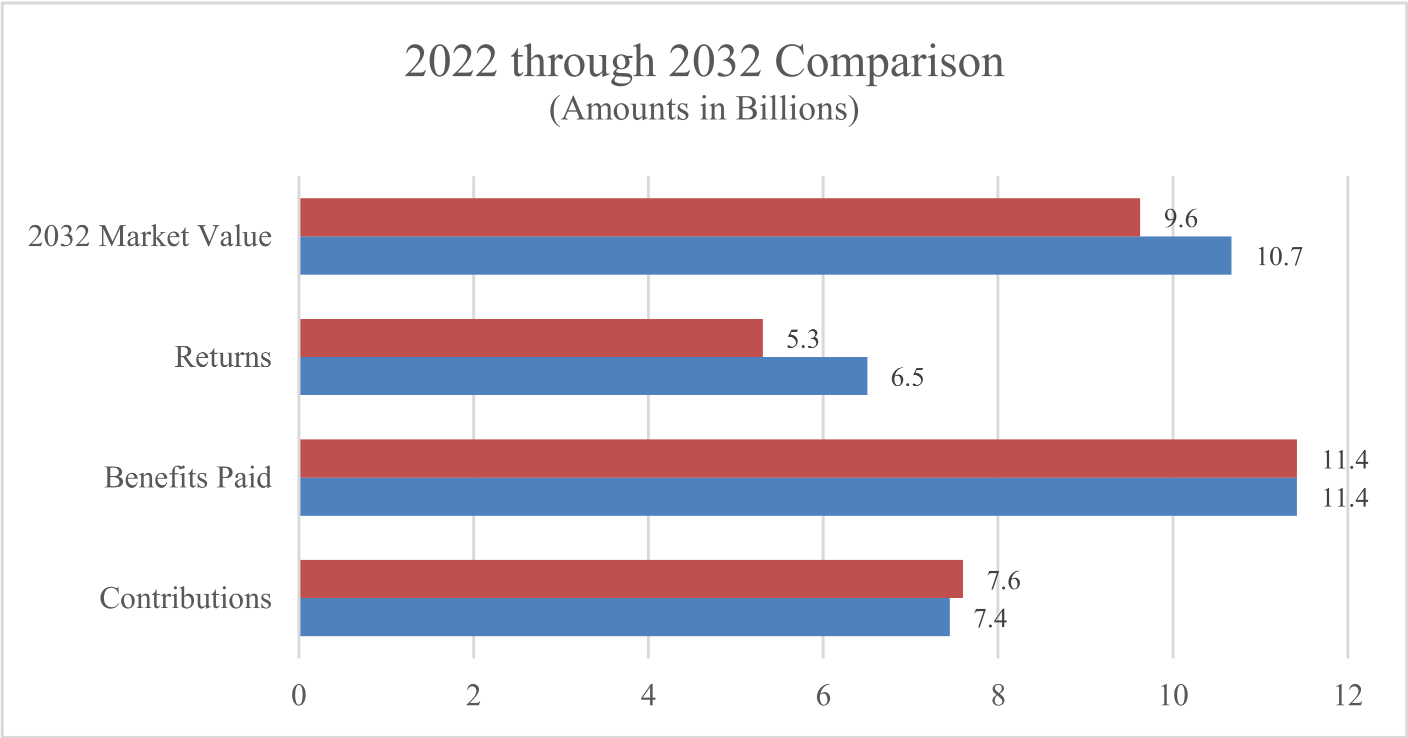
MSEP Active Membership and Covered Payroll

- ➢ Size of active membership continues to decline
  - UAAL amortized as level percent of payroll (increasing dollars of contribution) so an assumption is used to anticipate future changes in payroll (2.25% increase per year)
  - If active membership decreases or salary increases are lower than assumed, covered payroll may not increase as assumed
  - Forces the UAAL contribution **rate** to increase (payment is same)





MSEP Scenario Testing:
1% Lower Returns for 10 Years



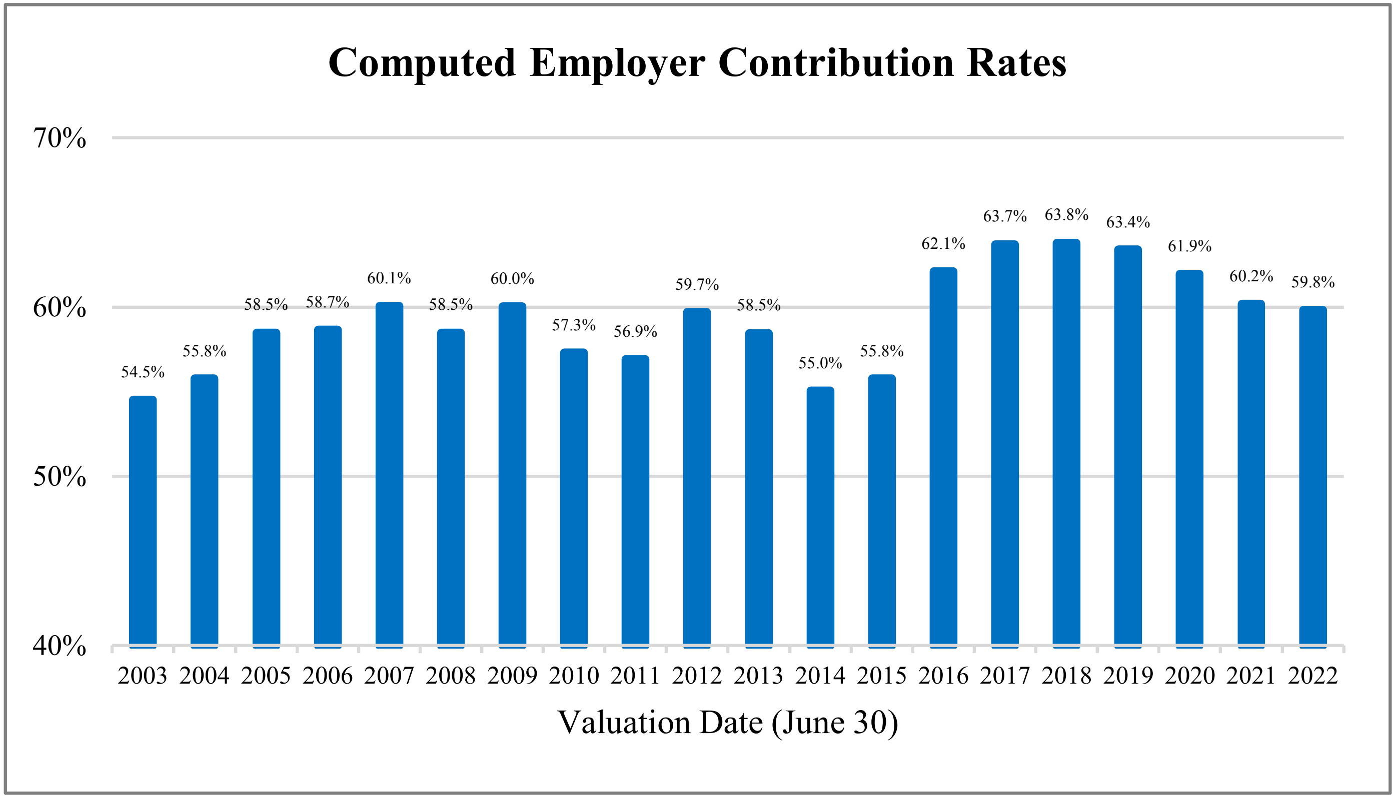
- Returns 1% lower than assumed over the next 10 years reduce returns, increase contributions and reduce the market value of assets by $1.1 billion.

MSEP Investment Return Assumption Sensitivity Analysis

Investment Return Assumption	5.95%	6.45%	6.95%	7.45%	7.95%
Contributions					
Total Normal Cost	11.23%	9.93%	8.81%	7.85%	7.03%
Member Contributions	(2.04%)	(2.04%)	(2.04%)	(2.04%)	(2.04%)
Employer Normal Cost	9.19%	7.89%	6.77%	5.81%	4.99%
Unfunded Actuarial Accrued Liability	23.99%	22.24%	20.49%	18.73%	16.97%
Employer Contribution Rate	33.18%	30.13%	27.26%	24.54%	21.96%
Estimated Employer Contribution Amount	$701.4	$637.0	$576.3	$518.8	$464.2
Actuarial Accrued Liability	$17,205.3	$16,265.8	$15,409.0	$14,625.8	$13,908.3
Actuarial Value of Assets	$8,894.3	$8,894.3	$8,894.3	$8,894.3	$8,894.3
Unfunded Actuarial Accrued Liability	$8,310.9	$7,371.5	$6,514.7	$5,731.5	$5,014.0
Funded Ratio	51.7%	54.7%	57.7%	60.8%	63.9%

- All other assumptions are unchanged for purposes of this sensitivity analysis

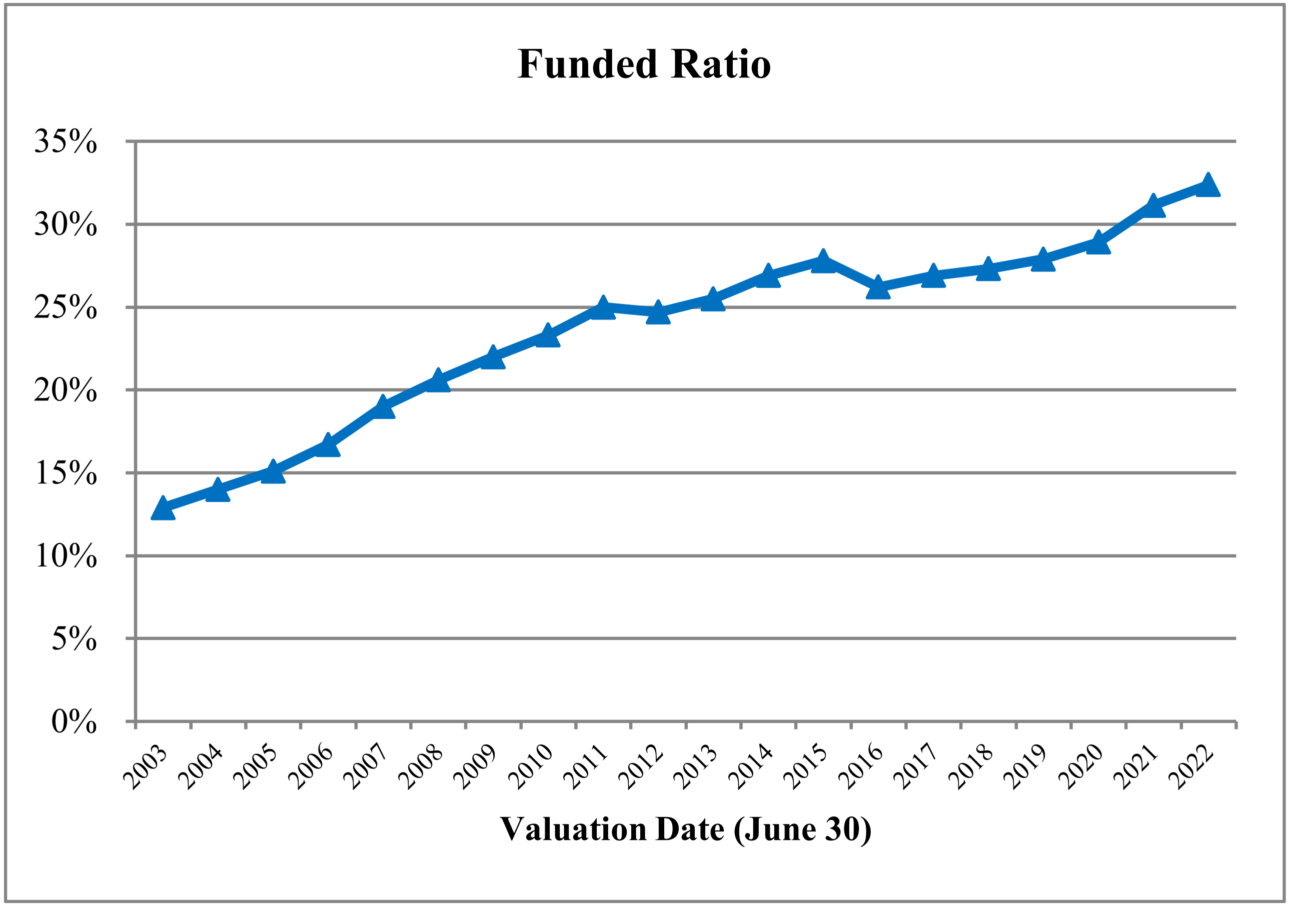
Historical Computed Judicial Employer Contribution Rates



Numerous changes occurred during this period, including changes to the investment return assumption in:

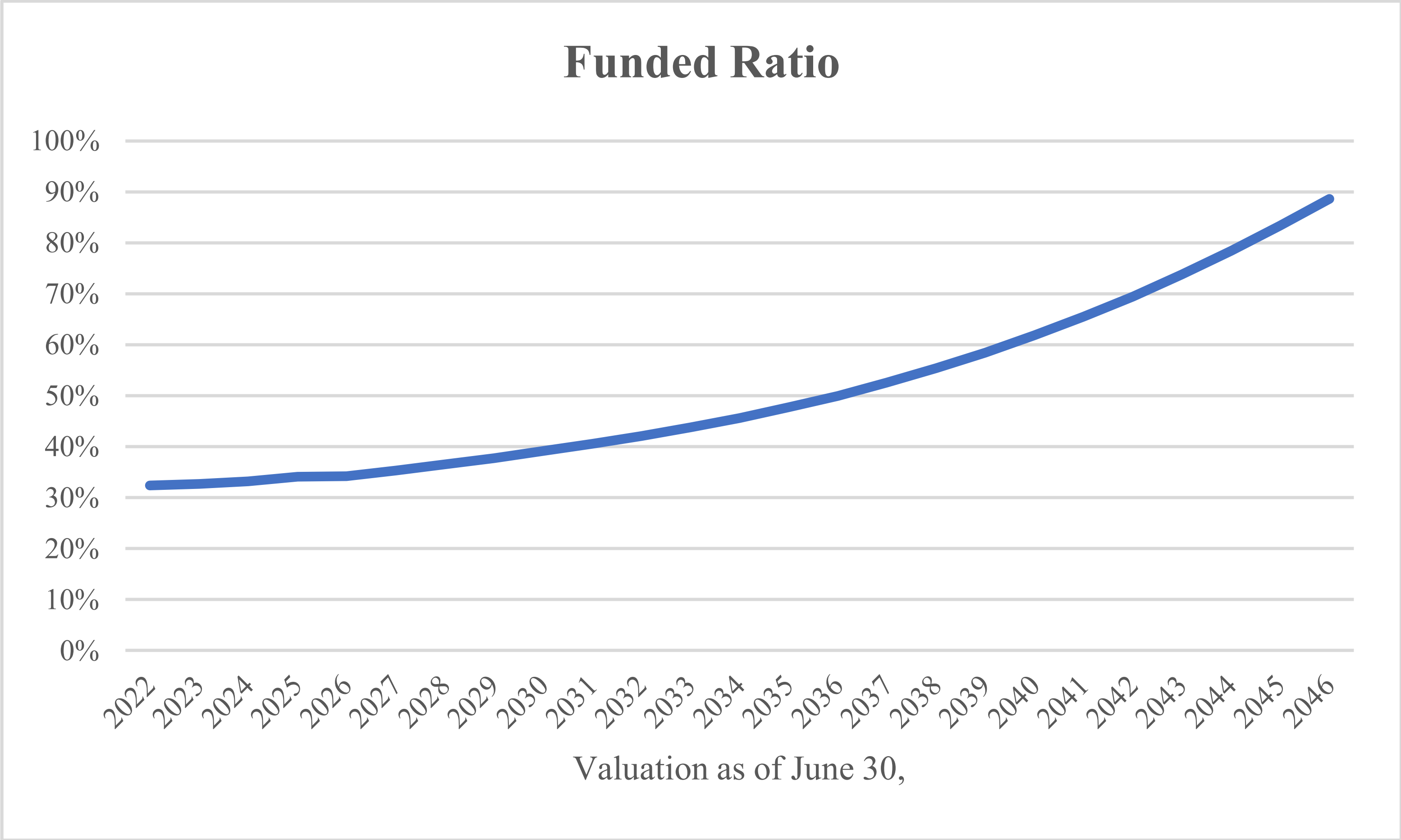
2012: 8.50% to 8.00%	2018: 7.50% to 7.25%
2016: 8.00% to 7.65%	2019: 7.25% to 7.10%
2017: 7.65% to 7.50%	2020: 7.10% to 6.95%

Judicial: Historical Funded Ratio



Until 1999, Judicial Retirement System was funded on a pay-as-you-go basis (effectively a 0% Funded Ratio)

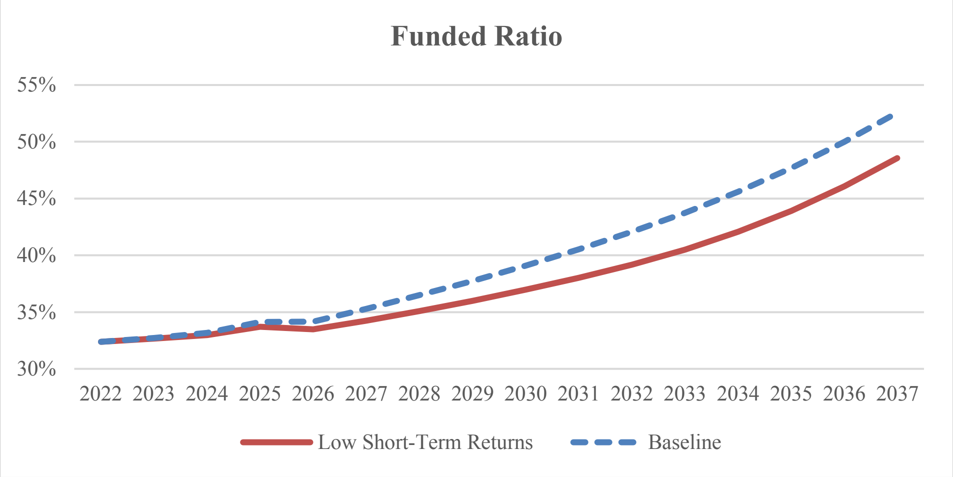
Judicial: Projection of Funded Ratio



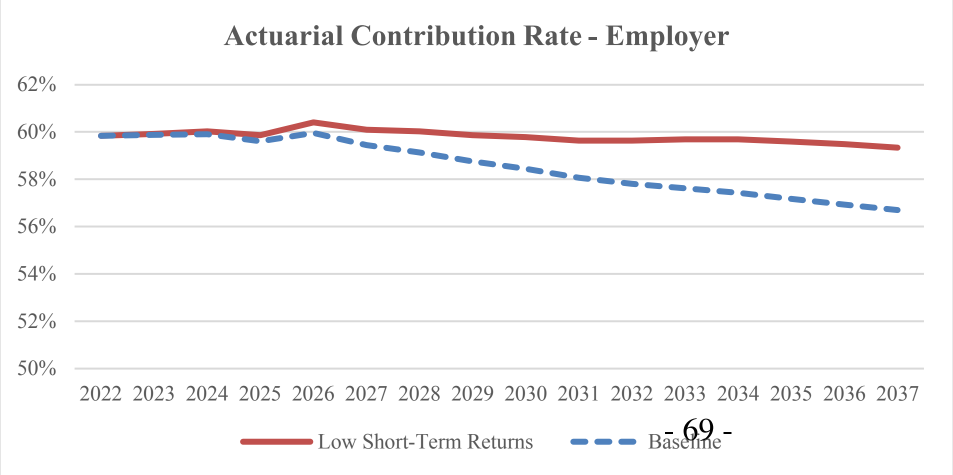
- Judges was pay-as-you-go until 1999. Funded Ratio is projected to continue to steadily increase, if all assumptions are met.

Judicial Scenario Testing: Low Returns for Sustained Period

- Returns are 1% less than assumed (5.95%) over the next 10 years



Funded ratio gradually increases in both scenarios. The Judicial System is still in the early stages of accumulating assets, so contributions are more significant than investment income. That said, the funded ratio is about 4% lower under the low return scenario.



The employer contribution rate is fairly stable in the low return scenario. In the baseline, the employer contribution rate slowly declines as more of the active membership is covered by the Judicial 2011 Plan. The 58.45% minimum would come into play in the baseline scenario.

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MOSERS
MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Investment Committee Report

September 22, 2022

Item Type: Action

Action: *The committee recommends the consideration of the full Board to approve the proposed proxy voting policy and proxy voting advisor.*

Executive Summary

The Investment Committee met on July 25, August 24, and September 1, 2022. Verus and staff discussed second quarter 2022 performance and FYE June 30, 2022 returns with the committee. Verus and staff also presented information regarding development of a proxy voting policy for MOSERS, as requested by the Board at the June Board meeting. Included in the packet is the proxy voting policy which will be reviewed for the Board today prior to consideration.

Committee Members:
Joe Keifer, Chairman
Treasurer Scott Fitzpatrick
Commissioner Ken Zellers
Gary Metzger
Representative Rusty Black

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Proxy Voting Policy Discussion

MOSERS Board of Trustees
September 22, 2022

Recent Activities

- To implement the Board's motion from the June Board meeting, staff transitioned the existing global public equity exposure, previously held at BlackRock, into our "derivatives plus portable alpha" program. This was conducted in three phases and was completed on August 31st.

- Staff also worked with Verus to review potential proxy voting policies, and potential IPS statement options. These were presented to, and discussed with, MOSERS Investment Committee.

Overview of "Off the Shelf" Options

- Leading Vendor Options Available

Egan Jones	Glass Lewis	ISS
Standard Policy	Standard Policy	Benchmark Policy
Conservative Policy	Climate Policy	Sustainability Policy
G/SRI Policy	ESG Policy	SRI Policy
Catholic Policy	Catholic Policy	Climate Policy
Taft-Hartley Policy	Public Pension Policy	Catholic Policy
	Taft-Hartley Policy	Public Fund Policy
		Taft Hartley Policy
		Board Aligned Policy

- Staff and Verus reviewed three "off the shelf" proxy policies with the committee.
  - Egan Jones – Conservative Investor (31 pages)
  - Glass Lewis – Standard Policy (83 pages)
  - ISS – Board Aligned Policy (8 pages)

- The complete versions of all three policies are available on the Board's website.

Key Positions

Topic/Focus	Egan Jones	Glass Lewis	ISS
Policy Focus Summary	Management is accountable to Directors, Directors are independent and accountable to shareholders, shareholders are treated fairly and equitably, i.e., one share/one vote. Against most ESG and DEI reporting requirements.	Directors serve shareholders. Transparency, shareholder rights, ESG and DEI (Diversity, Equity and Inclusion) topics are important factors in analysis.	The Board Aligned policy would vote with company management unless that position is not consistent with widely accepted governance and compensation practices while protecting shareholder rights and long-term value creation for shareholders.
Board Independence	Wants 2/3rds independent	Wants 2/3rds Independent	Wants at least 1/2 Independent
Support Board Election	Annually	Annually	Annually
Board Diversity	No DEI Testing/Reporting	DEI Targets and minimums	DEI Targets and minimums
Bylaw amendments	Simple Majority	Simple Majority	Simple Majority
Favor Simple-majority or Super-majority	Simple Majority	Simple Majority	Simple Majority
Auditor	For management recommendation	For management recommendation	For management recommendation
Capital structure/business combinations	Case-by-case	Case-by-case	Case-by-case

Other Typical Items

Typical Items	Egan Jones - Conservative	Glass Lewis	ISS - Board Aligned
Poison Pills	For shareholder proposals asking to submit for shareholder ratification	Typically, no	For management recommendation, in most cases
Special Meeting Requirement	10% of Shareholders	10-15% of Shareholders	For management recommendation, in most cases
Vote on Executive Compensation	Annual Advisory vote	For Advisory Vote	For management recommendation, in most cases
Compensation of Officers	Mostly Stock (No ESG metrics)	Mostly Stock (Tie to ESG metrics)	For management recommendation, in most cases
Proposals Enhancing Shareholder Rights	Yes	Yes	For management recommendation, in most cases
Shareholder Proposals for ESG/DEI Reporting Requirements	No	Yes	For management recommendation, in most cases
Support Reasonable Access to Proxy Materials	Yes	Yes	For management recommendation, in most cases

Environmental and Social Items

Typical Items	Egan Jones - Conservative	Glass Lewis	ISS - Board Aligned
Shareholder proposals on Environmental and Social Issues	Against shareholder proposals for reporting requirements and most changes in business practices related to ESG issues	For ESG oversight and reporting requirements	For management recommendation, in most cases
Lobbying/Climate Lobbying Report	Against	Generally, for	For management recommendation, in most cases
Shareholder Requests to follow CERES Principles (Coalition for Environmentally Responsible Economies)	Against	Generally, for	For management recommendation, in most cases
Sustainability Reports	Against	Generally, for	For management recommendation, in most cases
Nomination an Environmental Expert to the Board	Against	Generally, for	For management recommendation, in most cases
Establishment of a Climate Change Committee on the Board	Against	Generally, for	For management recommendation, in most cases
Establishment of a Human Rights Committee or Human Trafficking Reporting	Against	Generally, for	For management recommendation, in most cases
Use of Corporate Assets to Create Reports on: Electronic Waste; renewable Energy Adoption; Climate Change; Drug Pricing; Stranded Assets	Against	Generally, for	For management recommendation, in most cases

Recommendations

- The Investment Committee recommends that the Board consider adopting the Egan Jones – Conservative “off the shelf” proxy voting policy as the MOSERS proxy voting policy:
  - The Egan Jones – Conservative policy appears to be the policy most consistent with recent Committee and Board discussions. It highlights the principle of maximizing shareholder value and votes against ESG proposals that do not support shareholder value.
  - Estimated annual cost to implement, ($10 – $15k)

- The Investment Committee also recommends proxy voting language be added to the Investment Policy Statement.

Potential ESG Language for the IPS

V. Roles and Responsibilities

D. External Providers

4. Proxy Voting Advisor

To assist the System in the continued execution of its fiduciary duties, in connection with exercising the voting rights of the investments directly held by the System, the System shall retain a proxy voting advisor and utilize the Board approved proxy policy* (the Proxy Voting Policy) no later than January 1, 2023. In voting MOSERS' shares, the proxy voting advisor shall consider only those factors that relate to the economic value of the System's investments, such that MOSERS' votes are cast in the best economic interest of the System. For avoidance of doubt, voting of MOSERS' shares, including on proposals regarding social, governance or environmental proposals and on election of boards of directors, will be based solely on enhancing or protecting long-term economic value, and not on establishing or endorsing social policy.

In addition to investments directly held by MOSERS, MOSERS invests in securities indirectly through pooled investment funds where third party investment managers possess the voting rights with respect to investments of the fund and vote in the best interest of the pooled funds. In those circumstances, the System may request the third-party managers to exercise voting rights in accordance with the Proxy Voting Policy, but the third-party manager will not be required to do so.

* The Board approved Proxy Voting Policy is the Egan Jones – Conservative Investor Policy

Proxy Voting Implementation Map

	Public Equity Portfolio Exposure Summary	May 31, 2022 Dollar Exposure	August 12, 2022 Dollar Exposure	Historic Source	August 31, 2022 Implementation	New Proxy Policy Current Impact
Growth	Global Public Equity US Exposure	75,699,015	0	BlackRock Index Fund	Derivatives + Portable Alpha	No
	Global Public Equity Non-US Exposure	1,055,588,879	1,043,988,015	5 Actively Managed Funds	5 Actively Managed Funds	No
	Private Equity P4P US Exposure	373,290,897	369,573,933	BlackRock Index Fund	Derivatives + Portable Alpha	No
	Private Equity P4P Non-US Exposure	243,509,223	222,403,548	5 Actively Managed Funds	5 Actively Managed Funds	No
Inflation	US Public REIT Portfolio – Separately Managed Account	444,161,703	500,483,820	SMA	SMA	Yes
Absolute Return	ACWI US Exposure - Passive Fund	27,144,440	29,900,000	BlackRock Index Fund	Derivatives	No
	ACWI Non-US Exposure - Passive Fund	17,354,642	20,000,000	BlackRock Index Fund	Derivatives	No
	Total Public Equity Portfolio Exposure	**2,236,748,799**	**2,186,349,316**			

US Equities
Non-US Equities
REITs

Proxy Policy Implementation

- Currently, there are limited opportunities within the existing portfolio to apply a new Board-approved proxy policy. The new policy would apply solely to MOSERS' REIT Index fund in the current portfolio.

- When considering new investment opportunities, overall risk and net of fee return will continue to be the determinate factor in selecting the manager or structure.
  - A Board-approved Proxy Voting Policy will be one of the considerations in the hiring process when analyzing total risk and return.

- Any new Board-approved Proxy Voting Policy:
  - *will* apply to:
    - all passively managed separately managed accounts (SMA's)
    - any actively managed SMA where we have the option to apply the Board's new Proxy Policy
    - any commingled fund (CIT's, mutual fund etc.) where MOSERS has the option to apply the Board's new Proxy Policy
  - *will not* apply to:
    - any actively managed SMA's where the voting of proxies is important to the success of a manager's investment strategy
    - any commingled fund where we do not have the option to apply the Board's new Proxy Policy

Questions and Discussion

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Strategic Planning and Governance Committee Report

September 22, 2022

Item Type: **Informational**

Executive Summary

The Strategic Planning and Governance Committee met on August 19, 2022. The committee was provided an update on the progress of MOSERS Strategic Plan, which was approved by the Board at the June Board meeting. A copy of MOSERS Strategic Plan is included in the packet.

Committee Members:
Gary Metzger, Chairman
Gary Findlay
Jenny Jacobs
Crystal Wessing
Representative John Wiemann

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PLAN SUSTAINABILITY

1

GOAL
Set an asset allocation that promotes the long-term sustainability of the System and meets the organization's objectives.

Objective

- Facilitate asset study by June 30, 2023 and adopt any necessary changes.

Measure

- Asset allocation is anticipated to meet or exceed the Board-adopted assumed rate of return on investments over the long term.

Target

- *Complete by June 30, 2023*

STRATEGIC PLAN
Fiscal Years 2023-2025

RISK MANAGEMENT

1

GOAL
Ensure the business continuity of MOSERS' vital services.

Objective

- Perform a post-Phoenix full back-up/replication test to validate the timely recovery of the critical systems.

Measure

- Ensure recovery time is within acceptable ranges.

Target

- *Complete by June 30, 2024*

2

GOAL
Ensure that MOSERS continues to comply with federal IRS code provisions for qualified plans.

Objective

- Identify the necessary steps and submit documentation required by the IRS for MOSERS to remain a qualified plan for tax purposes.

Measure

- Completed submission by MOSERS to the IRS.

Target

- *Necessary documents on file with IRS by June 30, 2024*

3

GOAL
Reduce the risk of gaps in knowledge, skills, and abilities due to vacancies.

Objective

- Cross-train for critical business functions.

Measure

- Manager/supervisors provide report to applicable deputy director on section cross training needs for critical operation coverage.

Target

- *50% complete by June 30, 2024*
- *100% complete by June 30, 2025*

MEMBER & EMPLOYER RELATIONS

1

GOAL
Better manage the distribution of and response time for employer contacts.

Objective
- Implement a contact center management system in the Employers Services section that automatically routes employer calls, emails, and other communications to available staff, creates workflows, and provides contact center data to the section manager.

Measure
- Improved response time and oversight.

Target
- *Complete by December 31, 2024*

2

GOAL
Increase knowledge of MOSERS policies and procedures among employers.

Objective
- Conduct additional employer training and implement an employer certification program.

Measure
- Fewer errors on monthly reports after completion of employer certification training.

Target
- *Develop program by June 30, 2024*

WORKFORCE ENGAGEMENT

1

GOAL
Develop a program for continuous leadership development to ensure appropriate skill sets.

Objective
- Implement a training plan for new managers and supervisors to include formal training in supervision concepts as well as MOSERS-specific supervisory tasks.

Measure
- Once implemented, all new managers and supervisors earn a certificate of completion within one year of assuming the leadership role.

Target
- *Develop program by June 30, 2023*
  Implement program by June 30, 2024

Objective
- Establish annual training program for all managers and supervisors.

Measure
- Once implemented, all managers and supervisors will complete annual training.

Target
- *Develop program by June 30, 2023*
  Implement program by June 30, 2024

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Audit Committee Report

September 22, 2022

Item Type: **Informational**

Executive Summary

The Audit Committee met on August 16, 2022. Brad Berls, from Eide Bailly, provided an update on the FY22 audit and discussed the timeline for the upcoming field work in September. Staff provided the committee with year-end actuals for the FY22 budget. The Office of Internal Audit provided a quarterly update.

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Summary Performance Report

September 22, 2022

Item Type: **Informational**

Executive Summary

Per Section XVI of the Investment Policy Statement, the Board Investment Consultant (BIC) is required to provide a quarterly report on the investment performance for the Total Fund, for each asset class, and by investment manager. The report will provide analysis based on return over various periods (3 months, 1 year, 3 years, 5 years, etc.).

The Investment Policy Statement also requires the CIO to provide a quarterly update on the investment decisions related to policy, strategy, and implementation.

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Missouri State Employees' Retirement System

Board Report

Period Ending: June 30, 2022

Verus

VERUSINVESTMENTS.COM

SEATTLE 206-622-3700
LOS ANGELES 310-297-1777
SAN FRANCISCO 415-362-3484
PITTSBURGH 412-784-6678

U.S. economics summary

— U.S. real GDP fell -0.9% annualized during Q2 (+1.6% over the past full year). Most aspects of economic activity showed decline, including private investment (-2.7%), government spending (-0.3%), and imports (-0.5%). This stoked fears of recession, as two quarters of negative growth is a common definition of technical recession.

— The Federal Reserve's objective of a "soft landing" for the economy appears to have failed. An increasingly aggressive stance during the first half of the year contributed to a broad market selloff. The negative wealth effect of the market selloff, paired with a slowdown in big ticket purchases, has slowed the economy.

— U.S. core CPI, which excludes food & energy prices, slowed to 5.9% year-over-year in June. However, headline inflation which includes food and energy prices, came in surprisingly hot at 9.1% year-over-year, exceeding expectations. Higher energy prices were a major driver of the inflation print, with energy commodities and gasoline moving more than 10% higher just from May to June.

— Unemployment was unchanged at 3.6% during Q2. The broader U-6 unemployment rate tightened from 6.9% to 6.7%. A strong job market likely emboldens the Federal Reserve in its fight against high inflation, as the Fed holds a dual mandate to maximize employment and keep prices stable.

— Consumer sentiment collapsed to the lowest reading on record, according to the University of Michigan survey, which moved from 59.4 to 50.0. Survey respondents across all income, age, education, region, and political affiliation groups displayed deterioration in their outlook for the economy. Nearly half of respondents feel that inflation is damaging living standards.

	Most Recent	**12 Months Prior**
Real GDP *(YoY)*	1.6% *6/30/22*	12.2% *6/30/21*
Inflation *(CPI YoY, Core)*	5.9% *6/30/22*	4.4% *6/30/21*
Expected Inflation *(5yr-5yr forward)*	2.1% *6/30/22*	2.2% *6/30/21*
Fed Funds Target Range	1.50% – 1.75% *6/30/22*	0.00% – 0.25% *6/30/21*
10-Year Rate	2.89% *6/30/22*	1.45% *6/30/21*
U-3 Unemployment	3.6% *6/30/22*	5.9% *6/30/21*
U-6 Unemployment	6.7% *6/30/22*	9.8% *6/30/21*

International economics summary

— Economic growth has moderated in most countries, moving toward average levels. Higher inflation continues to erode growth figures as GDP is typically quoted as *inflation-adjusted* growth.

— Inflation trends continue to be disparate around the world. Japan and China are experiencing very low inflation and muted price pressures, while Europe and the United States are coping with multidecade-high inflation. Countries with low inflation and countries with high inflation all appear to have experienced an uptick during the second quarter.

— Labor markets have been relatively stable in developed markets, with conditions in the Eurozone strengthening. Unemployment in emerging markets were mixed—Brazil and Russia experienced improvement, while India and China saw slight weakening.

— Russia's invasion of Ukraine continued in the second quarter, leading to heavy loss of life on both sides. Most fighting has taken place in the east, as Russia generally gradually pushing forward. Concerns around food shortages in nearby countries that depend on Ukrainian agriculture persist, though many commodity prices that had shot higher in March and April have eased, falling closer to pre-invasion costs.

— During the first week of July, millions of Chinese citizens were put back into lockdown, and subjected to mass testing, as small outbreaks have led to renewed restrictions. China continues to stick to a "zero COVID" approach, which is increasingly at odds with the recognition by most nations that civilization will have to live *with* the virus for the long-term, while moving back to normal life.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	1.6% 6/30/22	9.1% 6/30/22	3.6% 6/30/22
Eurozone	5.4% 3/31/22	8.6% 6/30/22	6.6% 5/31/22
Japan	0.4% 3/31/22	2.3% 6/30/22	2.6% 5/31/22
BRICS Nations	4.4% 3/31/22	4.6% 6/30/22	5.2% 12/31/21
Brazil	1.7% 3/31/22	11.9% 6/30/22	9.8% 5/31/22
Russia	3.5% 3/31/22	15.9% 6/30/22	3.9% 5/31/22
India	4.1% 3/31/22	7.0% 6/30/22	7.8% 6/30/22
China	4.8% 3/31/22	2.5% 6/30/22	5.9% 5/31/22

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.

Equity environment

— U.S. equities suffered large losses during the second quarter (S&P 500 -16.1%), as many highly priced growth stocks took an exceptionally large hit due to interest rate rises and risk-off sentiment. International developed equities (MSCI EAFE -14.5%) experienced similar losses, while emerging market equities (MSCI Emerging Markets -11.4%) outperformed materially, on an unhedged currency basis.

— As mentioned during Q2 earnings calls, a rising number of S&P 500 companies were concerned about material & commodity costs, COVID costs, and oil & gas prices. A decreasing number of companies were concerned about labor costs & shortages, supply chain disruptions, transport & freight costs, and Russia/Ukraine.

— Currency movement generated large losses for investors who do not hedge their foreign currency exposure. Investors in international developed markets would have seen a loss of approximately -7.3% with a currency hedging program, rather than the -14.5% loss of unhedged investors. Over the past full year, losses from currency movement were -12.4%.

— Value stocks outperformed Growth stocks by a wide margin again in Q2 (Russell 1000 Value -12.2% vs Russell 1000 Growth -20.9%) as many Growth stocks with lofty valuations suffered due to rising interest rates and broader risk-off sentiment. Large capitalization stocks outperformed small cap stocks slightly (Russell 1000 -16.7%, Russell 2000 -17.2%).

— The Cboe VIX Index rose during the quarter from 20.6% to 28.7%, as risk assets sold-off and investors began focusing on potential recession. Investors remain acutely focused on the path of inflation, and market volatility may ease if inflation does in fact begin to moderate in future months.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	(16.1%)		(10.6%)	
U.S. Small Cap (Russell 2000)	(17.1%)		(25.2%)	
U.S. Equity (Russell 3000)	(16.7%)		(13.9%)	
U.S. Large Value (Russell 1000 Value)	(12.2%)		(6.8%)	
US Large Growth (Russell 1000 Growth)	(20.9%)		(18.8%)	
Global Equity (MSCI ACWI)	(15.7%)	(13.5%)	(15.8%)	(12.1%)
International Large (MSCI EAFE)	(14.5%)	(7.3%)	(17.8%)	(5.4%)
Eurozone (Euro Stoxx 50)	(15.3%)	(9.2%)	(23.1%)	(11.3%)
U.K. (FTSE 100)	(11.2%)	(3.6%)	(7.1%)	6.2%
Japan (NIKKEI 225)	(14.8%)	(4.2%)	(23.8%)	(6.0%)
Emerging Markets (MSCI Emerging Markets)	(11.4%)	(8.2%)	(25.3%)	(21.5%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 6/30/22

Fixed income environment

— The 10-year U.S. Treasury yield jumped during Q2 from 2.34% to nearly 3.50%, ending the quarter at 2.89%. Yields have fallen from their highs as recession fears mount. The Federal Reserve has a history of cutting interest rates during recession. This implies a higher chance of rate cuts as it appears the U.S. may currently be in recession.

— Credit markets sold off during Q2, impacted by concerns of a slowing economy and recession as the Fed signaled a willingness to raise rates until inflation slows. Bank loans performed the best at -4.4% and outperformed longer duration bonds such as investment grade and high yield (-7.3% and -9.8%, respectively).

— Credit spreads jumped considerably alongside the broader market selloff. U.S. high yield spreads increased from 3.4% to 5.6% and U.S. investment grade spreads headed from 1.2% to 1.6%. In contrast to the recent low yield environment, fixed income now offers investors more robust yields.

— The U.S. yield curve remained fairly flat during the second quarter. The 10-year minus 2-year yield spread fluctuated between -0.05% and 0.4%. Markets continue to price a flat or inverted yield curve, which is generally recognized as a sign of incoming recession.

— In June, the U.S. Federal Reserve began to unwind its $9 trillion balance sheet. Initially this action involved *not purchasing new bonds* and letting existing bonds mature and roll off. The Fed signaled plans to allow $30 billion of U.S. Treasuries and $17.5 billion of mortgage-backed securities to fall off the balance sheet by end of month. Leadership has admitted that this size of divestment program is essentially the first of its kind and that the committee will be moving with caution.

	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	(4.7%)	(10.3%)
Core Plus Fixed Income (Bloomberg U.S. Universal)	(5.1%)	(10.9%)
U.S. Treasuries (Bloomberg U.S. Treasury)	(3.8%)	(8.9%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	(9.8%)	(12.8%)
Bank Loans (S&P/LSTA Leveraged Loan)	(4.4%)	(2.7%)
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(8.6%)	(19.3%)
Emerging Market Debt Hard (JPM EMBI Global Diversified)	(11.4%)	(21.1%)
Mortgage-Backed Securities (Bloomberg MBS)	(4.0%)	(9.0%)

Source: Bloomberg, as of 6/30/22

Public real assets environment

— REITs - REITs declined 16.8% during the 2nd quarter, reflecting increased global economic risk, the possibility of a recession on the horizon, and central banks globally pursuing higher rates in an effort to tame extremely high inflation. Investment activity, has declined due to the the impact of higher interest rates and increased construction costs.

— Listed Infrastructure – Although infrastructure returned 5.6% YOY, performance has rolled over with QTD returns of -5.7%, reflecting an increasingly risk-off appetite even for an ostensibly stable asset class with the ability to pass on inflationary pressures. Increasing rates, and the probability of a recession have weighed on pricing and returns, however of the 4 categories of publicly traded real assets tracked here, Infrastructure fared the least poorly.

— Commodities – Despite a material YOY gain of 24.3%, commodities fell 5.7% in Q2, 2022, reflecting a stalled, yet volatile, market for raw materials. Tin, lumber, aluminum, and nickel led markets lower, as risk of recession, rising rates, and a stronger US dollar weighed on sentiment.

— TIPS - The Bloomberg U.S. TIPS index returned -6.1% in the most recent quarter and is down 5.1% year-over-year. This is unsurprising given not only the Federal Reserve's dramatic rate increases, but their continued messaging that they will continue to fight inflation with the tools at their disposal, and that, with a robust labor market, their key focus is the second part of their mandate, price stability.

	QTD Total Return	1 Year Total Return
REITs (FTSE EPRA/NAREIT Global)	(16.8%)	(13.5%)
Listed Infrastructure (S&P Global Infrastructure)	(7.4%)	5.6%
Commodities (Bloomberg Commodity Index)	(5.7%)	24.3%
TIPS (Bloomberg US TIPS)	(6.1%)	(5.1%)

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	(8.3)	(16.1)	(20.0)	(10.6)	10.6	11.3	13.0
S&P 500 Equal Weighted	(9.4)	(14.4)	(16.7)	(9.4)	9.7	9.9	12.7
DJ Industrial Average	(6.6)	(10.8)	(14.4)	(9.1)	7.2	10.0	11.7
Russell Top 200	(7.8)	(16.6)	(20.7)	(11.5)	11.5	12.2	13.4
Russell 1000	(8.4)	(16.7)	(20.9)	(13.0)	10.2	11.0	12.8
Russell 2000	(8.2)	(17.2)	(23.4)	(25.2)	4.2	5.2	9.4
Russell 3000	(8.4)	(16.7)	(21.1)	(13.9)	9.8	10.6	12.6
Russell Mid Cap	(10.0)	(16.8)	(21.6)	(17.3)	6.6	8.0	11.3
Style Index							
Russell 1000 Growth	(7.9)	(20.9)	(28.1)	(18.8)	12.6	14.3	14.8
Russell 1000 Value	(8.7)	(12.2)	(12.9)	(6.8)	6.9	7.2	10.5
Russell 2000 Growth	(6.2)	(19.3)	(29.5)	(33.4)	1.4	4.8	9.3
Russell 2000 Value	(9.9)	(15.3)	(17.3)	(16.3)	6.2	4.9	9.1

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	(8.4)	(15.7)	(20.2)	(15.8)	6.2	7.0	8.8
MSCI ACWI ex US	(8.6)	(13.7)	(18.4)	(19.4)	1.4	2.5	4.8
MSCI EAFE	(9.3)	(14.5)	(19.6)	(17.8)	1.1	2.2	5.4
MSCI EM	(6.6)	(11.4)	(17.6)	(25.3)	0.6	2.2	3.1
MSCI EAFE Small Cap	(11.0)	(17.7)	(24.7)	(24.0)	1.1	1.7	7.2
Style Index							
MSCI EAFE Growth	(8.6)	(16.9)	(26.8)	(23.8)	1.3	3.5	6.3
MSCI EAFE Value	(10.0)	(12.4)	(12.1)	(11.9)	0.2	0.5	4.2
Regional Index							
MSCI UK	(8.6)	(10.5)	(8.8)	(4.0)	1.2	2.2	3.7
MSCI Japan	(7.9)	(14.6)	(20.3)	(19.9)	1.0	1.8	5.6
MSCI Euro	(11.3)	(15.8)	(25.2)	(23.8)	(1.1)	0.4	5.3
MSCI EM Asia	(4.8)	(9.3)	(17.2)	(25.9)	3.1	3.4	5.5
MSCI EM Latin American	(17.0)	(21.9)	(0.6)	(16.1)	(6.3)	(0.6)	(2.2)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
Bloomberg US TIPS	(3.2)	(6.1)	(8.9)	(5.1)	3.0	3.2	1.7
Bloomberg US Treasury Bills	(0.0)	0.1	0.0	0.0	0.6	1.1	0.6
Bloomberg US Agg Bond	(1.6)	(4.7)	(10.3)	(10.3)	(0.9)	0.9	1.5
Bloomberg US Universal	(2.0)	(5.1)	(10.9)	(10.9)	(0.9)	0.9	1.8
Duration							
Bloomberg US Treasury 1-3 Yr	(0.6)	(0.5)	(3.0)	(3.5)	0.2	0.9	0.8
Bloomberg US Treasury Long	(1.5)	(11.9)	(21.3)	(18.5)	(2.9)	0.5	1.6
Bloomberg US Treasury	(0.9)	(3.8)	(9.1)	(8.9)	(0.9)	0.7	1.0
Issuer							
Bloomberg US MBS	(1.6)	(4.0)	(8.8)	(9.0)	(1.4)	0.4	1.2
Bloomberg US Corp. High Yield	(6.7)	(9.8)	(14.2)	(12.8)	0.2	2.1	4.5
Bloomberg US Agency Interm	(0.6)	(1.3)	(5.0)	(5.6)	(0.3)	0.8	0.9
Bloomberg US Credit	(2.6)	(6.9)	(13.8)	(13.6)	(1.0)	1.2	2.5

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	(10.8)	(5.7)	18.4	24.3	14.3	8.4	(0.8)
Wilshire US REIT	(7.3)	(5.4)	(14.9)	4.4	7.4	7.5	8.8
CS Leveraged Loans	(2.1)	(4.4)	(4.4)	(2.7)	2.0	3.0	3.9
S&P Global Infrastructure	(7.7)	(7.4)	(0.5)	5.6	3.5	4.8	7.2
Alerian MLP	(14.0)	(7.4)	10.1	4.1	(1.2)	(1.2)	0.8
Regional Index							
JPM EMBI Global Div	(6.2)	(11.4)	(20.3)	(21.2)	(5.2)	(1.2)	2.2
JPM GBI-EM Global Div	(4.5)	(8.6)	(14.5)	(19.3)	(5.8)	(2.3)	(1.5)
Hedge Funds							
HFRI Composite	(3.1)	(4.9)	(5.9)	(5.8)	6.1	5.0	5.0
HFRI FOF Composite	(0.9)	(3.6)	(6.3)	(5.2)	4.1	3.7	3.8
Currency (Spot)							
Euro	(2.4)	(6.0)	(8.1)	(11.8)	(2.8)	(1.7)	(1.9)
Pound Sterling	(3.6)	(7.8)	(10.3)	(12.1)	(1.5)	(1.3)	(2.5)
Yen	(5.3)	(10.7)	(15.2)	(18.3)	(7.4)	(3.7)	(5.2)

Source: Morningstar, HFRI, as of 6/30/22.

	Current Balance	Current Allocation	Policy	Target Ranges
Growth	$3,765,332,234	45%	45%	35-55%
Income	$2,976,331,010	35%	35%	30-40%
Inflation Hedge	$3,432,709,907	41%	40%	35-45%
Absolute Return	$1,756,000,738	21%	20%	15-25%
Cash		0%	0%	0-2%
Total	$11,930,373,889	142%	140%	

Global Public Equities	$2,503,487,643	30%	30%	15-45%
Global Private Equities	$1,261,844,591	15%	15%	5-20%
Long Treasuries	$2,082,713,493	25%	25%	20-30%
Core Bonds	$893,617,517	11%	10%	5-15%
Commodities	$407,014,082	5%	5%	0-10%
TIPS	$2,174,474,326	26%	25%	20-30%
Private Real Assets	$438,594,765	5%	5%	0-10%
Public Real Assets	$412,626,735	5%	5%	0-10%
Direct Hedge Funds	$426,969,620	5%	5%	0-10%
Alternative Beta	$856,299,581	10%	10%	5-15%
Private Credit	$472,731,537	6%	5%	0-10%
Total	$11,930,373,889	142%	140%	

Performance Attribution
Quarter Ending June 30, 2022

	Last 3 Mo.
Wtd. Actual Return	-10.6
Wtd. Index Return	-11.1
Excess Return	**0.5**
Selection Effect	0.5
Allocation Effect	0.0
Interaction Effect	0.0

*Calculated from benchmark returns and weightings of each component.

Attribution Summary
Quarter Ending June 30, 2022

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Global Public Equities	-14.9	-15.6	0.7	0.2	0.0	0.0	0.2
Total Global Private Equities	-7.4	-7.9	0.5	0.1	0.0	0.0	0.1
Total Long Treasuries - New	-11.9	-12.1	0.2	0.0	0.1	0.0	0.1
Total Core Bonds	-4.3	-4.7	0.4	0.0	0.0	0.0	0.0
Total Commodities - New	-6.0	-5.9	0.0	0.0	0.0	0.0	0.0
Total TIPS - New	-3.8	-3.6	-0.2	-0.1	0.0	0.0	-0.1
Total Private Real Assets	3.8	3.1	0.7	0.0	0.0	0.0	0.0
Total Public Real Assets	-14.9	-14.9	0.0	0.0	0.0	0.0	0.0
Total Hedge Funds	-0.4	-1.5	1.1	0.1	0.0	0.0	0.1
Total Alternative Beta - Beta	3.1	2.4	0.7	0.1	0.0	0.0	0.1
Total Private Credit	-3.9	-3.9	0.0	0.0	0.0	0.0	0.0
Total	**-10.6**	**-11.1**	**0.5**	**0.5**	**0.0**	**0.0**	**0.5**

Weighted returns shown in attribution analysis may differ from actual returns. due to underlying cash flows. Total sums may not add due to rounding. Selection, allocation, and interaction effect line items reflect total fund impact.

MOSERS fund attribution – 2Q 2022

— Total Fund outperformed Policy by 50 basis points (-10.6% vs. -11.1%)

— All major asset classes outperformed their respective policy benchmarks except for very modest underperformance of Inflation Hedge assets

—Outperformance was driven by Selection Effect primarily from Global Public Equities; however, Hedge Funds produced best benchmark relative performance

Weighted returns shown in attribution analysis may differ from actual returns. due to underlying cash flows. Total sums may not add due to rounding. Selection, allocation, and interaction effect line items reflect total fund impact.

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	Inception	Inception Date
Missouri State Employees' Retirement System										
Total Fund - Capital - Combined	**8,412,240,177**	**-10.6**	**-9.0**	**-9.0**	**6.6**	**6.3**	**6.1**	**7.1**	**9.3**	**Apr-81**
Policy Index		*-11.1*	*-10.0*	*-10.0*	*4.7*	*4.3*	*5.3*	*6.1*	*8.8*	*Apr-81*
Real Return Objective		*4.1*	*13.8*	*13.8*	*9.7*	*8.7*	*7.7*	*7.7*	*--*	*Apr-81*

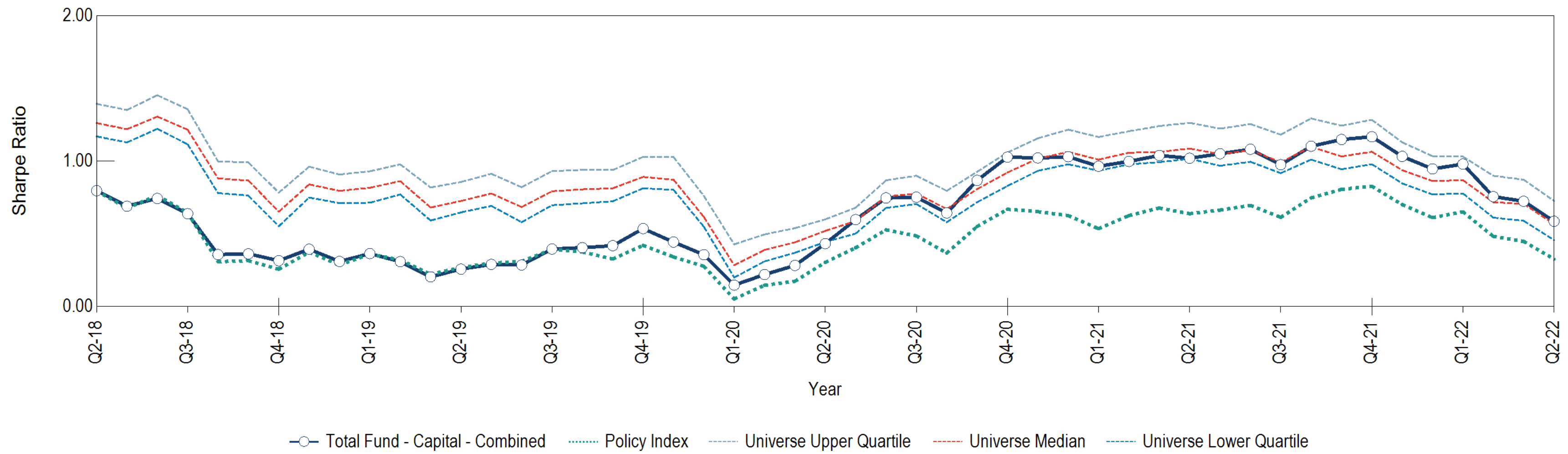
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	Inception	Inception Date
Missouri State Employees' Retirement System - New										
Total Fund New - Capital	**8,404,437,981**	**-10.6**	**-9.0**	**-9.0**	**6.4**	**--**	**--**	**--**	**7.8**	**Feb-19**
Total Fund NEW Policy		*-11.1*	*-10.0*	*-10.0*	*6.5*	*--*	*--*	*--*	*8.1*	*Feb-19*
Total Growth	**3,765,332,234**	**-12.4**	**-12.8**	**-12.8**	**7.2**	**--**	**--**	**--**	**8.2**	**Feb-19**
Total Growth Policy		*-13.1*	*-11.6*	*-11.6*	*9.4*	*--*	*--*	*--*	*10.1*	*Feb-19*
Total Global Public Equities	2,503,487,643	-14.9	-14.8	-14.8	6.1	--	--	--	7.6	Feb-19
Global Public Equities Policy		*-15.6*	*-15.6*	*-15.6*	*6.4*	*--*	*--*	*--*	*7.9*	*Feb-19*
Total Global Private Equities	1,261,844,591	-7.4	-8.8	-8.8	10.8	--	--	--	11.2	Feb-19
Global Private Equities Policy		*-7.9*	*-6.2*	*-6.2*	*15.0*	*--*	*--*	*--*	*15.7*	*Feb-19*
Total Income	**2,976,331,010**	**-9.8**	**-15.7**	**-15.7**	**-2.4**	**--**	**--**	**--**	**0.1**	**Feb-19**
Total Income Policy		*-10.0*	*-16.3*	*-16.3*	*-2.7*	*--*	*--*	*--*	*-0.1*	*Feb-19*
Total Long Treasuries - New	2,082,713,493	-11.9	-18.4	-18.4	-3.4	--	--	--	-0.4	Feb-19
Long Treasuries Policy		*-12.1*	*-18.7*	*-18.7*	*-3.5*	*--*	*--*	*--*	*-0.6*	*Feb-19*
Total Core Bonds	893,617,517	-4.3	-8.7	-8.7	-0.1	--	--	--	1.3	Feb-19
Core Bonds Policy		*-4.7*	*-10.3*	*-10.3*	*-0.9*	*--*	*--*	*--*	*0.6*	*Feb-19*
Total Inflation Hedge	**3,432,709,907**	**-4.6**	**4.2**	**4.2**	**6.0**	**--**	**--**	**--**	**6.2**	**Feb-19**
Total Inflation Policy		*-4.5*	*3.5*	*3.5*	*5.5*	*--*	*--*	*--*	*5.7*	*Feb-19*
Total Commodities - New	407,014,082	-6.0	23.7	23.7	14.8	--	--	--	12.2	Feb-19
Commodities Policy		*-5.9*	*23.8*	*23.8*	*13.6*	*--*	*--*	*--*	*11.4*	*Feb-19*
Total TIPS - New	2,174,474,326	-3.8	-2.2	-2.2	2.6	--	--	--	3.1	Feb-19
TIPS Policy		*-3.6*	*-2.3*	*-2.3*	*2.6*	*--*	*--*	*--*	*3.2*	*Feb-19*

Total Fund market values include Cash Reserve $101,782, Residual Accounts $7,689,208, and Cash Reserve - Illiquids, $11,207.

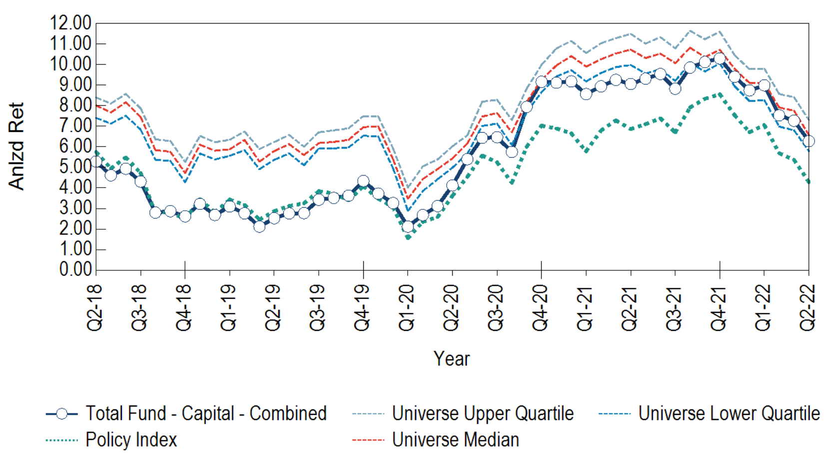
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	Inception	Inception Date
Total Private Real Assets	438,594,765	3.8	30.3	30.3	12.2	--	--	--	11.9	Feb-19
Private Real Assets Policy		*3.1*	*23.1*	*23.1*	*10.1*	--	--	--	*9.5*	*Feb-19*
Total Public Real Assets	412,626,735	-14.9	-6.9	-6.9	4.5	--	--	--	5.9	Feb-19
Public Real Assets Policy		*-14.9*	*-6.9*	*-6.9*	*4.6*	--	--	--	*6.0*	*Feb-19*
Total Absolute Return	**1,756,000,738**	**0.4**	**4.1**	**4.1**	**4.6**	**--**	**--**	**--**	**4.3**	**Feb-19**
Total Absolute Return Policy		*-0.2*	*0.5*	*0.5*	*4.7*	--	--	--	*5.4*	*Feb-19*
Total Hedge Funds	426,969,620	-0.4	5.4	5.4	7.8	--	--	--	7.3	Feb-19
Hedge Funds Policy		*-1.5*	*0.8*	*0.8*	*8.5*	--	--	--	*8.5*	*Feb-19*
Total Alternative Beta - Beta	856,299,581	3.1	5.1	5.1	2.8	--	--	--	2.4	Feb-19
Alt Beta - Beta Policy		*2.4*	*0.8*	*0.8*	*3.0*	--	--	--	*4.0*	*Feb-19*
Total Private Credit	472,731,537	-3.9	1.0	1.0	5.3	--	--	--	5.5	Feb-19
Private Credit Policy		*-3.9*	*-0.8*	*-0.8*	*4.1*	--	--	--	*4.8*	*Feb-19*

Total Fund market values include Cash Reserve $101,782, Residual Accounts $7,689,208, and Cash Reserve - Illiquids, $11,207.

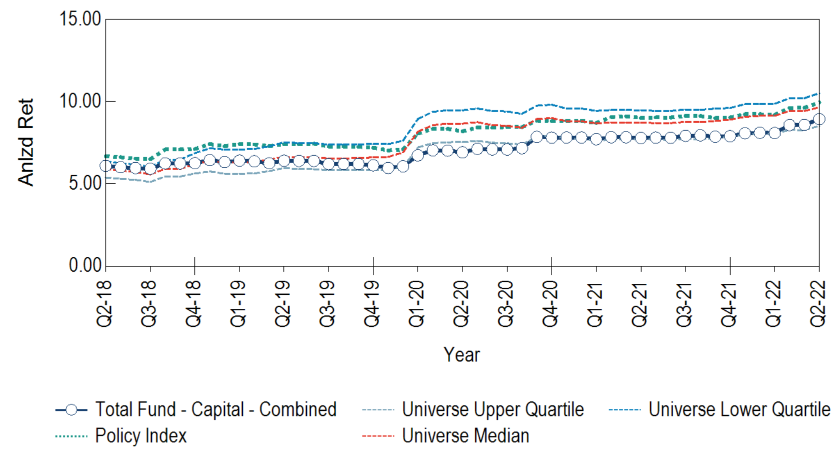
Rolling 5 Year Sharpe Ratio

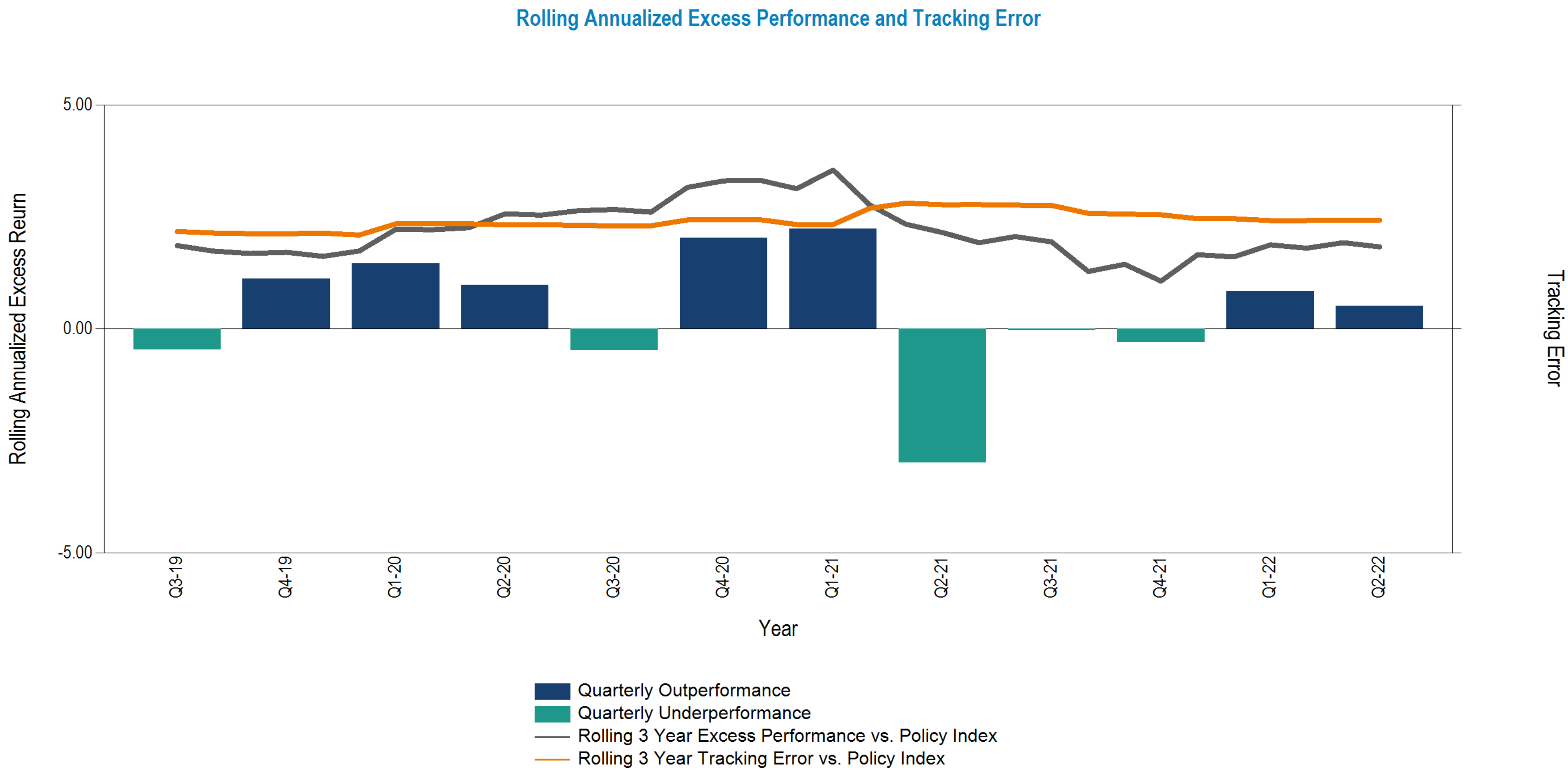


Rolling 5 Year Annualized Return (%)

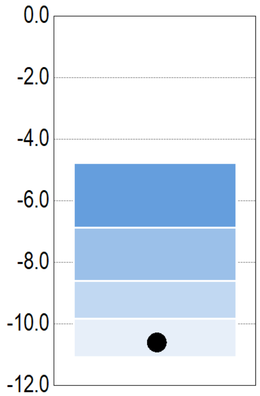


Rolling 5 Year Annualized Standard Deviation

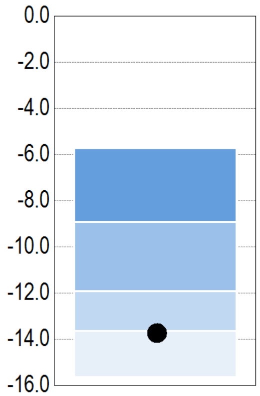



Rolling Annualized Excess Performance and Tracking Error
5.00
0.00
-5.00
Rolling Annualized Excess Reurn
Tracking Error
Q3-19
Q4-19
Q1-20
Q2-20
Q3-20
Q4-20
Q1-21
Q2-21
Q3-21
Q4-21
Q1-22
Q2-22
Year
Quarterly Outperformance
Quarterly Underperformance
Rolling 3 Year Excess Performance vs. Policy Index
Rolling 3 Year Tracking Error vs. Policy Index

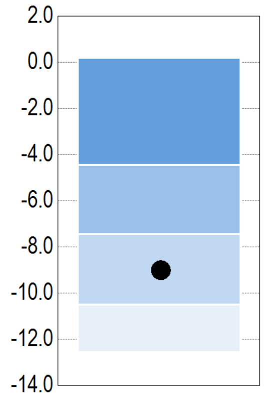
Last Quarter



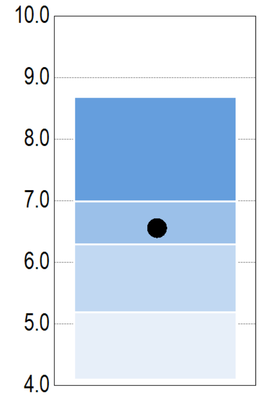
Year to Date



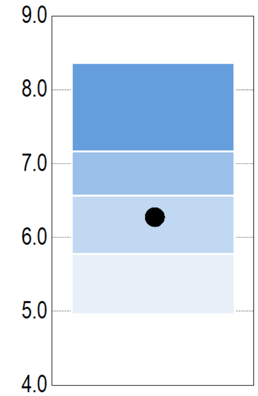
1 Year



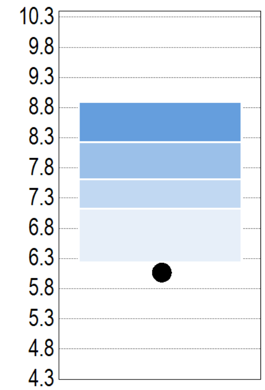
3 Year



5 Year



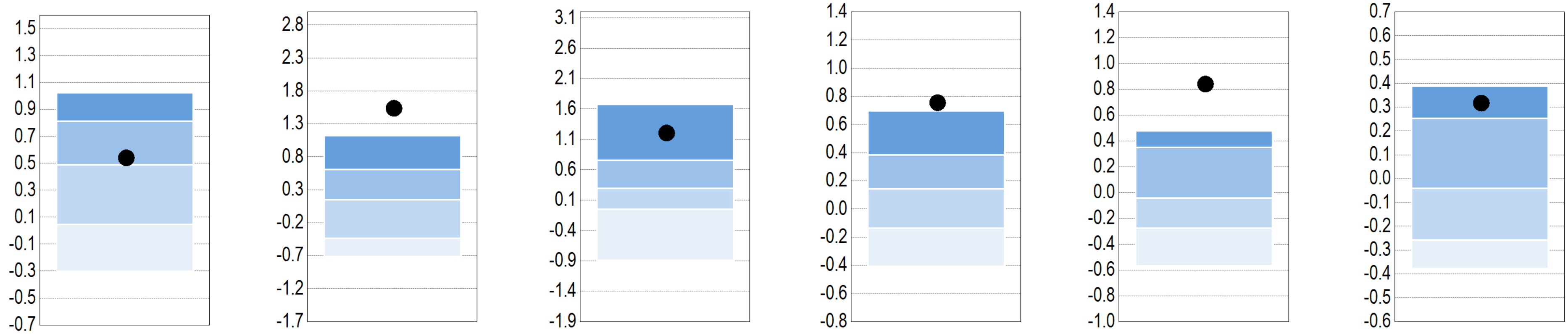
10 Year



	Last Quarter	Year to Date	1 Year	3 Year	5 Year	10 Year
● Total Fund - Capital - Combined						
Value	-10.6	-13.7	-9.0	6.6	6.3	6.1
Rank	83	77	64	43	57	99
Universe						
5th %tile	-4.8	-5.7	0.2	8.7	8.4	8.9
25th %tile	-6.9	-8.9	-4.4	7.0	7.2	8.2
Median	-8.6	-11.9	-7.4	6.3	6.6	7.6
75th %tile	-9.8	-13.6	-10.5	5.2	5.8	7.1
95th %tile	-11.1	-15.6	-12.5	4.1	5.0	6.2
Observations	64	64	63	62	62	57

InvestorForce Public DB > $1B Net Universe used for comparative purposes.

Last Quarter | Year to Date | 1 Year | 3 Year | 5 Year | 10 Year

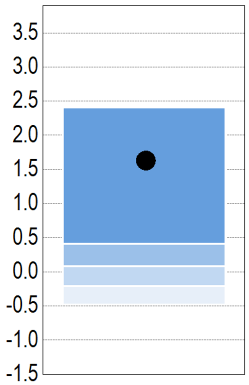


	Last Quarter	Year to Date	1 Year	3 Year	5 Year	10 Year
● Total Fund - Capital - Combined						
Value	0.5	1.5	1.2	0.8	0.8	0.3
Rank	41	3	15	5	2	18
Universe						
5th %tile	1.0	1.1	1.7	0.7	0.5	0.4
25th %tile	0.8	0.6	0.8	0.4	0.4	0.3
Median	0.5	0.2	0.3	0.1	0.0	0.0
75th %tile	0.0	-0.4	0.0	-0.1	-0.3	-0.3
95th %tile	-0.3	-0.7	-0.9	-0.4	-0.6	-0.4
Observations	22	22	22	22	22	22

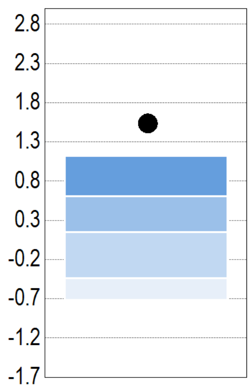
InvestorForce Public DB > $1B Net Universe used for comparative purposes.

Total Fund - Capital - Combined - Total Portfolio
Annualized Alpha Period Ending: June 30, 2022

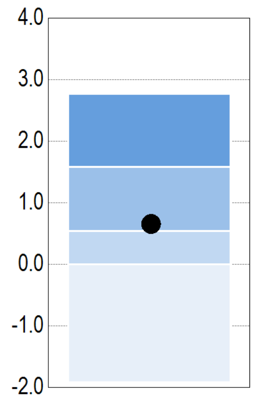
Last Quarter



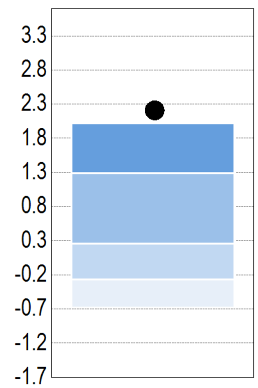
Year to Date



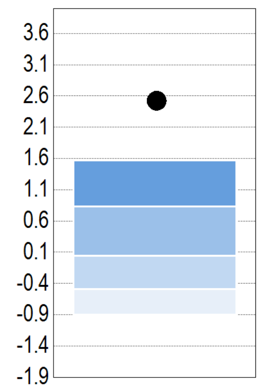
1 Year



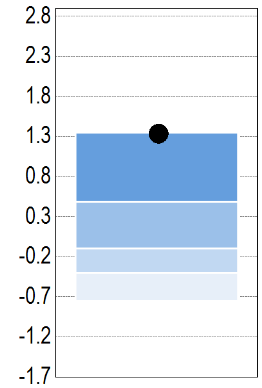
3 Year



5 Year



10 Year



	Last Quarter	Year to Date	1 Year	3 Year	5 Year	10 Year
●	Total Fund New - Capital	Total Fund - Capital - Combined	Total Fund - Capital - Combined	Total Fund - Capital - Combined	Total Fund - Capital - Combined	Total Fund - Capital - Combined
Value	1.6	1.5	0.7	2.2	2.5	1.3
Rank	8	3	49	5	3	6
Universe						
5th %tile	2.4	1.1	2.8	2.0	1.6	1.4
25th %tile	0.4	0.6	1.6	1.3	0.8	0.5
Median	0.1	0.2	0.5	0.3	0.1	-0.1
75th %tile	-0.2	-0.4	0.0	-0.3	-0.5	-0.4
95th %tile	-0.5	-0.7	-1.9	-0.7	-0.9	-0.7
Observations	22	22	22	22	22	22

InvestorForce Public DB > $1B Net Universe used for comparative purposes.

Total Fund: 45% Growth + 35% Income + 40% Inflation Hedge + 20% Absolute Return

Total Growth Policy: 33% (Custom Blend of MSCI ACWI + SSPEI) + 67% MSCI ACWI

Global Public Equities Policy: MSCI ACWI

Global Private Equities Policy: Custom weighted blend of MSCI ACWI and SSPEI weighted by Vintage Year after 12/31/2018. Prior to 12/31/2018, legacy Private Equity portfolio is benchmarked to actual portfolio returns since it is in run-off mode.

Total Income Policy: 30% Bloomberg Aggregate + 70% BB Long Treasury

Long Treasuries Policy: Bloomberg Long Treasury Core Bonds

Policy: Bloomberg Aggregate Bond (BB Agg)

Total Inflation Policy: 12.5% BCOM + 62.5% BB 1-10 TIPS + 12.5% Custom weighted blend of NAREIT and NCREIF ODCE) + 12.5% NAREIT Index

Commodities Policy: Bloomberg Commodity Index (BCOM)

TIPS Policy: Bloomberg 1-10 yr TIPS

Private Real Assets Policy: Custom weighted blend of NCREIF ODCE and NAREIT Public Real Assets Policy: FFTSE NAREIT All REITS Total Return Index ("NAREIT")

Total Absolute Return Policy: 25% (HFRI FoF Cons. + 70 bps) + 50% HFRX Macro/CTA + 25% S&P/LTSA LL + 2%

Hedge Funds Policy: HFRI Fund of Funds: Conservative Index + 70 basis points

Alternative Beta – Beta Policy: HFRX Macro/CTA

Private Credit Policy: S&P/ LTSA U.S. Leveraged Loan Index + 2%

* Benchmark Changes approved at the June 2021 meeting and effective July 1st, 2021. Changes to Private Equity historical benchmark prior to 12/31/2018 approved at June 2022 meeting and applied retroactively from July 1st, 2021.

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio Standard Deviation.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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MOSERS
Quarterly Investment Report

2nd Quarter of 2022

2nd Quarter of 2022 Portfolio Highlights

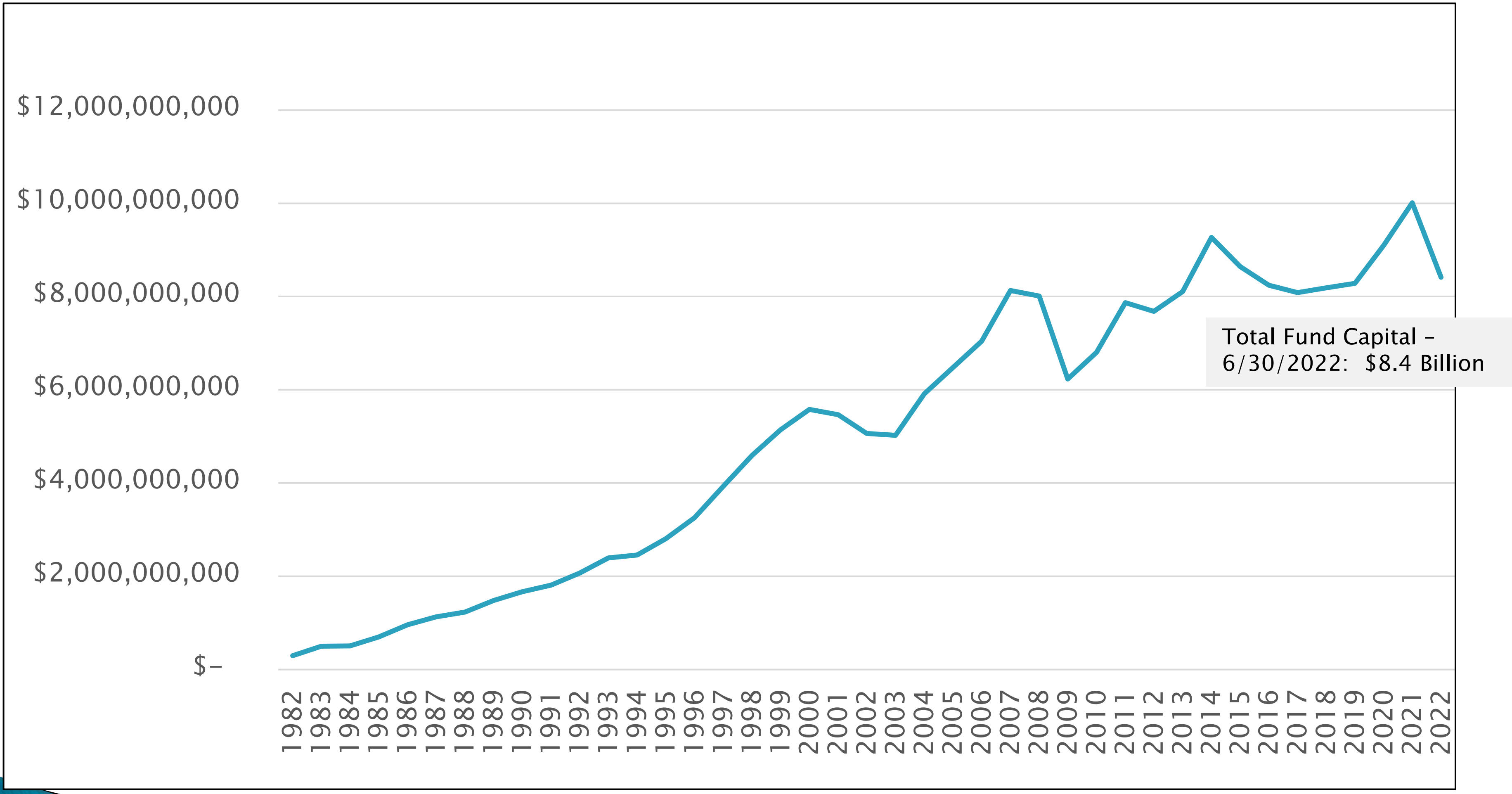
- ***During the quarter, the portfolio returned -10.6% while the policy benchmark returned -11.1%. This results in a 0.5% outperformance for the quarter.***
  - The Absolute Return portfolio was the best performing asset class on both absolute and relative basis. It was also the only asset class with a positive return for the quarter returning 0.4% while the benchmark returned -0.2%.
  - Growth Assets were the worst performer as global equities sold off during the quarter. MOSERS' Growth allocation was down -12.4% for the quarter but exceeded the policy return of -13.1%.
  - The Income portfolio also struggled in a rising interest rate environment and delivered a -9.8% return. However, the asset class outperformed its policy benchmark by 0.2% with the help of portable alpha within the Core Bond allocation.
  - Inflation Hedge assets slightly underperformed policy by 0.1% with a quarterly return of -4.6% vs. the benchmark return of -4.5%.

Portfolio Returns vs Policy Over Time

Period Ending 6/30/2022				
	MOSERS Returns			
Period	**Total Fund Actual - Annualized Return**	**Total Fund Policy - Annualized Return**	**Value Added in %**	**Value Added in $**
1 Year	-9.0%	-10.0%	1.0%	$ 96,063,939
3 Year	6.6%	4.7%	1.8%	$ 468,496,832
5 Year	6.3%	4.3%	2.0%	$ 878,962,020
10 Year	6.1%	5.3%	0.7%	$ 609,419,767
15 Year	5.1%	4.2%	0.8%	$ 1,298,666,236
20 Year	7.1%	6.1%	0.9%	$ 2,025,053,212
25 Year	6.7%	5.6%	1.1%	$ 3,318,587,799

MOSERS Historical Fund Value

Ended 6-30-2022

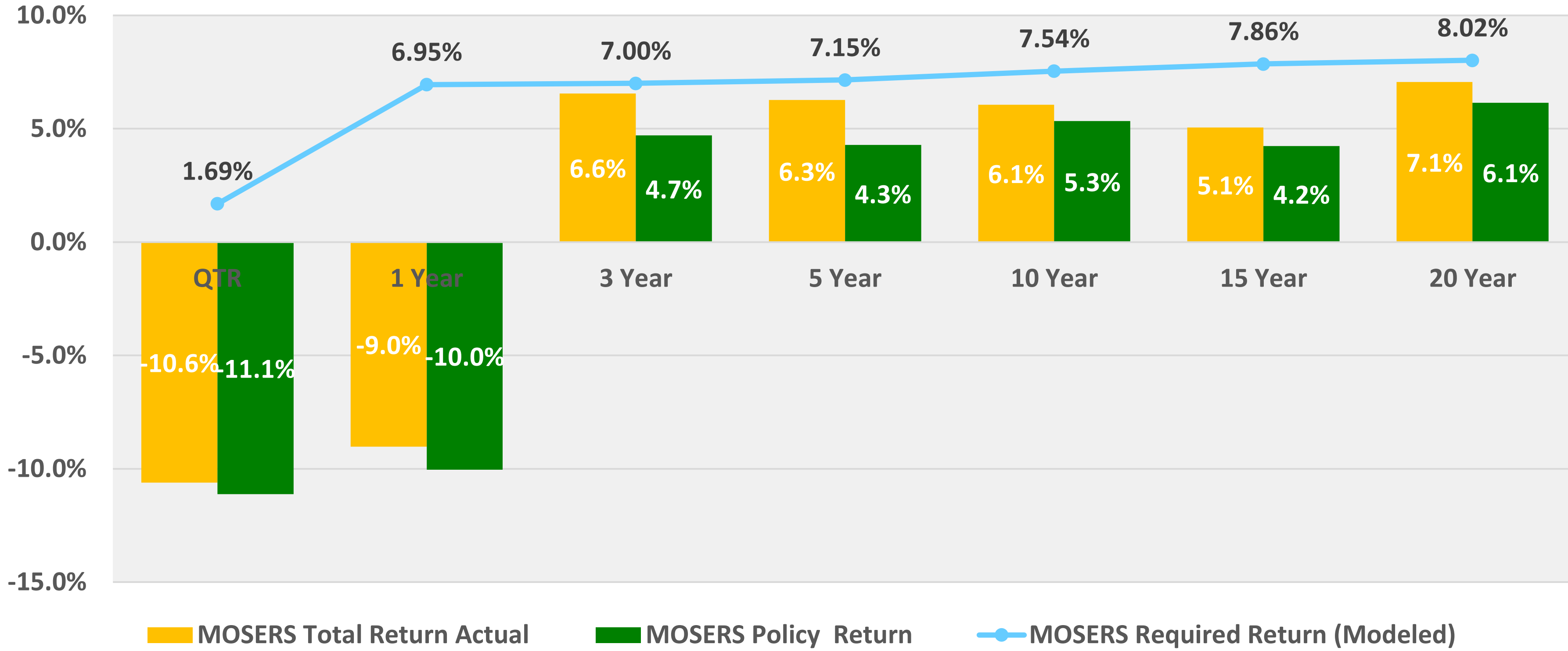


MOSERS Returns vs. Assumptions

HOW ARE WE DOING RELATIVE TO OUR ASSUMPTIONS?

Are we meeting our assumptions?

Ended 6-30-2022



Required Rate of Return (Modeled): This is the nominal rate of return the System has historically assumed necessary to achieve in order to fund the System's liabilities. It is the assumed real rate of return established by the actuarial assumption plus the assumed inflation for the period.

Portfolio Positioning

HOW ARE WE DIFFERENT FROM OUR BENCHMARKS?

Asset Class Weights

Portfolio at 6/30/2022				
	Policy Allocation	Policy Allocation Min and Max	Actual Allocation	Over/(Under) vs Policy Target
Total Growth	**45.0%**	**35% - 55%**	**44.8%**	**-0.2%**
Global Public Equities	30.0%	15% - 45%	29.8%	-0.2%
Global Private Equities	15.0%	5% - 20%	15.0%	0.0%
Total Income	**35.0%**	**30% - 40%**	**35.4%**	**0.4%**
Long Treasuries	25.0%	20% - 30%	24.8%	-0.2%
Core Bonds	10.0%	5% - 15%	10.6%	0.6%
Total Inflation Hedge	**40.0%**	**35% - 45%**	**40.8%**	**0.8%**
Commodities	5.0%	0% - 10%	4.8%	-0.2%
TIPS	25.0%	20% - 30%	25.9%	0.9%
Private Real Assets	5.0%	0% - 10%	5.2%	0.2%
Public Real Assets	5.0%	0% - 10%	4.9%	-0.1%
Total Absolute Return	**20.0%**	**15% - 25%**	**20.9%**	**0.9%**
Hedge Funds	5.0%	0% - 10%	5.1%	0.1%
Alt Beta	10.0%	5% - 15%	10.2%	0.2%
Private Credit	5.0%	0% - 10%	5.6%	0.6%

Total Portfolio - Capital	**140.0%**	**130% - 150%**	**142.0%**	**2.0%**

Portfolio Positioning – tactical active risk

How are we different from the benchmark in public markets?

- Active management in Global Public Equities
  - Targeted end result will be 100% active management in Global Public Equities:
    - Domestic Equity = 100% Portable Alpha
    - International Developed and Emerging Market Equity = 100% Active Managers (5 different funds utilized in order to diversify the active risk)
- Active management in Core Bonds
  - Portable Alpha on 42% of the total Core Bond exposure (100% Gov't)
- Active risk (tracking error) for public markets has been 0.9% over the past 3 years. IPS range is 0.5% to 3.5%

Portfolio Adjustments – 2nd Quarter 2022

List of Rebalancing Transactions

Date	Manager/Fund		Buy/(Sell)	Description
4/30/2022	NISA Real Assets	$	(78,000,000)	Reduced REITS exposure
4/30/2022	NISA Commodities	$	(25,000,000)	Reduced Commodities Index exposure
4/30/2022	NISA Long Treasuries	$	25,000,000	Increased Long Treasury Index exposure
4/30/2022	NISA TIPS	$	(45,000,000)	Reduced TIPS Index exposure
5/31/2022	NISA US Beta Portable Alpha	$	14,600,000	Increased US Equity exposure
5/31/2022	Artisan International Value Fund	$	4,200,000	Increased International active equity exposure
5/31/2022	NS Partners Emerging Markets	$	25,000,000	Increased International active equity exposure
5/31/2022	NISA Core Govt	$	(5,600,000)	Reduced core bond exposure
5/31/2022	NISA Core Credit	$	(9,500,000)	Reduced core bond exposure
5/31/2022	BlackRock Core Securitized	$	(4,900,000)	Reduced core bond exposure
5/31/2022	NISA Commodities	$	(38,000,000)	Reduced Commodities Index exposure
5/31/2022	NISA Long Treasuries	$	30,000,000	Increased Long Treasury Index exposure
5/31/2022	NISA TIPS	$	(70,000,000)	Reduced TIPS Index exposure
6/30/2022	NISA US Beta Portable Alpha	$	90,000,000	Increased US Equity beta exposure in portable alpha
6/30/2022	BlackRock US Equity	$	(90,000,000)	Reduced passive US Equity exposure
6/30/2022	Aberdeen HFRX Macro/CTA	$	(90,000,000)	Reduced Alt Beta index exposure

Fees

Breakdown of current fees

QE 6/30/2022	Management Fees	Incentive Fees	Fund Expenses	Admin Expenses*	Total Fees and Expenses
Dollars	$ 13,837,501	$ 18,905,241	$ 4,472,327	$ 1,303,577	$ 38,518,646
% of Fund based on capital	0.15%	0.21%	0.05%	0.01%	0.43%
% of Fund based on exposure	0.11%	0.15%	0.04%	0.01%	0.31%

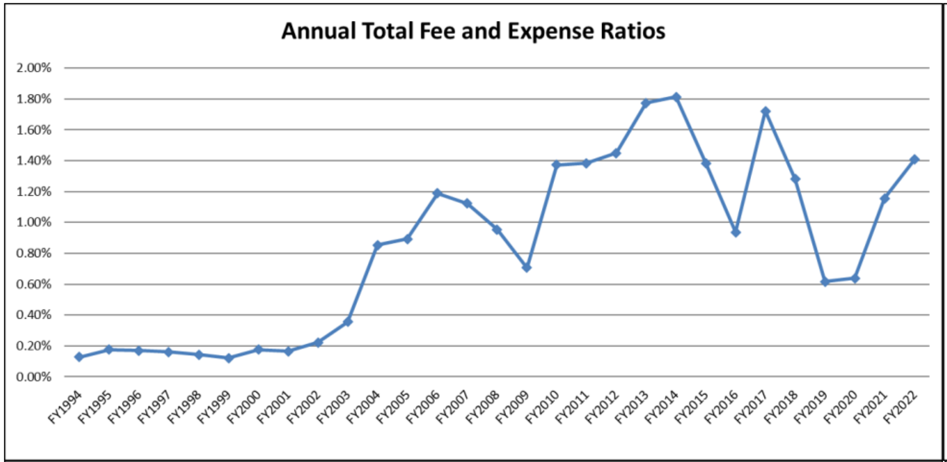
1 YE 6/30/2022	Management Fees	Incentive Fees	Fund Expenses	Admin Expenses*	Total Fees and Expenses
Dollars	$ 49,274,341	$ 54,192,864	$ 18,642,836	$ 5,020,305	$ 127,130,346
% of Fund based on capital	0.54%	0.60%	0.21%	0.06%	1.40%
% of Fund based on exposure	0.39%	0.43%	0.15%	0.04%	1.01%

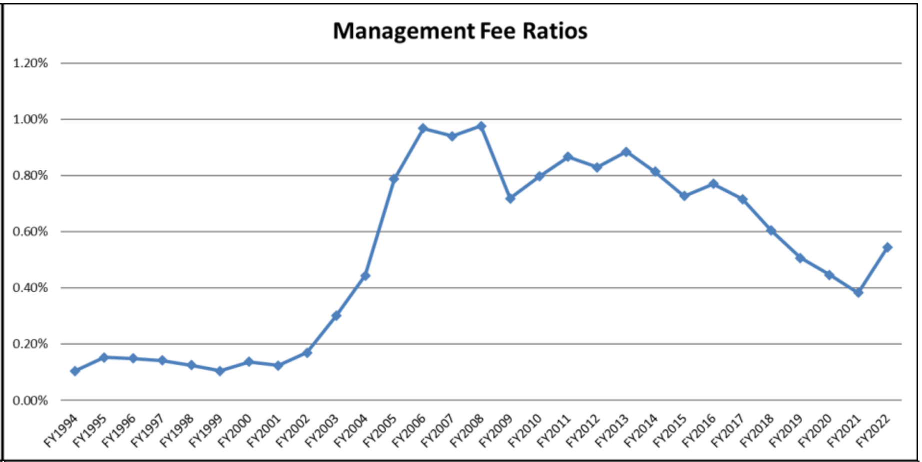
Peer Avg.
Per CEM**
0.72%

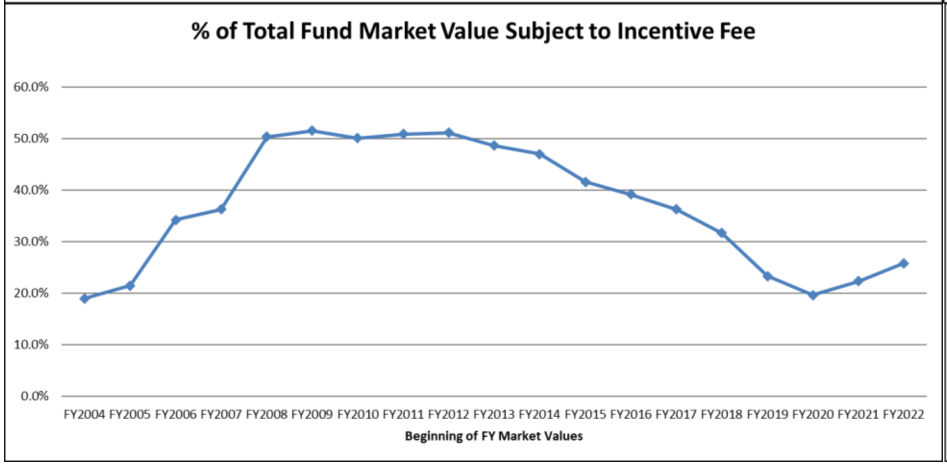
**CEM Report – 2020 Calendar Year

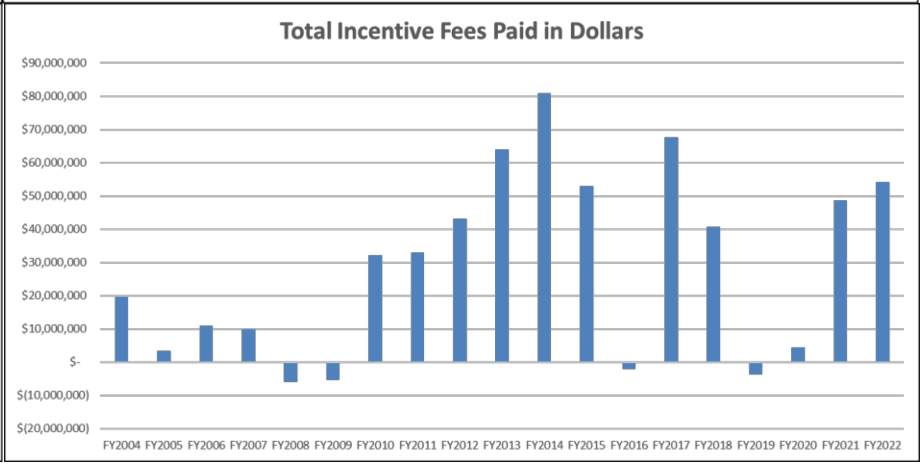
Fees have been increasing in the quarter and the year as we see the impact of hiring additional private market managers. We should expect fees to continue to increase as we build out the private asset classes and portable alpha.

Historical Fee Charts









Questions?

Appendix

Appendix: Supplemental Return Results
(As required by Section X of the IPS)

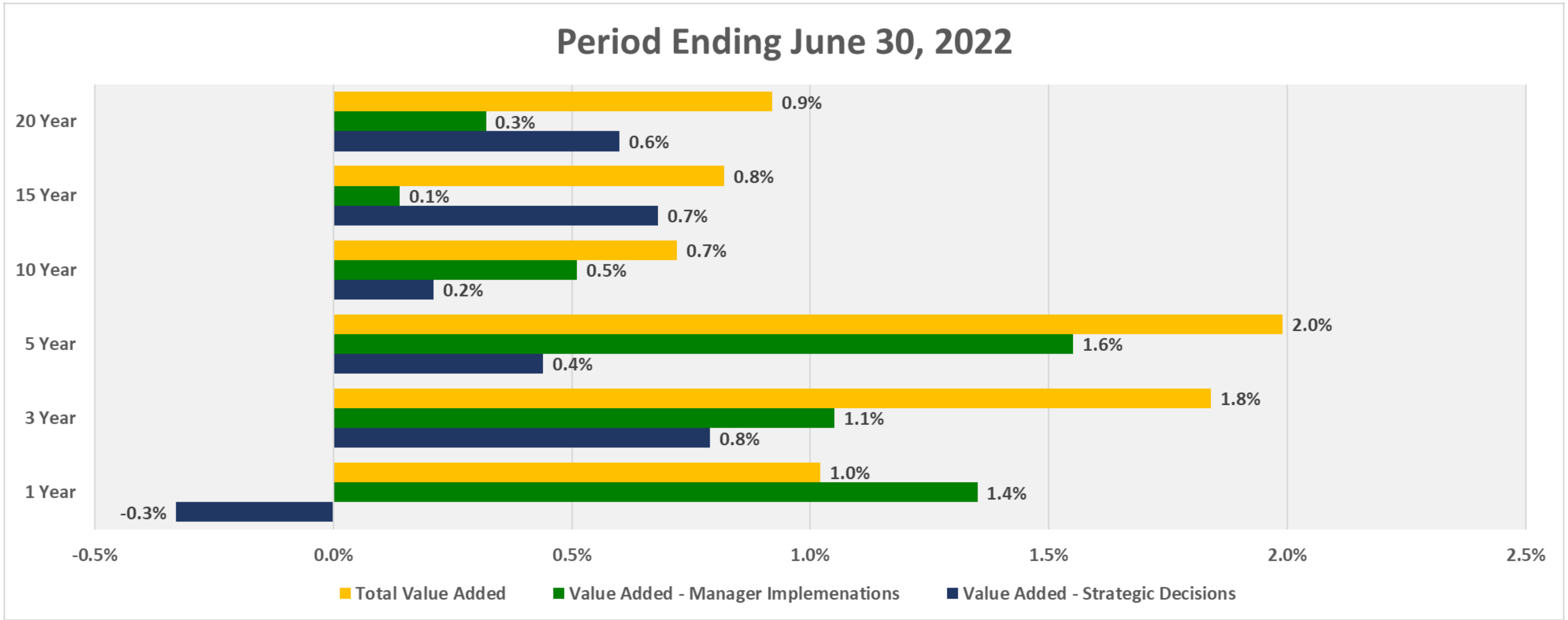
Period ended 6-30-2022

	Total Fund Policy - Annualized Return	Required Rate of Return (Actual)	Difference
1 Year	-10.0%	13.8%	-23.8%
3 Year	4.7%	9.7%	-5.0%
5 Year	4.3%	8.7%	-4.4%
10 Year	5.3%	7.7%	-2.4%
15 Year	4.2%	7.6%	-3.3%
20 Year	6.1%	7.7%	-1.5%

Required Rate of Return (Actual): This is the return the System has historically been required to generate in order to fund the System's liabilities. It is the (annualized) actuarially required return objective established by the Board, minus the inflation assumption used, plus the actual inflation rate during the period.

Appendix: Supplemental Return Results

(As required by Section X of the IPS)



Value Added – Manager Implementation (Green): Reflects the component of the value added which may be attributed to the (staff selected) manager decisions in implementing their respective mandates.

Value Added – Strategic Decisions (Blue): Reflects the component of the total value added which may be attributed to the strategic sub-class allocation decisions implemented by the CIO.

Investment Risk Report

September 22, 2022

Item Type: **Informational**

Executive Summary

Per Section X of the Investment Policy Statement, the Risk Manager will provide a written report that addresses Total Fund risk-management findings and initiatives ("Risk Report"), which includes detail on Total Fund leverage levels, cash levels, cash replenishment initiatives, active risk, and various other risk statistics.

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MOSERS Quarterly Risk Report

Quarter Ending 6/30/2022

Prepared for September 2022 Board Meeting

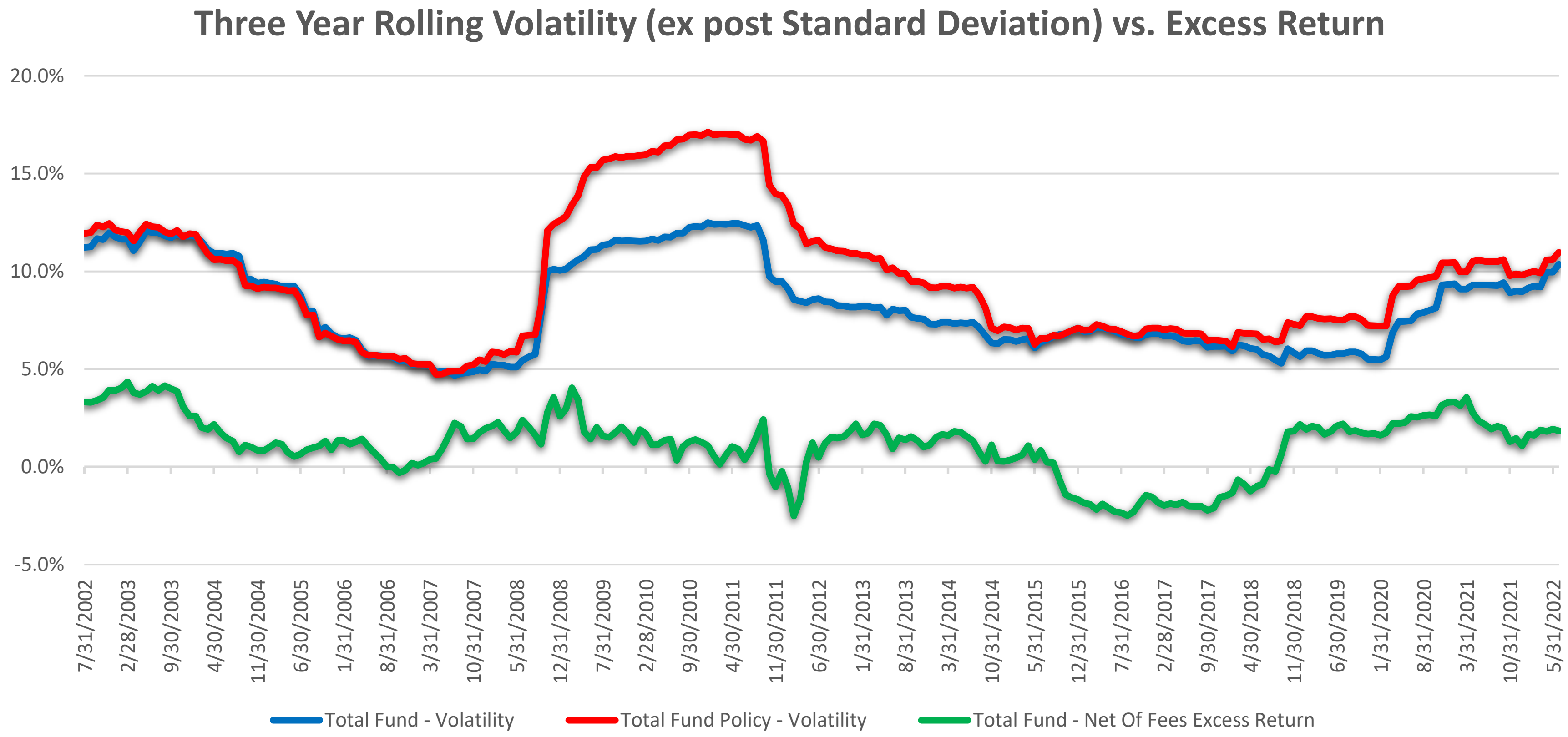
MOSERS Quarterly Risk Report

Contribution to Return and Risk - 1 Year Ending June 30, 2022								
Asset Classes	**Performance Returns**		**Historical Volatility**[1]		**Projected Vol**[2]		**Tracking Error**[3]	
Sub-Asset Class	**Actual Return**	**Contribution to Total Return**	**Annual Historical Standard Deviation**	**Contribution to Standard Deviation**	**Annual Projected Standard Deviation**	**Contribution to Standard Deviation**	**Tracking Error 1 Yr Actual**	**Contribution to Tracking Error**
Growth	**(12.7%)**	**(5.9%)**	**12.9%**	**56.3%**	**11.2%**	**58.2%**	**1.7%**	**44.1%**
Global Public Equities	(14.8%)	(4.6%)	15.1%	44.0%	13.5%	47.1%	1.0%	19.8%
Global Private Equities	(8.8%)	(1.3%)	8.9%	12.4%	7.0%	11.1%	2.7%	24.3%
Income	**(15.7%)**	**(5.7%)**	**9.8%**	**19.8%**	**8.8%**	**16.8%**	**0.5%**	**16.8%**
Long Treasuries	(18.4%)	(4.8%)	12.1%	16.7%	11.2%	13.7%	0.5%	13.3%
Core Bonds	(8.7%)	(0.9%)	4.8%	3.1%	3.4%	3.1%	0.4%	3.5%
Inflation Hedge	**4.2%**	**1.8%**	**6.3%**	**21.4%**	**4.2%**	**19.2%**	**0.5%**	**4.8%**
Commodities	23.7%	1.2%	20.4%	2.3%	14.0%	3.3%	0.2%	1.0%
TIPS	(2.2%)	(0.6%)	4.4%	7.6%	3.3%	7.9%	0.5%	4.4%
Private Real Assets	30.3%	1.4%	12.0%	2.5%	6.2%	(0.6%)	2.4%	0.2%
Public Real Assets	(6.9%)	(0.3%)	20.7%	9.0%	15.5%	8.6%	0.1%	(0.8%)
Absolute Return	**4.1%**	**0.8%**	**3.0%**	**2.5%**	**2.9%**	**5.8%**	**2.2%**	**34.3%**
Direct Hedge Funds	5.3%	0.3%	2.0%	0.4%	2.5%	1.1%	1.7%	3.9%
Alt Beta	5.1%	0.6%	4.5%	0.6%	3.9%	1.9%	3.0%	28.7%
Private Credit	1.0%	0.0%	1.2%	1.4%	5.1%	2.8%	3.2%	1.6%
TOTAL FUND - NET OF FEES	**(9.0%)**	**(9.0%)**	**9.9%**	**100.0%**	**7.2%**	**100.0%**	**0.8%**	**100.0%**

1. Annualized standard deviation of the actual monthly returns for the 1 year period ending June 30, 2022.
2. Annualized standard deviation based on the monthly returns of the actual holdings of the portfolio at June 30, 2022 over the last 10 years.
3. Annualized standard deviation of the monthly excess returns between actual portfolio and benchmark for the 1 year period ending June 30, 2022.

The Growth and Income allocations contributed all of the negative return over the past 1 year as equity markets fell and interest rates rose. The Inflation Hedge and Absolute Return buckets provided some support. Growth contributed the most to the Total Fund tracking error followed by the Absolute Return allocation.

Historical Volatility vs Excess Return



Key Takeaways:

- Over time, the fund consistently has had similar or less volatility than our policy asset allocation implies.
- There are several reasons for this:
    - Lower leverage maintained in the actual portfolio vs the policy target.
    - Our active risks have been diversifying; therefore, creating a lower volatility than the policy.
- For most time periods, taking less risk has not inhibited staff's ability to outperform the benchmark.

MOSERS Quarterly Risk Report

Total Fund Risk Summary

	Portfolio Volatility	Benchmark Volatility	Contribution to Portfolio Risk	Contribution to Benchmark Risk	Active Risk to Component Benchmark	Contribution to Total Fund Active Risk	Contribution to Total Fund AR - Allocation	Contribution to Total Fund AR - Selection/ Interaction	Monthly VaR (95%)	Monthly Benchmark VaR (95%)	Monthly Max Drawdown	Monthly Max Benchmark Drawdown
Total Fund	7.2%	7.3%	100.0%	100.0%	0.6%	100.0%	-1.0%	101.0%	-2.9%	-3.1%	-6.0%	-6.7%
Growth	11.2%	11.2%	58.2%	57.9%	1.0%	58.9%	-0.1%	59.0%	-5.8%	-5.9%	-11.2%	-11.1%
Global Public Equities	13.5%	13.4%	47.1%	46.4%	1.1%	37.0%	-0.1%	37.1%	-7.1%	-7.2%	-13.6%	-13.4%
Global Private Equities	7.0%	7.7%	11.1%	11.5%	2.2%	21.9%	0.0%	21.9%	-2.7%	-3.0%	-6.6%	-6.4%
Income	8.8%	8.9%	16.8%	16.8%	0.3%	11.1%	1.1%	10.0%	-3.9%	-4.1%	-7.2%	-7.5%
Long Treasuries	11.2%	11.3%	13.7%	14.0%	0.2%	3.6%	0.0%	3.6%	-5.3%	-5.3%	-8.9%	-8.9%
Core Bonds	3.4%	3.5%	3.1%	2.8%	0.2%	7.5%	1.0%	6.4%	-1.4%	-1.6%	-3.4%	-3.8%
Inflation Hedge	4.2%	4.3%	19.2%	19.1%	0.3%	5.4%	2.2%	3.1%	-1.3%	-1.4%	-5.2%	-5.3%
Commodities	14.0%	14.0%	3.3%	3.3%	0.1%	-0.2%	-0.1%	-0.1%	-7.3%	-7.3%	-12.9%	-12.9%
TIPS	3.3%	3.3%	7.9%	7.7%	0.2%	1.2%	1.1%	0.1%	-1.5%	-1.5%	-2.9%	-2.9%
Private Real Assets	6.2%	5.3%	-0.6%	-0.6%	1.6%	4.1%	0.9%	3.2%	-0.1%	0.0%	-1.0%	-1.8%
Public Real Assets	15.5%	15.5%	8.6%	8.7%	0.0%	0.3%	0.3%	0.0%	-7.0%	-7.0%	-20.9%	-20.8%
Absolute Return	2.9%	3.4%	5.8%	6.1%	1.6%	30.3%	1.4%	28.9%	-1.0%	-1.3%	-1.5%	-5.1%
Direct Hedge Funds	2.5%	3.5%	1.1%	1.5%	2.6%	8.0%	0.2%	7.8%	-0.5%	-0.9%	-0.9%	-6.7%
Alternative Betas	3.9%	4.6%	1.9%	2.7%	1.7%	13.0%	0.5%	12.6%	-1.3%	-1.9%	-2.6%	-3.4%
Private Credit	5.1%	5.2%	2.8%	2.0%	2.9%	9.2%	0.7%	8.5%	-1.0%	-1.1%	-8.0%	-12.0%

- Risk statistics based on 10 Year Monthly Historical Returns of Current Holdings
- Exposures as of June 30, 2022

Key Takeaways:

- Total Fund risk is slightly lower risk compared to policy benchmark in terms of volatility, VaR, and Max Drawdown.
- Direct Hedge Funds and Private Real Assets volatility have the largest differences in risk relative to their benchmarks.
- Asset Class contributions similar to policy allocations.
- All active risk due to selection effect. Public Equities allocation contributes most to active risk.
- Private Equities active risk reduced from prior periods due to benchmark change. Currently contributed 22% compared to 62% last quarter.

Note: VaR (Value at Risk) is a statistically-based measure of possible loss in market value of a portfolio within a given time span and at a given confidence level. VaR provides the answer, in dollars or portfolio percentage, to the question, “How much could I lose in a really bad month?” The -2.9% VaR for the Total Fund at a 95% confidence level above could be stated as: “We expect to lose at least 2.5% in a month 5% of the time or about 1 in every 20 months”.

MOSERS Quarterly Risk Report

Public Markets Active Risk

	Portfolio Volatility	Benchmark Volatility	Contribution to Portfolio Risk	Contribution to Benchmark Risk	Active Risk to Component Benchmark	Contribution to Total Fund Active Risk	Contribution to Total Fund AR - Allocation	Contribution to Total Fund AR - Selection
Total Fund	8.1%	8.2%	100.0%	100.0%	0.9%	100.0%	47.8%	52.2%
Global Public Equities	17.4%	18.0%	60.2%	57.0%	1.6%	66.0%	23.7%	42.3%
Long Treasuries	13.7%	13.8%	13.9%	16.8%	0.5%	25.0%	20.1%	4.9%
Core Bonds	4.4%	4.6%	3.6%	3.9%	0.4%	2.3%	0.9%	1.4%
Commodities	17.3%	18.1%	3.1%	3.2%	1.7%	5.0%	1.0%	4.0%
TIPS	3.7%	3.7%	8.7%	9.0%	0.3%	1.6%	1.9%	-0.4%
Public Real Assets	20.5%	20.5%	10.3%	10.1%	0.1%	0.2%	0.2%	0.0%

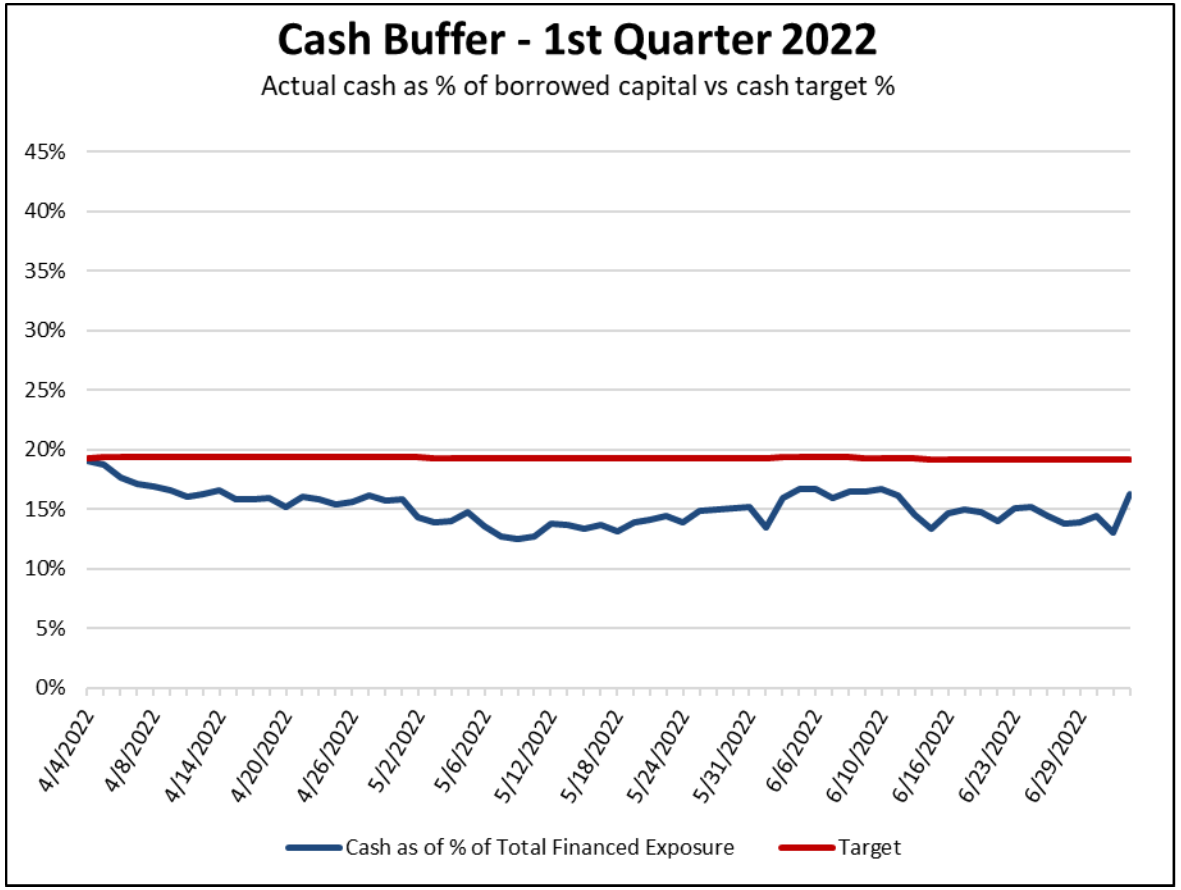
- Public market statistics based on 3-Year actual returns as of June 30, 2022

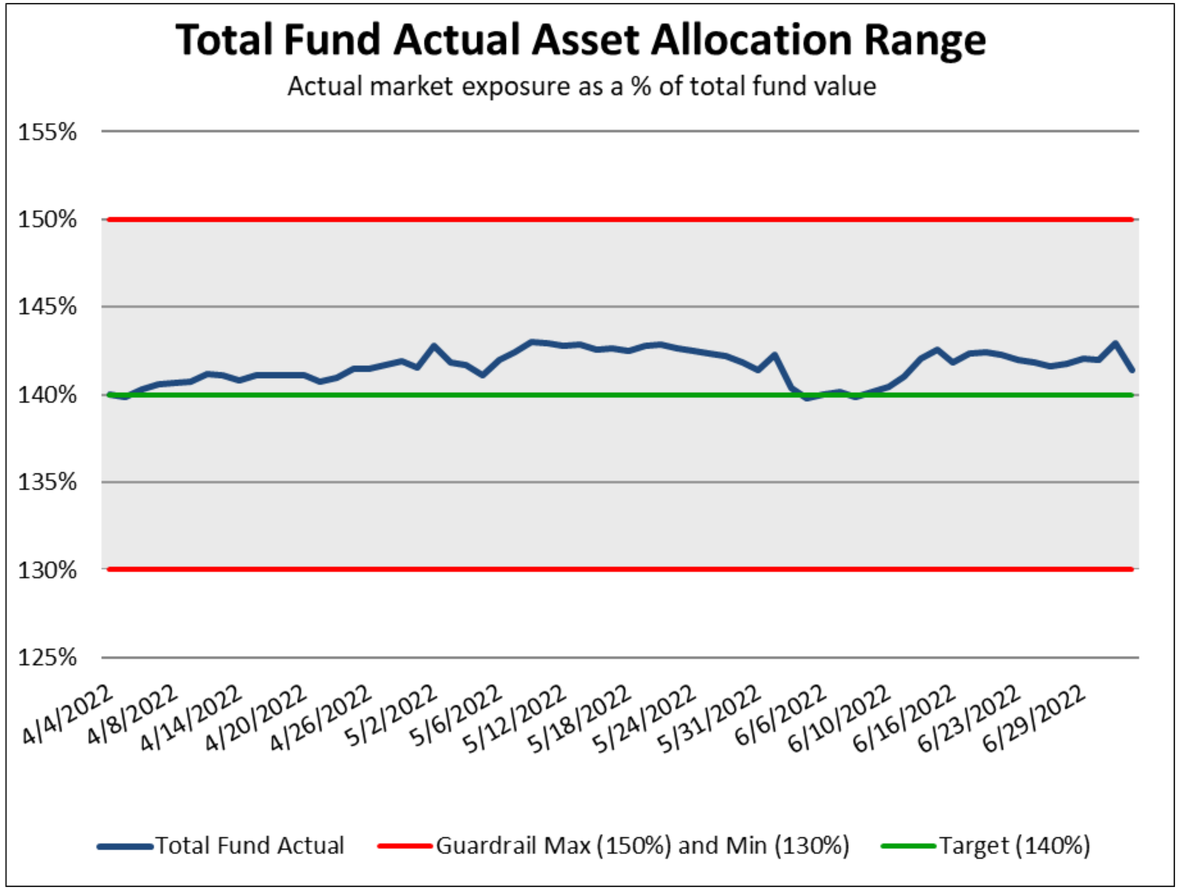
Key Takeaways:

- Public Market volatility slightly lower than benchmark. Public Equities and Commodities had largest difference in volatility compared to their respective benchmarks.
- Public Equities contributed more and Long Treasuries less due to LT underweight throughout the period.
- Public Market portfolio active risk (tracking error) was 0.9% which is within the IPS reasonableness range of 0.5% and 3.5%
- Public Equities contributed most of the active risk with 24% due to allocation effects (overweight during most of the period) and 42% from selection effects (manager and tactical implementation).
- The underweight to Long Treasuries during the period contributed approximately 20% of the active risk.

MOSERS Quarterly Risk Report

Total Fund Cash Buffer and Exposure Limit

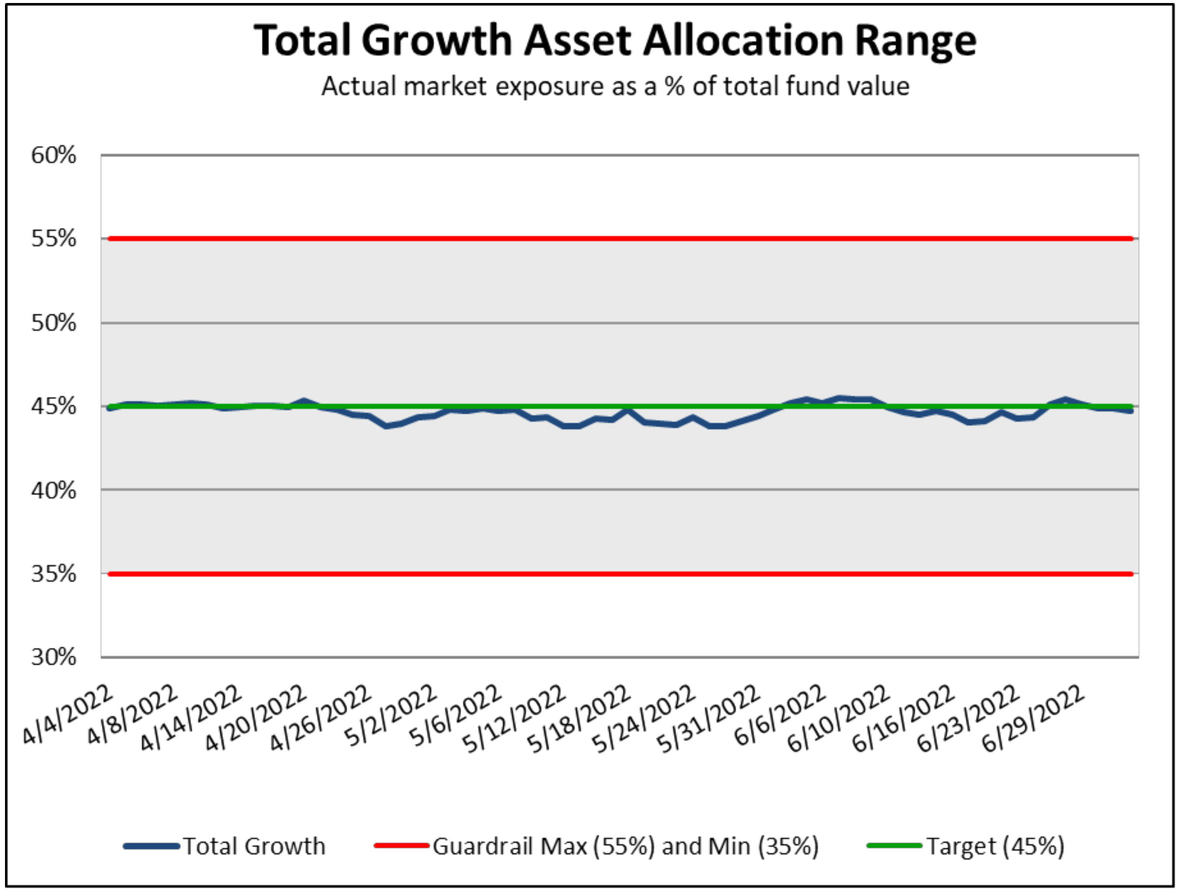


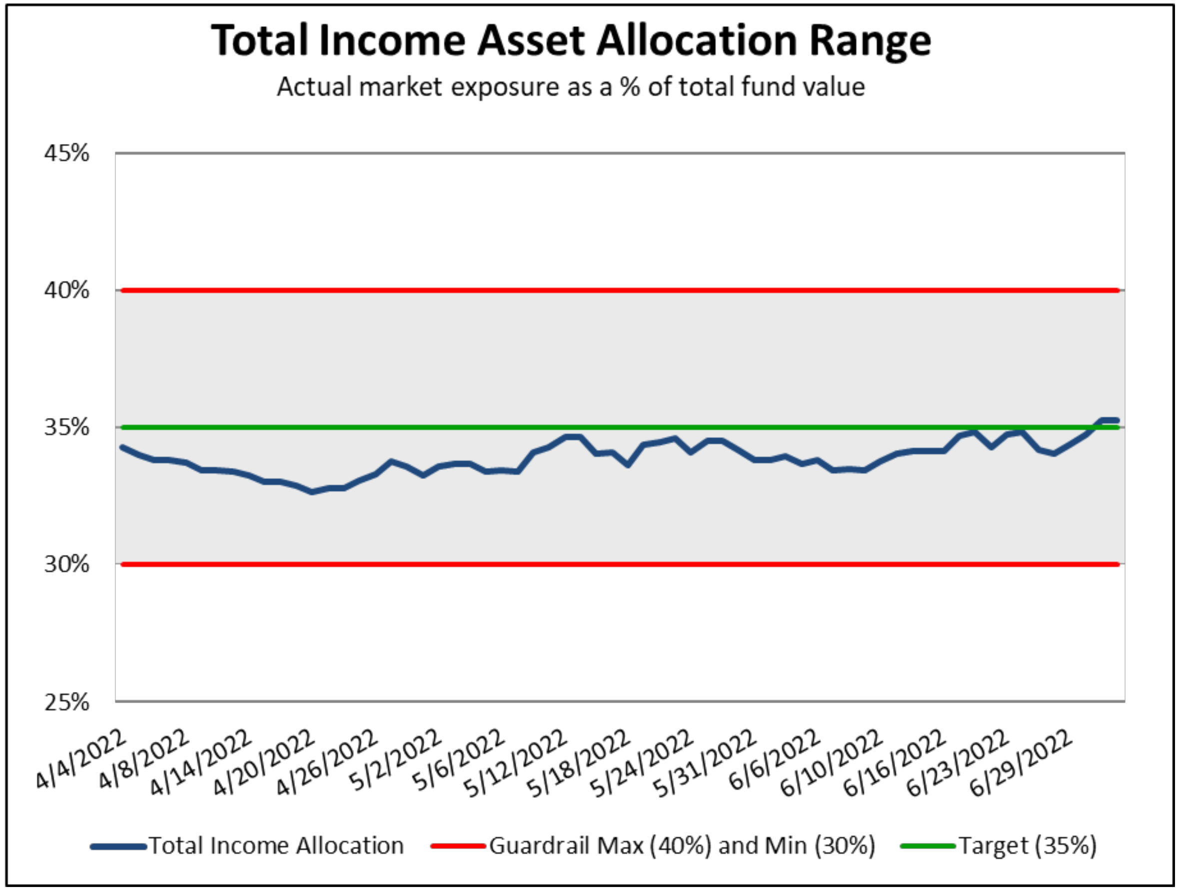


Comments: The cash buffer fluctuated but remained below the target throughout the quarter with the market volatility but approached target at the end as staff rebalanced the portfolio closer to policy allocations. Total Fund exposure was at or slightly higher than policy throughout the quarter due to market movement; however, staff decisions to rebalance the portfolio brought the exposure closer to target by the end of the quarter.

MOSERS Quarterly Risk Report

Asset Bucket Ranges

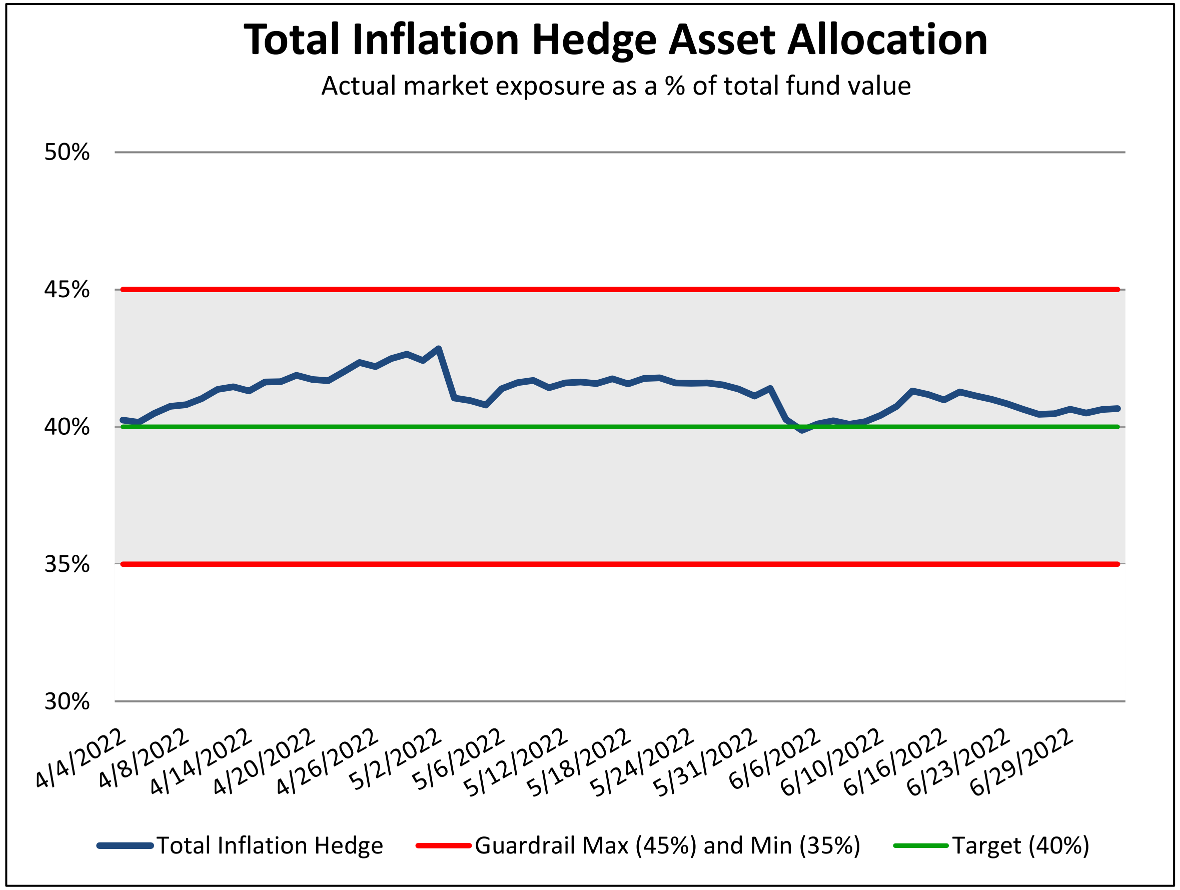


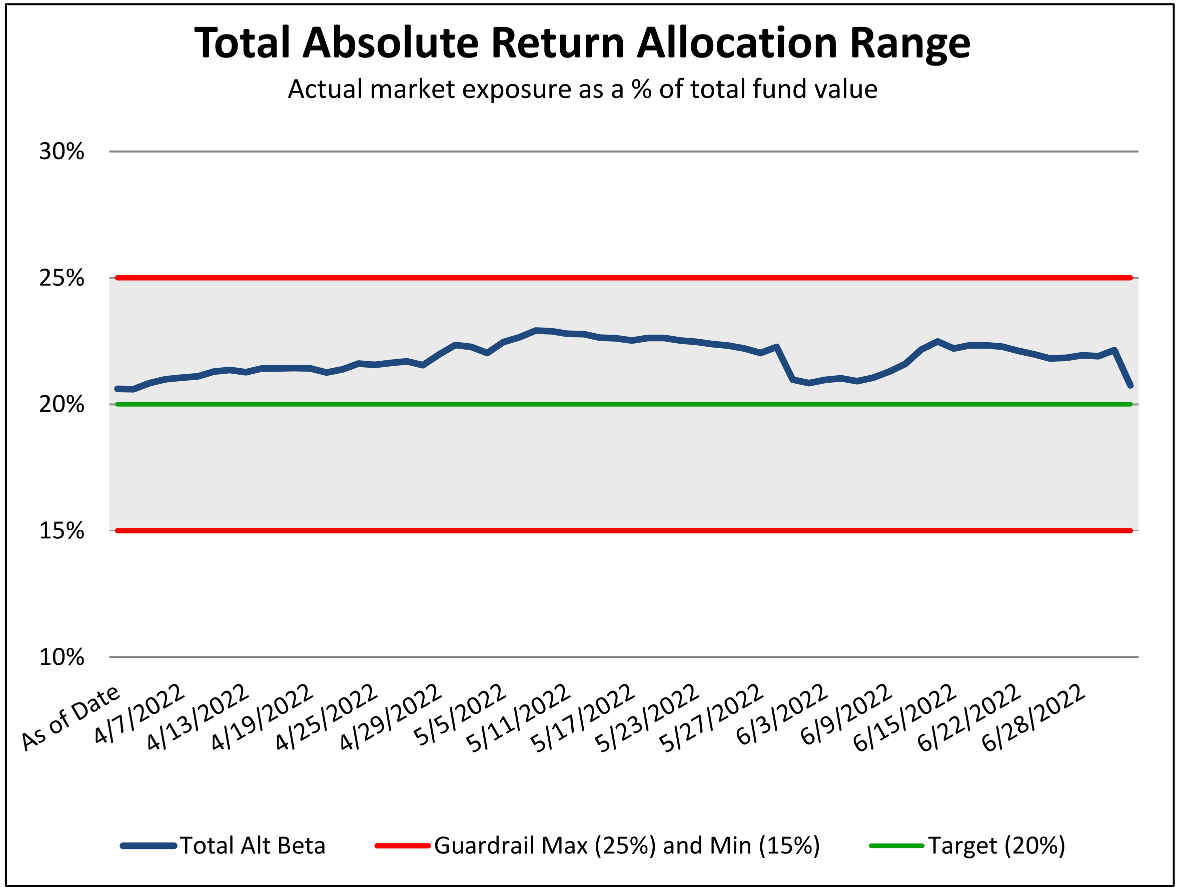


Comments: The Growth allocation remained close to target weight during the quarter. Within Total Income, the Staff decision to underweight Long Treasuries at the beginning of the quarter and the performance within the allocation resulted in the Income allocation to be below target for most the period. Staff rebalanced Treasuries at the end of the quarter to get closer to target.

MOSERS Quarterly Risk Report

Asset Bucket Ranges

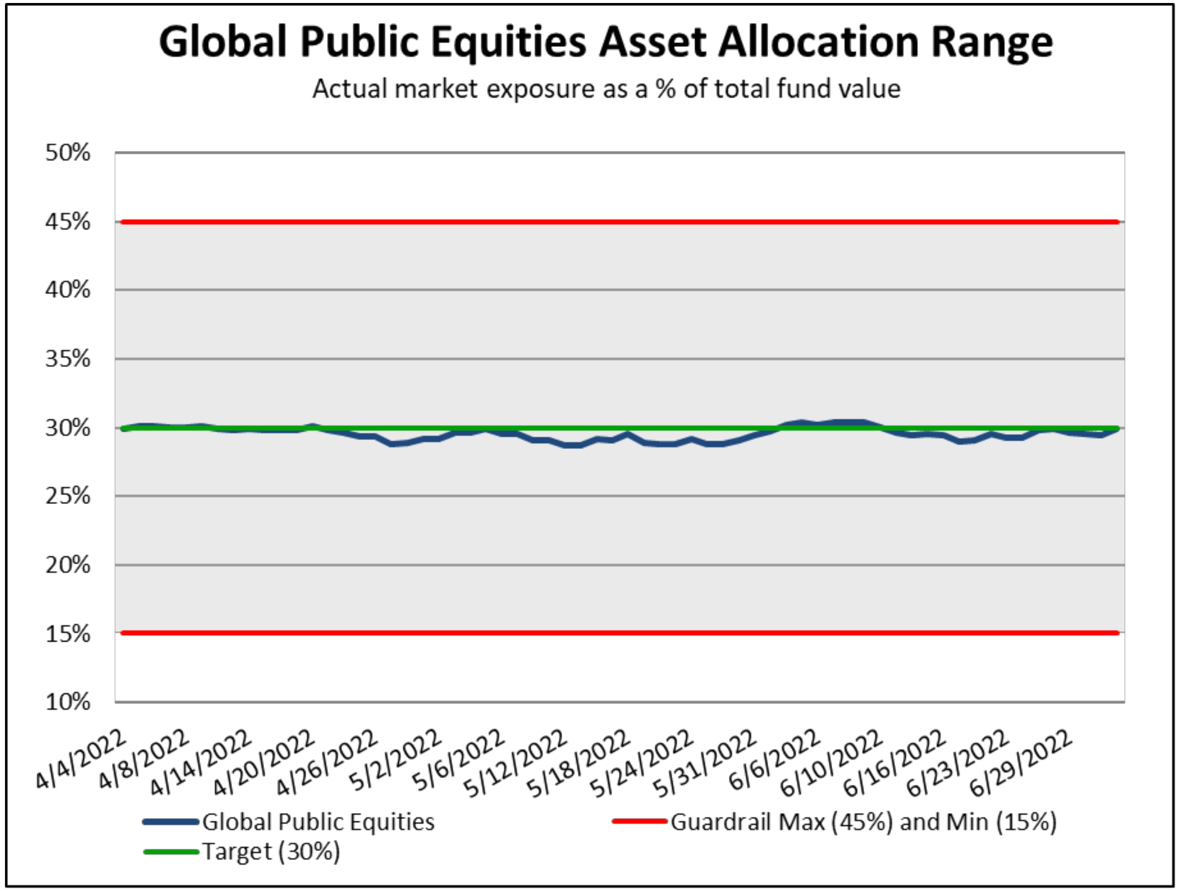


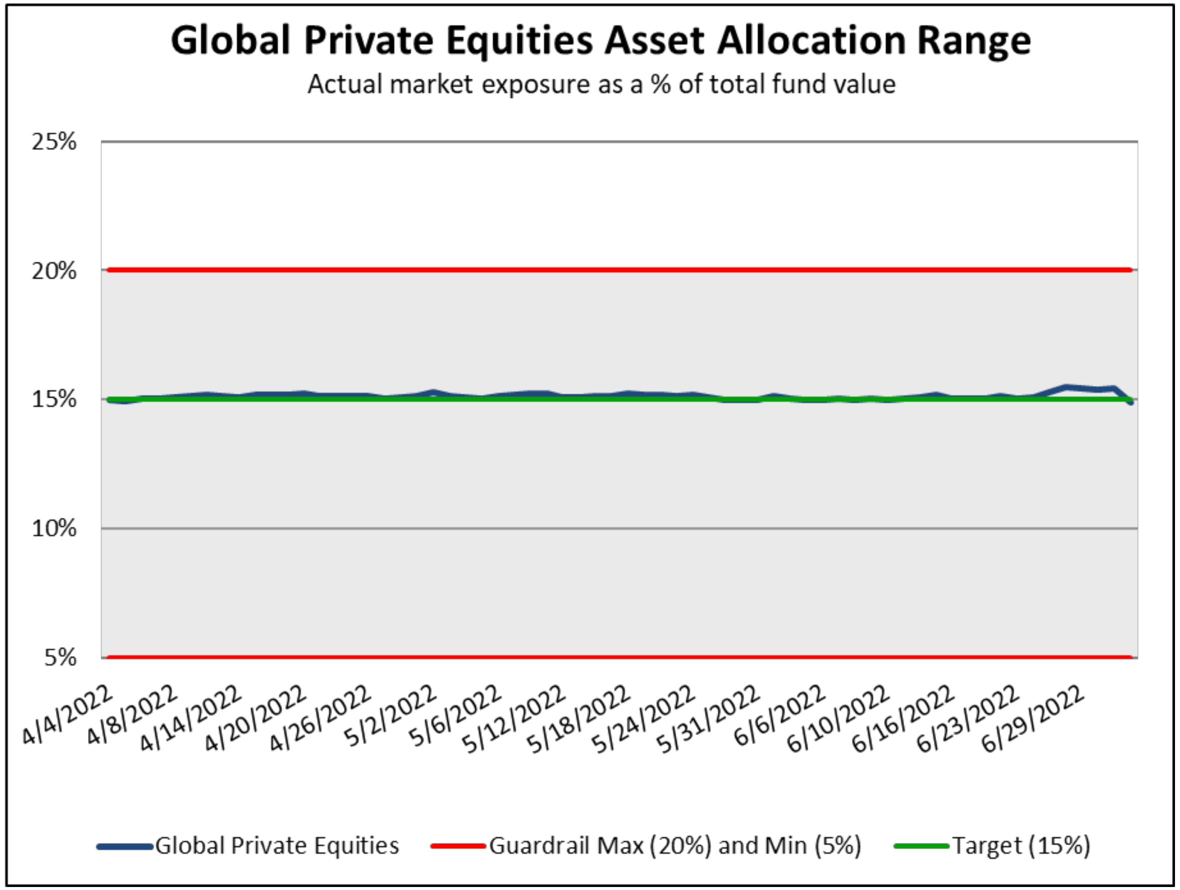


Comments: The Inflation Hedge allocation began the quarter at target but market movements, particularly in commodities and TIPS, moved the allocation above target during the quarter. Staff rebalancing brought the allocation closer to target at each month-end during the quarter. The Absolute Return allocation began the quarter close to the target but became overweight throughout the quarter due to positive performance. Total Inflation Hedge and Absolute Return weights increased in the portfolio as other areas of the portfolio had market sell-offs while these assets remained resilient.

MOSERS Quarterly Risk Report

Growth - Strategy Ranges

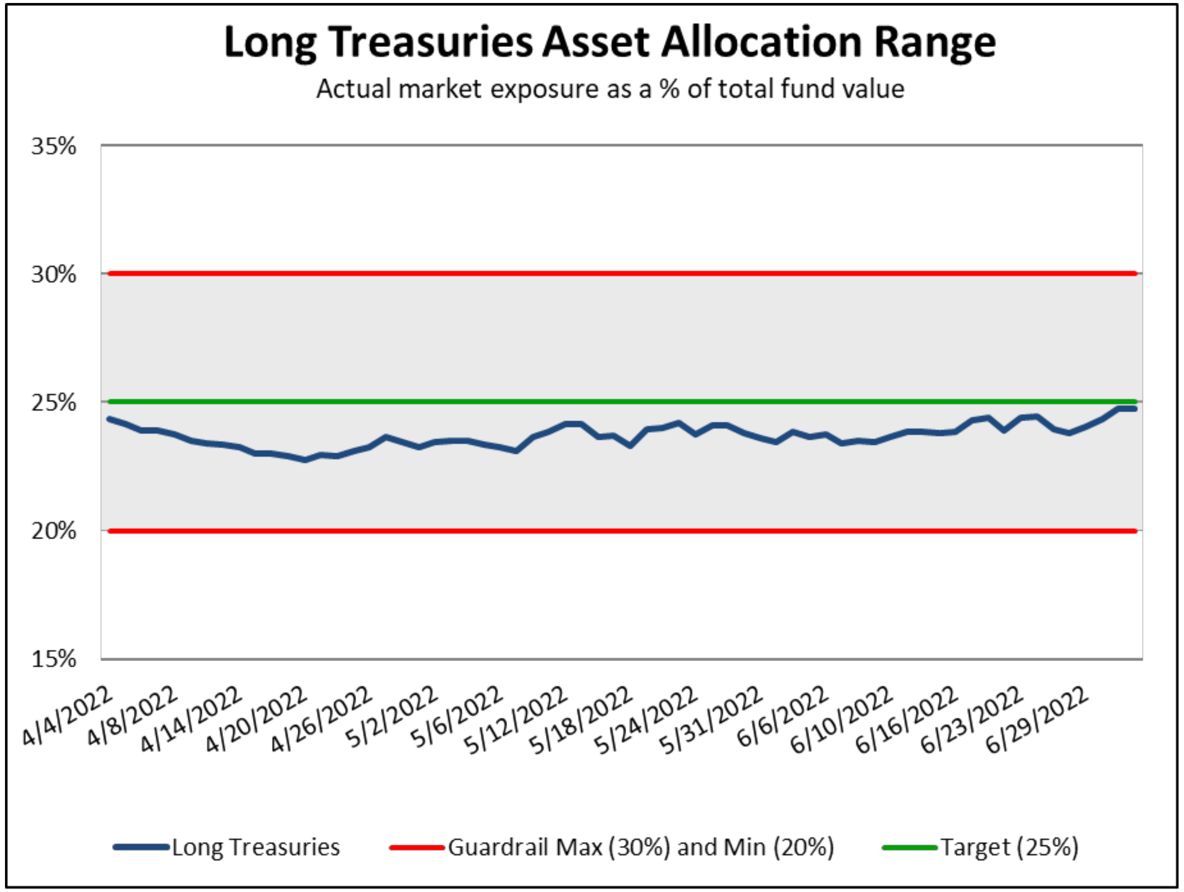


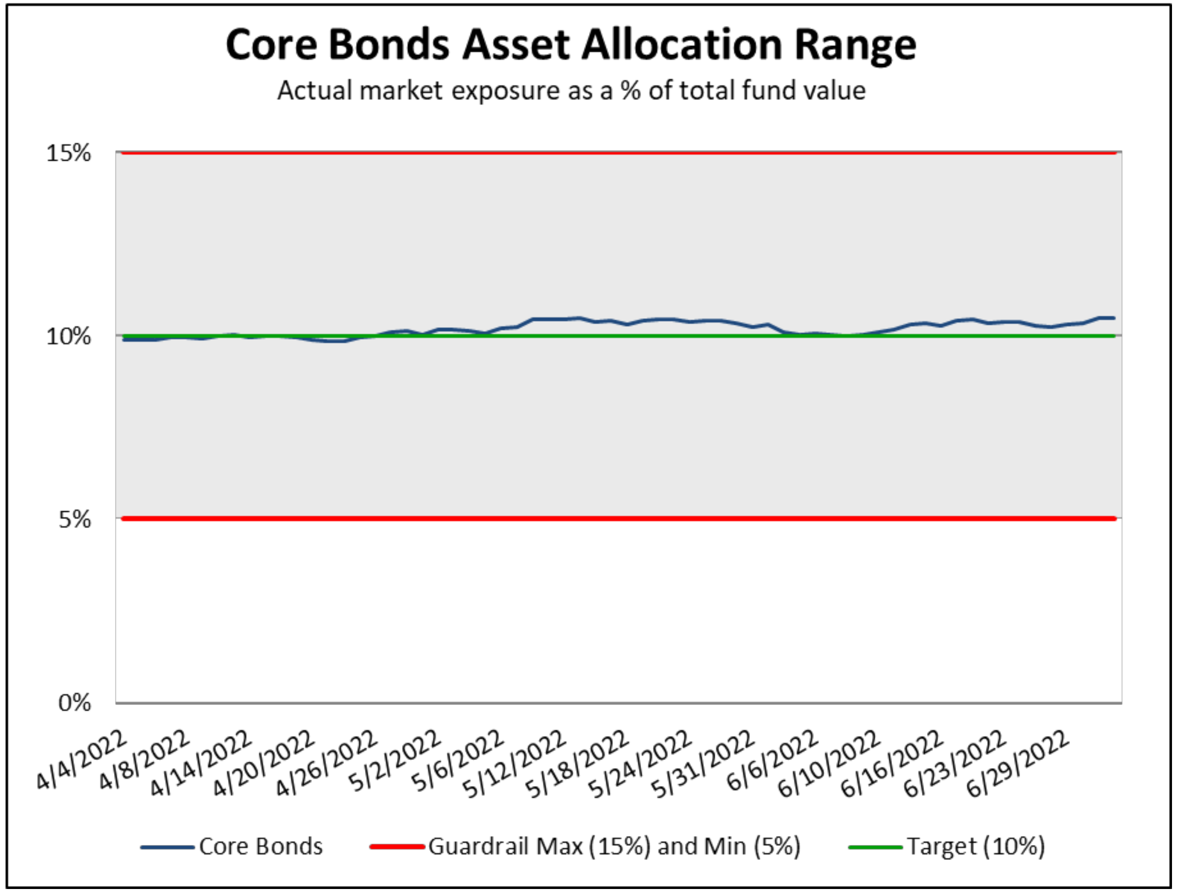


Comments: Allocations remained in line with policy targets throughout the quarter.

MOSERS Quarterly Risk Report

Income - Strategy Ranges

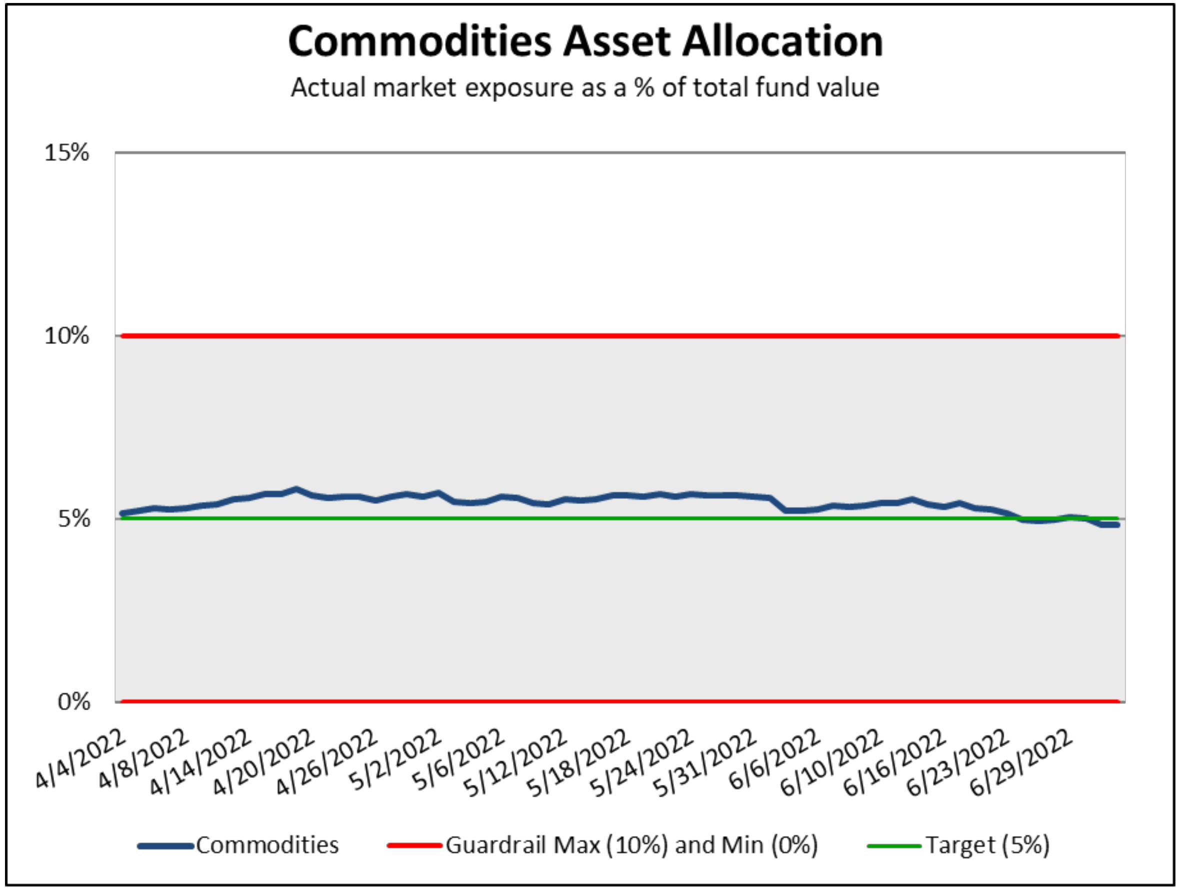


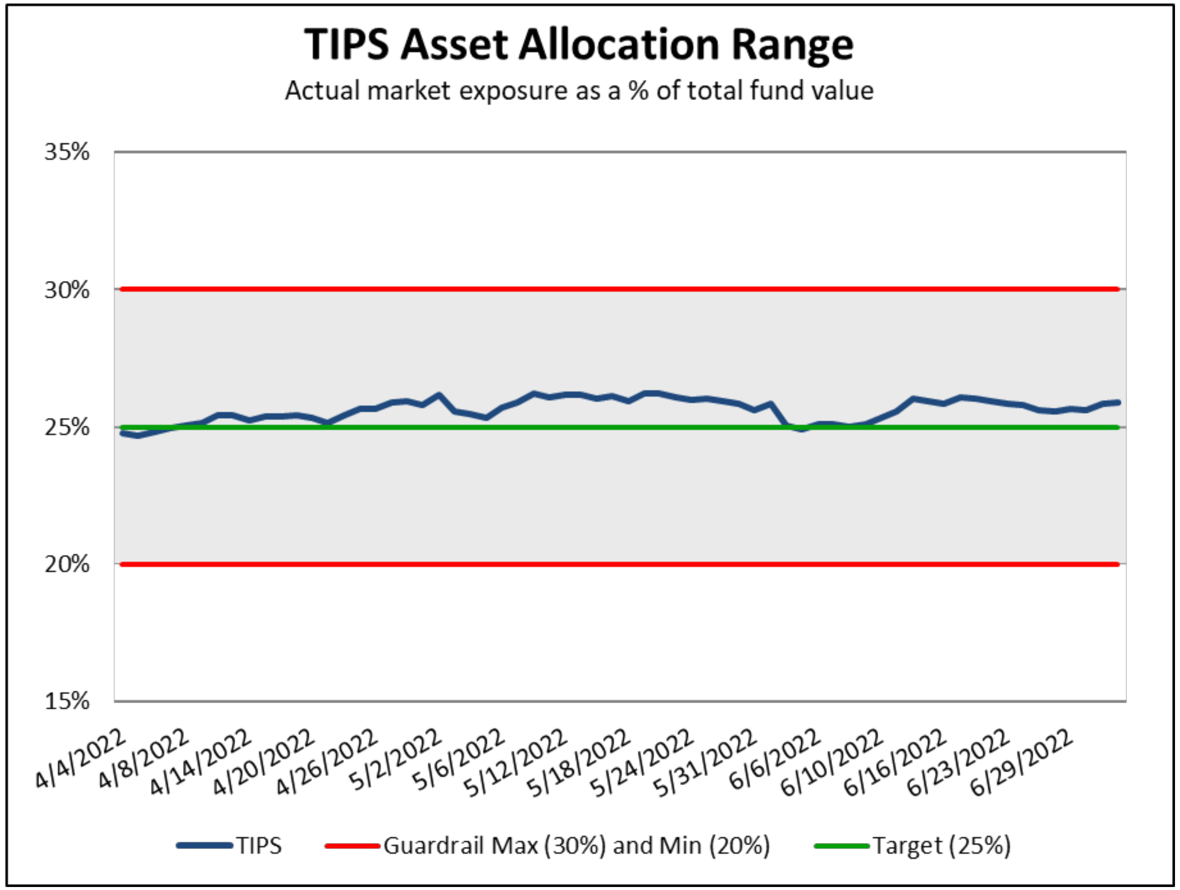


Comments: Long Treasuries has remained underweight throughout the quarter; however, the underweight was removed by the end of the quarter due to rebalancing trades to bring the allocation back to target. The Core Bond allocation remained close to policy throughout the quarter.

MOSERS Quarterly Risk Report

Inflation Hedge - Strategy Ranges

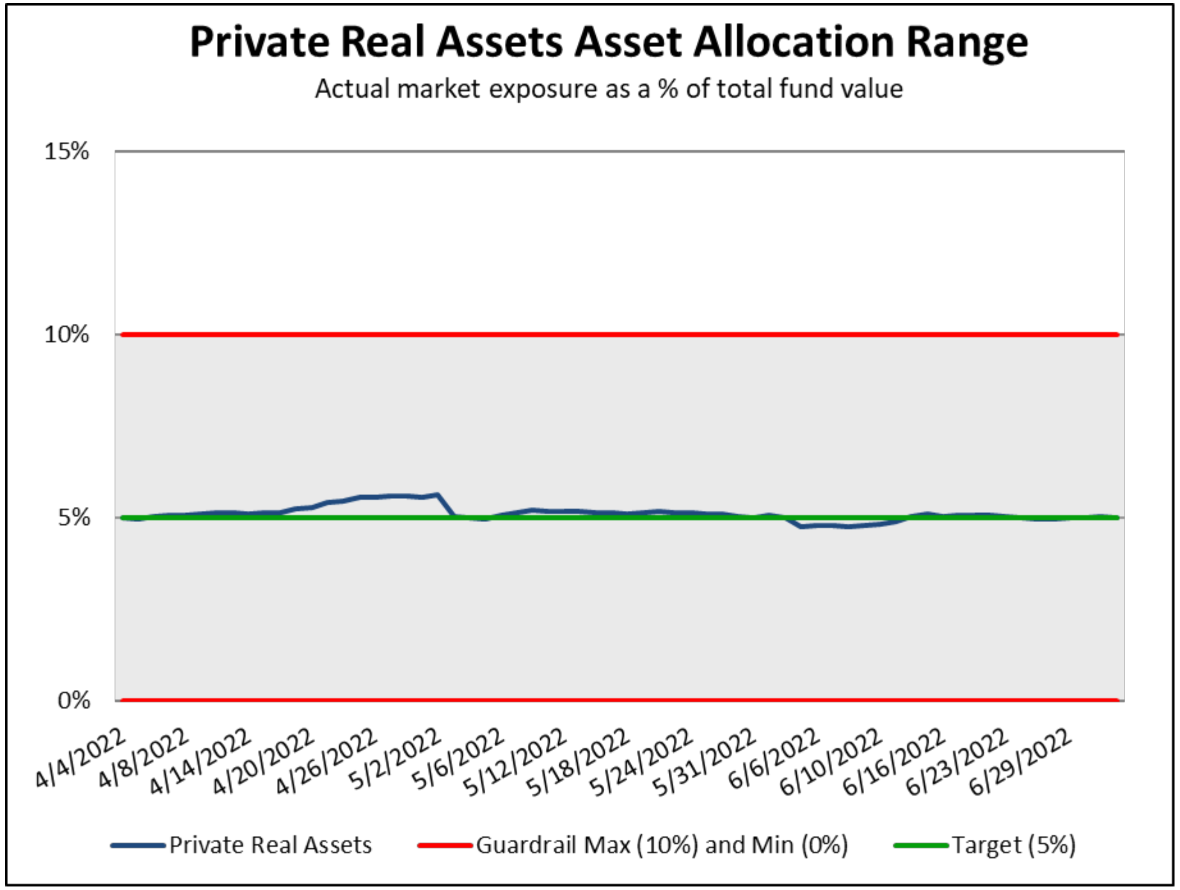


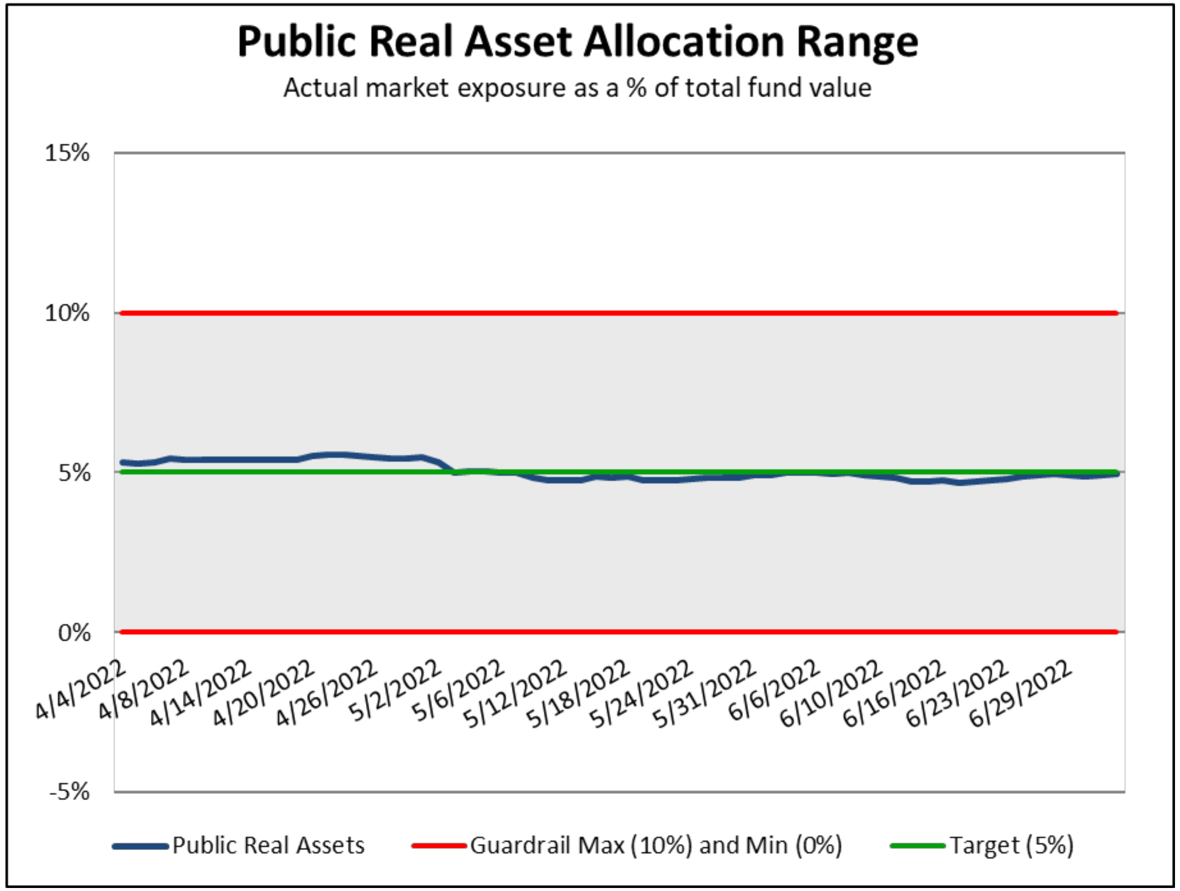


Comments: Commodities had a slight overweight for most of the quarter due to market performance; however, staff rebalanced the allocation back closer to target by the end of the quarter. TIPS allocation moved above target with positive performance but was brought back close to target through rebalancing.

MOSERS Quarterly Risk Report

Inflation Hedge - Strategy Ranges

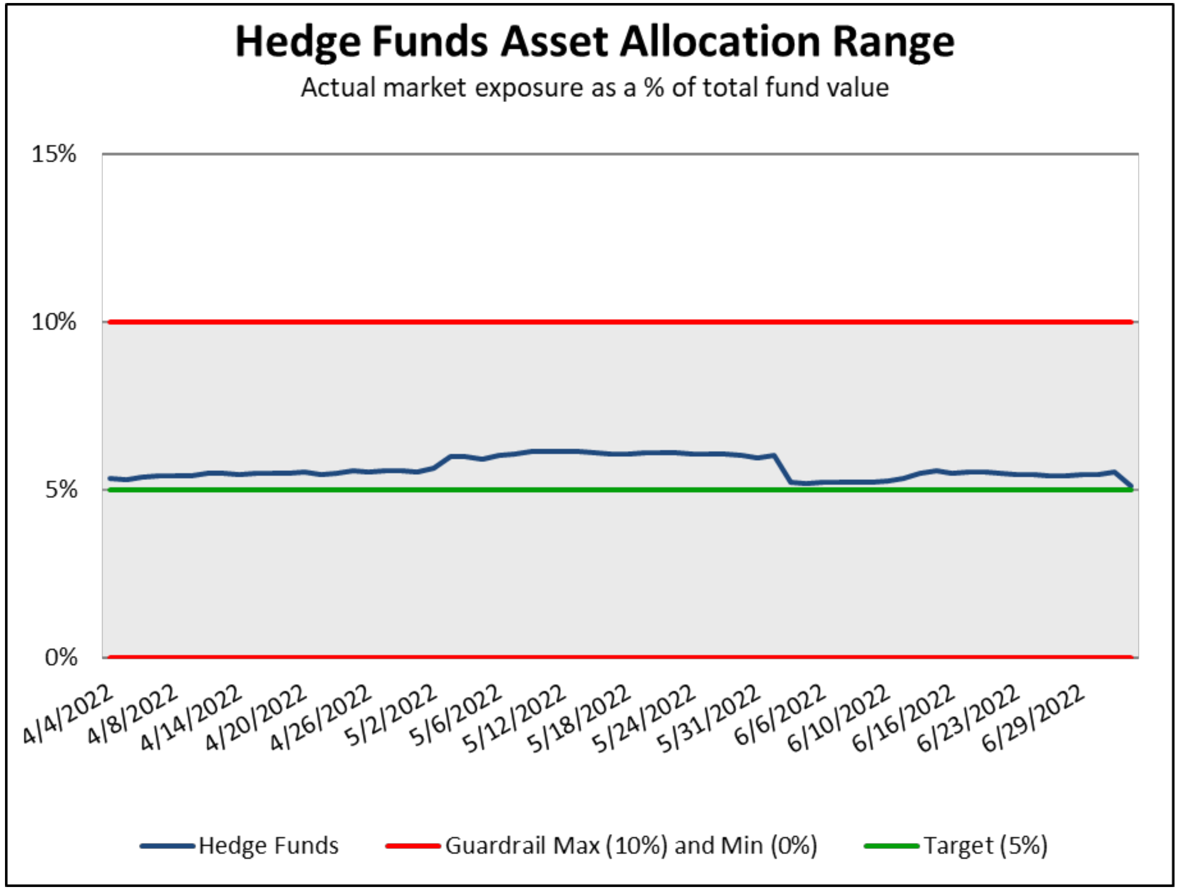


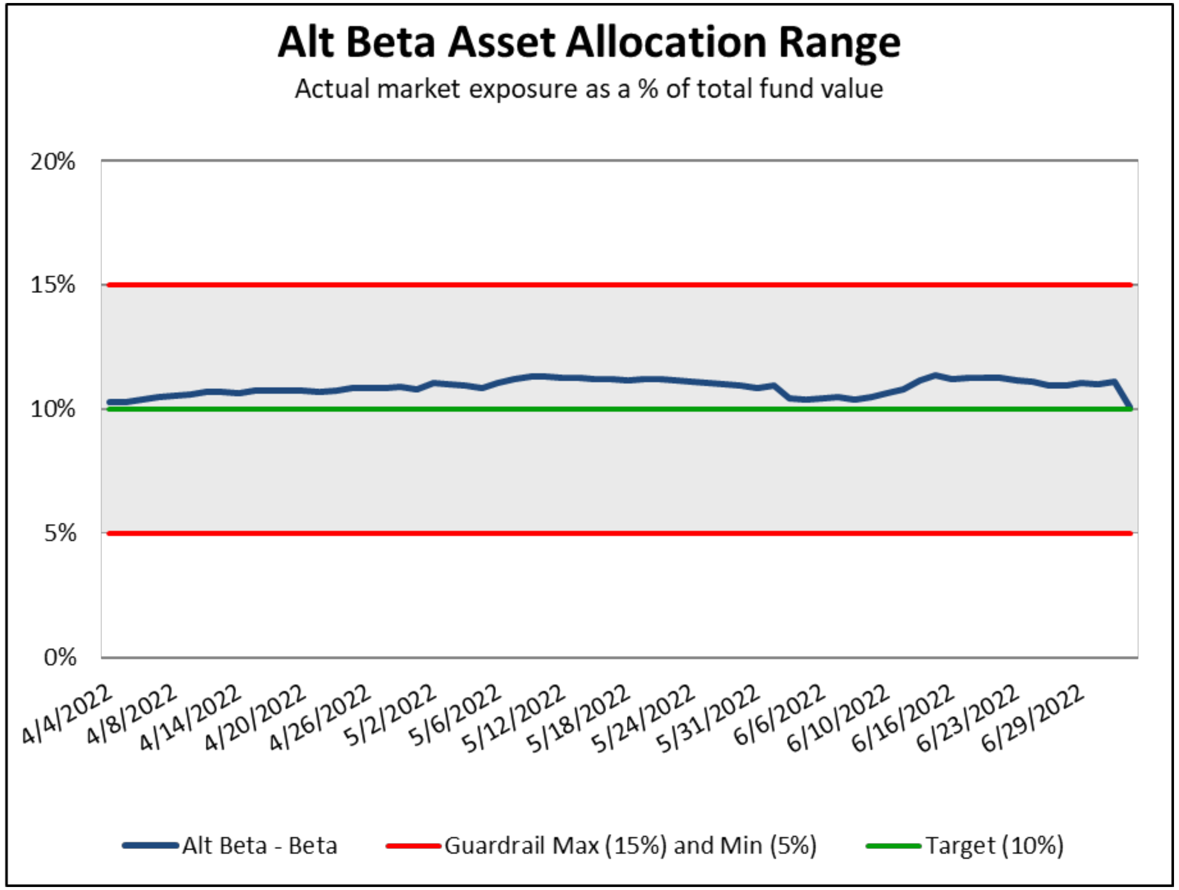


Comments: Private and Public Real Assets allocation remained close to policy target weight during the quarter with rebalancing at April month-end.

MOSERS Quarterly Risk Report

Absolute Return - Strategy Ranges

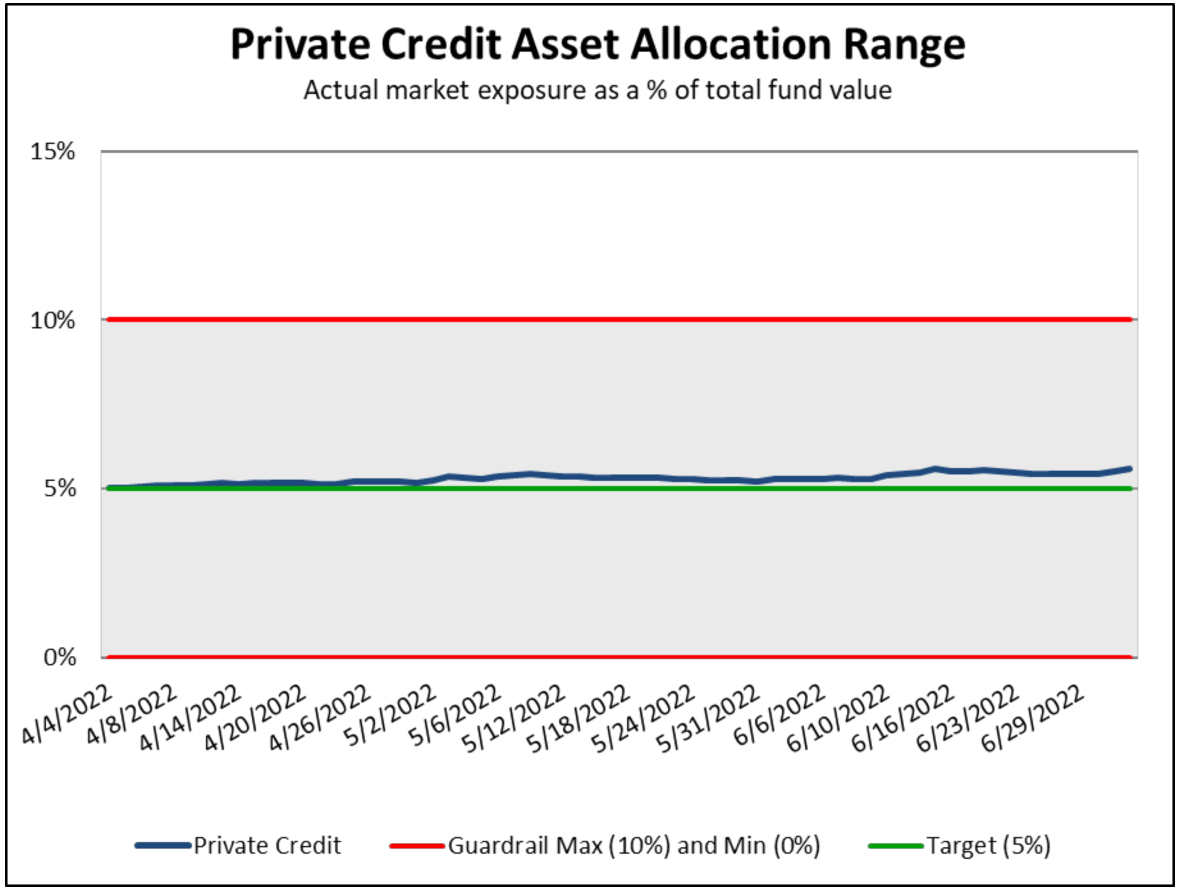




Comments: The Hedge Fund and Alt Beta has remained resilient during this volatile quarter when other areas of the portfolio sold off. This has led to overweights in both asset classes relative to target allocations. Rebalancing efforts during the quarter and at the end of the quarter brought the allocations closer to target weights.

MOSERS Quarterly Risk Report

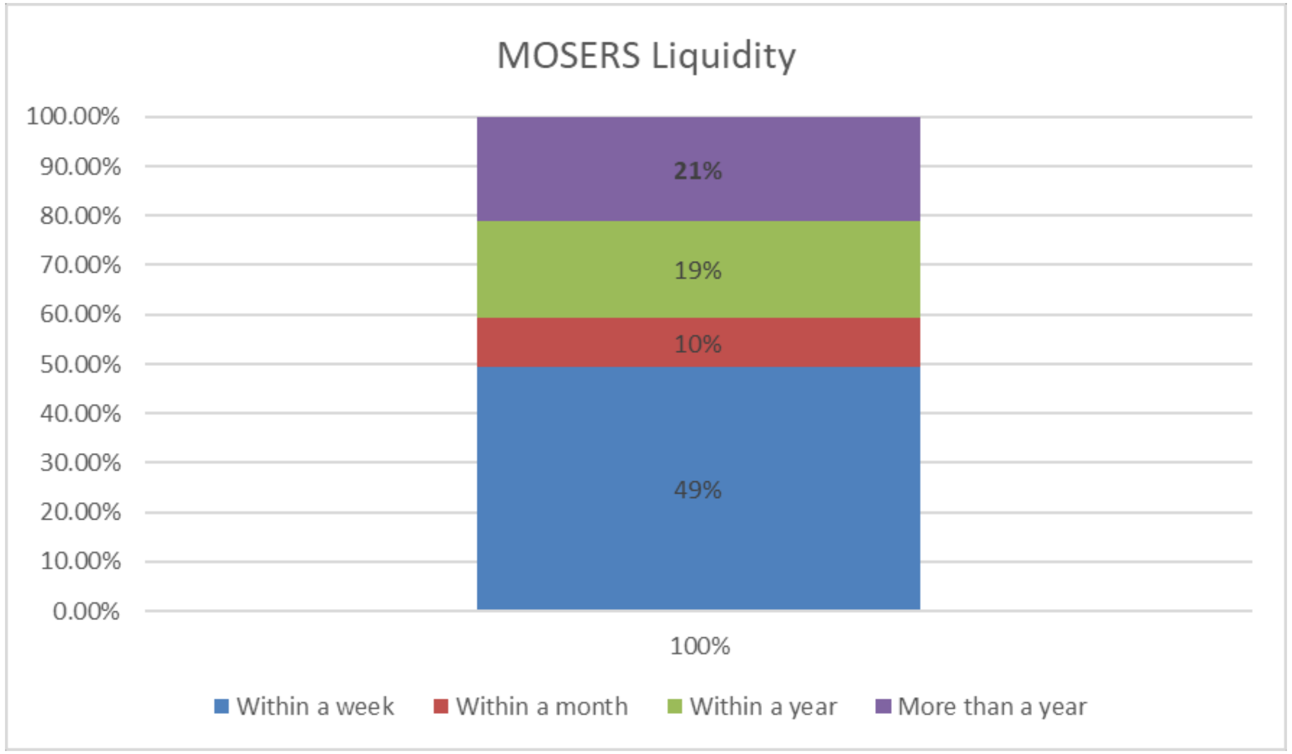
Absolute Return - Strategy Ranges



Comments: Private Credit investments remained close to target throughout the quarter. Private credit increased slightly relative to the target weight due to better performance than other assets classes.

MOSERS Quarterly Risk Report

Liquidity



Comments: Based on the liquidity profile of the underlying investments, approximately 59% of the portfolio could theoretically be converted to cash within one month. This metric indicates a high level of liquidity compared with MOSERS' monthly cash needs.

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Legislative Program Report for 2022

September 22, 2022

Item Type: **Informational**

Executive Summary

As in the last 3 legislative sessions, MOSERS, along with MPERS, will pursue a clean-up bill.

Important Dates:

December 1, 2022	Prefiling of 2023 Legislative Proposals
January 4, 2023	First day of 2023 Legislative Session
May 12, 2023	Last Day of Session

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Information Only

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MOSERS Defined Contribution Plans *Activity*

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

As of: July 31, 2022

Prepared by: *Cindy Rehmeier, Manager of Defined Contribution Plans*

mo deferred comp

State of Missouri Deferred Compensation Plan

Plan Data:

	7/31/2022	12/31/2021	12/31/2019	12/31/2017	12/31/2015
Total Plan Assets	$2,607,555,815	$2,857,366,375	$2,333,963,526	$2,142,192,162	$1,822,927,446
457 Assets	$1,978,844,273	$2,164,225,177	$1,663,837,384	$1,531,070,247	$1,318,230,285
401(a) Assets	$628,711,542	$693,141,198	$670,126,142	$611,121,915	$504,697,161
Roth 457 Assets	$77,188,301	$78,345,651	$40,152,134	$21,113,124	$9,169,069
Total Plan Participants	70,828	69,246	67,730	63,809	63,818
Active Participants	37,379	36,709	41,230	40,559	39,710
Separated/Retired Participants	33,449	32,536	26,500	23,250	24,108
Participants in Roth 457	9,080	8,160	6,393	4,284	2,932
Participation Rate-State Employees – excludes universities	80.1%	76.8%	75.3%	73.2%	71.0%
457 Average/Median Account Balance	$28,914/ $4,431	$32,414/ $5,256	$25,534/ $4,527	$24,860/ $5,239	$21,693/ $4,763
Average/Median Monthly Contribution	$165.00/ $56	$165.00/ $50	$140.16/ $50	$130.40/ $50	$127.13/ $50

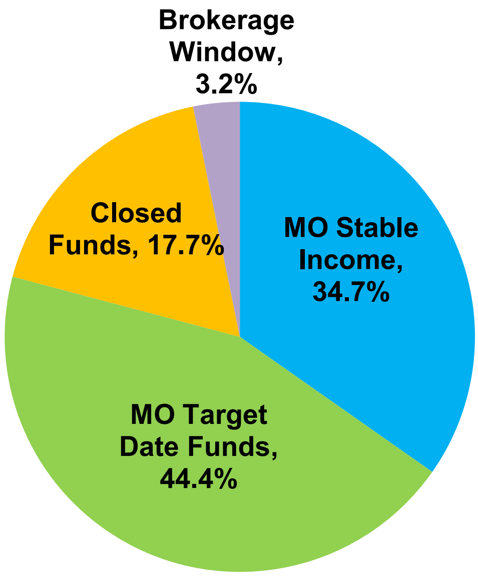
Plan Cost Data:

	Plan	Avg. Peer Data
Total Plan (avg. investment management fees)	0.22%	0.25%*
• MO Target Date Funds & Stable Income	0.14%	
• Frozen/Closed Funds	0.52%	
Total Recordkeeping/Internal Administration Cost	0.10%	0.13%*
MO Custom Target Date Funds (avg. investment mgmt. fee)	0.09%	0.34%**

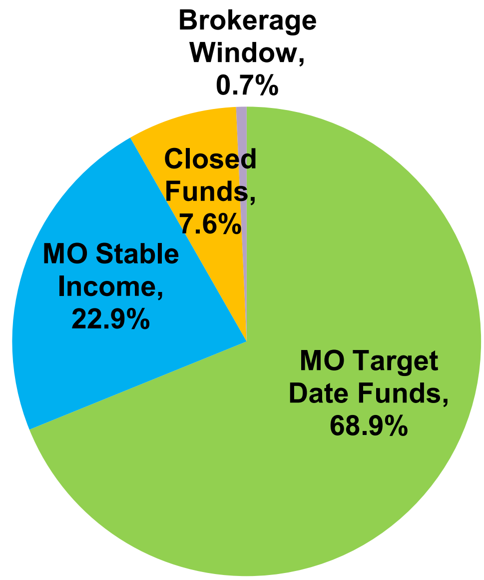
*NAGDCA 2019 Plan Survey – National Association of Government Defined Contribution Administrators, Inc.& Plansponsor DC Industry Report 2021
**Morningstar - Avg. Retail Target Date Fund, 2021

Plan Assets:

Plan Asset Allocation



Future Allocations



Performance:

Investment Options	1 year	3 year	5 year	10 Year	Since Inception
ING Stable Income[1]	1.85%	2.32%	2.33%	2.30%	2.77%
Missouri Retirement Allocation Fund[2]	-4.74%	3.83%	3.78%	3.45%	5.14%
Missouri 2010 Fund[2]	-4.96%	4.88%	4.67%	5.14%	7.52%
Missouri 2015 Fund[2]	-5.34%	5.90%	5.47%	6.07%	8.34%
Missouri 2020 Fund[2]	-6.04%	6.59%	6.04%	6.80%	8.97%
Missouri 2025 Fund[2]	-6.78%	6.91%	6.31%	7.34%	9.42%
Missouri 2030 Fund[2]	-7.62%	7.03%	6.48%	7.80%	9.67%
Missouri 2035 Fund[2]	-8.62%	7.01%	6.56%	8.02%	9.72%
Missouri 2040 Fund[2]	-9.29%	7.27%	6.73%	8.21%	9.83%
Missouri 2045 Fund[2]	-9.93%	7.52%	6.87%	8.32%	9.91%
Missouri 2050 Fund[2]	-10.23%	7.41%	6.81%	8.28%	9.88%
Missouri 2055 Fund[3]	-10.31%	7.41%	6.82%	8.28%	8.02%
Missouri 2060 Fund[4]	-10.32%	7.40%	6.80%	N/A	6.66%
Missouri 2065 Fund[5]	-10.23%	N/A	N/A	N/A	5.03%

[1] Inception Date of June 6, 2006
[2] Inception Date of April 9, 2009
[3] Inception Date of January 26, 2010
[4] Inception Date of December 22, 2014
[5] Inception Date of January 21, 2020

Calendar Year-to-Date 2022

Fund Transfer Activity:

	Balance	Transfers In	Transfers Out	Net Transfers
Target Date Funds	$1,157,287,703	$21,161,148	($46,536,049)	($25,374,901)
Stable Income	$905,947,185	$41,949,101	($10,849,612)	$31,099,489
Brokerage	$83,202,025	$3,335,185	($2,846,763)	$488,422
Closed Funds	$461,118,901	$0	($6,213,010)	($6,213,010)
TOTAL	**$2,607,555,901**	**$66,445,433**	**($66,445,433)**	

Plan Contribution Activity:

Contribution Type	Amount
Employee Contributions – Pre-Tax	$32,819,412
Employee Contributions - Roth	$10,134,359
Employer Contributions	$615,251
Rollovers in	$46,534,701
TOTAL	**$90,103,723**

Plan Distribution Activity:

Distribution Type	Amount
Installment Payments	-$7,680,710
Lump Sum Withdrawal	-$34,341,245
Required Minimum Distribution	-$1,032,260
De Minimis Payment	-$391,205
Unforeseen Emergency Withdrawal	-$464,501
Automatic Enrollment Refund	-$2,462
Rollover	-$39,636,520
Service Credit Purchase	-$1,614,499
TOTAL	**-$85,163,404**

Participant Contribution Transactions (excludes auto-enroll activity):

Increased Contribution	16,309
Decreased Contribution	1,390
Stopped Contribution	2,660

Automatic Enrollment/Voluntary Automatic Increase Data:

Inception* – Current (still actively employed)

# of Automatically enrolled employees	20,009
# Opted out of automatic enrollment	1,534
# Automatically Enrolled & Increased Contribution	8,557
Net automatically enrolled	18,475
Opt-out rate	7.7%
Automatic enroll success rate	92.3%
Automatic increase enrollments (opt-ins)	3,565
Total Auto-Enrolled Assets	$81,464,672
Average Contribution (per pay period)	$58.03
Automatic Enrollment Success in CY2021	95.6%

*Inception dates are July 1, 2012 for automatic enrollment and March 1, 2013 for automatic increase

Communications/Engagement Statistics:

Call Center

	Total # of Calls Received	# of Calls Received at Local Office	% of Calls Received by Local Office	# of Calls Received by VRU
Month/CYTD	3,134/15,919	2,942/15,010	94%/94%	2,823/21,557

Meetings & Consultations

	Local Office Walk-ins	# of Live Seminars	Live Seminar Attendance	# of Webinars	Webinar Attendance	In-Person Consultations	Virtual Consultations
Month/CYTD	90/608	27/159	1,206/3,638	24/198	213/1,709	359/1,997	525/2,384

Video

	Views	Estimated Minutes Watched	Average View Duration	Retention
Month	3,051	3,503	1:23	77%
All-Time – 222 Videos	**167,926**	**265,242**	**1:34**	**69%**

Website (modeferredcomp.org) & Account Access – Monthly Statistics

Website Visits	50,995
Website Unique Users	41,113
Account Access Logins	55,859

Social Media Following

Facebook	1,263
Instagram	142
Twitter	230
YouTube	224
LinkedIn	151

Email Marketing (Seminars, Surveys, Active/Term Outreach)– Monthly Statistics

Emails Sent	Unique Opens	Avg. Open Rate	Click Through Rate
122,831	45,014	36.6%	4.0%

Participants on E-Delivery

Active	37,005	99% of population
Separated	28,766	86% of population

Colleges & Universities Retirement Plan

Plan Data:

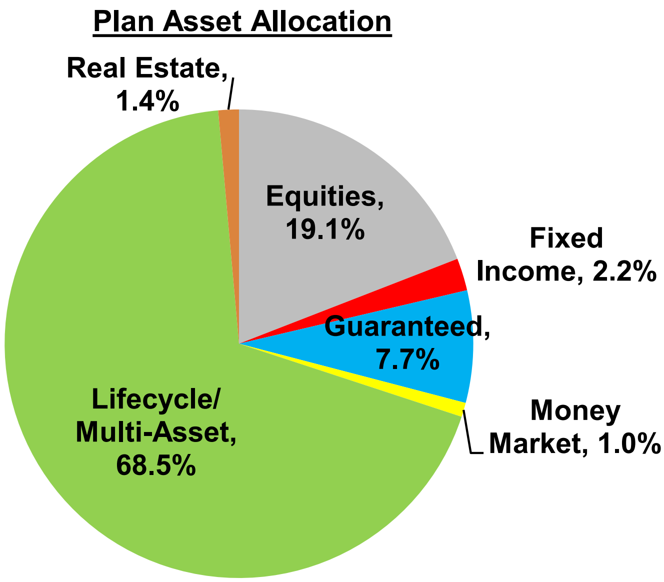
	07/31/2022	12/31/2021	12/31/2019	12/31/2017	12/31/2015
Total Plan Assets	$137,102,734	$153,007,516	$112,314,984	$89,194,140	$64,194,357
Total Plan Participants	3,364	3,395	3,327	3,076	2,564
Active Participants	2,050	2,392	2,563	2,348	1,931
Separated/Retired Participants	1,314	1,003	764	728	723
Participants receiving Employer Contribution	1,432	1,613	1,720	1,686	1,582
Participants contributing mandatory 2%	547	641	407	N/A	N/A
Participants eligible to transfer to a MOSERS DB Plan	691	762	728	1,077	N/A
Transfers to a MOSERS DB Plan to date	515	497	365	281	171
Average Account Balance	$38,642	$45,068	$33,759	$28,997	$24,188
Median Active Balance	$26,149	$27,233	$18,316	$17,124	$12,380
Average balance for actives w/10+ years in CURP	$80,811	$89,761	$67,026	$73,240	$64,920

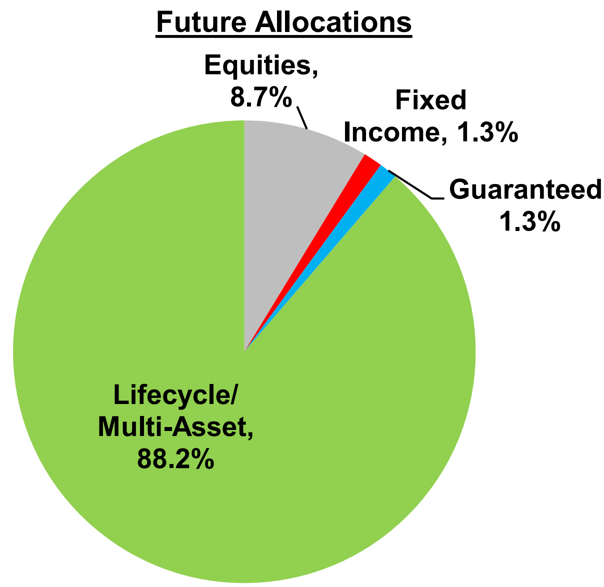
Plan Cost Data:

	CURP	Peers – Plans under $200mm*
TOTAL Plan Cost	0.32%	0.41%
Administrative Cost	0.21%	0.27%
Average Investment Management Cost	0.11%	0.14%

*NAGDCA 2019 Plan Survey – National Association of Government Defined Contribution Administrators, Inc.

Plan Assets:





Performance:

Investment Options	1 year	3 year	5 year	10 year
Lifecycle Index 2010 Fund (TLTRX)	-8.18%	4.11%	4.58%	5.49%
Lifecycle Index 2015 Fund (TLGRX)	-8.46%	4.52%	4.95%	6.04%
Lifecycle Index 2020 Fund (TLWRX)	-8.85%	4.88%	5.32%	6.66%
Lifecycle Index 2025 Fund (TLQRX)	-9.17%	5.53%	5.88%	7.40%
Lifecycle Index 2030 Fund (TLHRX)	-9.57%	6.17%	6.43%	8.13%
Lifecycle Index 2035 Fund (TLYRX)	-9.97%	6.78%	6.96%	8.84%
Lifecycle Index 2040 Fund (TLZRX)	-10.15%	7.48%	7.52%	9.41%
Lifecycle Index 2045 Fund (TLMRX)	-10.27%	8.20%	8.02%	9.73%
Lifecycle Index 2050 Fund (TLLRX)	-10.38%	8.34%	8.13%	9.82%
Lifecycle Index 2055 Fund (TTIRX)	-10.39%	8.43%	8.21%	9.90%
Lifecycle Index 2060 Fund (TVITX)	-10.41%	8.56%	8.30%	N/A
Lifecycle Index Ret. Income Fund (TRCIX)	-8.28%	4.14%	4.58%	5.14%
TIAA-CREF Intl. Equity Index (TCIEX)	-13.75%	3.77%	2.84%	6.05%
Vanguard Total Stock Market Index (VTSAX)	-7.77%	12.42%	12.11%	13.41%
Vanguard REIT Index (VGSLX)	-4.35%	7.14%	7.21%	8.17%
Vanguard Total Bond Market Index (VBTLX)	-8.65%	0.36%	1.17%	1.68%
Vanguard Inflation Protected Securities (VAIPX)	-3.53%	4.32%	3.84%	1.88%
CREF Social Choice Account	-9.21%	6.11%	6.38%	7.50%
TIAA TRADITIONAL Account	3.80%	3.85%	3.94%	4.15%

Calendar Year-to-Date 2022

Fund Transfer Activity:

	Balance	Transfers In	Transfers Out	Net Transfers
Equities	$26,187,540	$433,588	($178,172)	$255,416
Fixed Income	$3,057,630	$219,281	($98,681)	$120,600
Guaranteed	$10,605,809	$136,285	($41,221)	95,063
Money Market	$1,349,113	$29,723	$0	$29,723
Multi-Asset/Target Date	$93,960,257	$223,100	($723,902)	($500,802)
Real Estate	$1,942,385	$0	$0	$0
TOTAL	**$137,102,734**	**$564,321**	**($1,041,976)**	

Plan Contribution Activity:

Contribution Type	Amount
Employee Contributions	$510,268
Employer Contributions	$4,140,892
Rollovers in	$4,109
TOTAL	**$4,655,269**

Plan Distribution Activity:

Distribution Type	Amount
Annuity Settlement Options	-$485,404
Death Benefits	-$409,998
Installment Payments	-$167,250
Lump Sum Withdrawal	-$2,574,539
TOTAL	**-$3,637,191**

Communications/Engagement Statistics *(rolling 12 months ended June 30, 2022):*

Secure Web Log Ins	738
Unique Participant Inbound Calls	85
Online Self-Service Advice Sessions	83
Online Assisted Advice Sessions	36
Field Counseling Sessions	45
Core Campaign Education Contacts	1,563
Beneficiary Update	127

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Operations

ACTIVITY REPORT

September 2022

Member Population

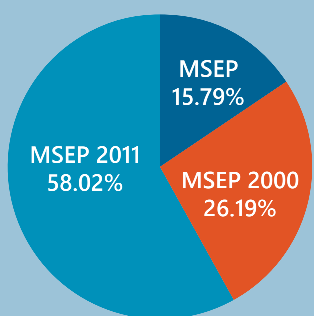
As of Aug 30, 2022

Active	42,519
Disabled	573
On leave	110
Inactive vested	17,464
MSEP 2011 inactive not vested	29,169
Retired	48,597
Ex-spouse	318
Survivor	4,723
Total	143,473

Source: YNEWCT008302022

Active Members by Plan

As of Aug 30, 2022



MOSERS will strive to:

1. Ensure members and their beneficiaries receive high quality services from MOSERS staff;
2. Provide members and their beneficiaries with access to information about the benefits administered by MOSERS in a cost-effective and timely manner;
3. Ensure members and their beneficiaries receive updates that are individualized regarding plan changes and distributed effectively and efficiently;
4. Ensure benefit recipients receive their payments in a cost-effective and timely manner; and,
5. Ensure the security and accuracy of member records.

MOSERS

Update on the New Pension Administration System

For more than 30 years, the MOSERS Integrated Benefits System (MIBS) has aided MOSERS staff in providing very high levels of service to stakeholders, but it is nearing the end of its life expectancy. Ensuring that MOSERS can continue to meet or exceed expectations for years to come involves replacing MIBS with a modern system. This is no small feat and involves effort and input from nearly all staff members along with the support of all participating employers.

In 2016, MOSERS created a Project Management Office with the mission of successfully replacing MIBS with a new pension administration system (PAS). By the end of 2017, we had executed multiple contracts with pension industry experts to address conditioning and governance of MOSERS data, creation of a pension industry standard RFP, procurement support, and project management oversight. By the end of 2018, we had assembled all the tools and staffing needed to implement the new PAS, which we dubbed Phoenix. Since then, MOSERS staff, along with our vendors, have diligently worked on documenting, designing, developing, and testing Phoenix's workflows and processes with a focus on data integrity and efficiency.

As of Fall 2022, Phoenix's tested functionality is approximately 90% complete. We have entered the final design iteration of the project plan in addition to beginning preparation for training staff, employers, and other end users. This represents Phase 4 of 5 for the project and focuses on validating all the work that has happened over the past few years so that Phoenix can be deployed and immediately leveraged to the benefit of everyone who interacts with MOSERS, whether it be the CFO from a university, ensuring that payroll data is submitted successfully, or the beneficiary of a deceased member still receiving benefit payments.

As of Fall 2022, Phoenix's tested functionality is approximately 90% complete.

The coming 6-18 months will hold many critical milestones for MOSERS and for the implementation of Phoenix. Documentation and training materials will be finalized. Staff and key stakeholders will participate in the final rounds of user acceptance testing, regression testing, parallel testing, security testing and configuration. Staff will define "Go/No-Go" criteria, which they will continually assess leading up to our projected deployment in the spring of 2023. Post-deployment support will begin immediately upon deployment and will formally kick off a new era of MOSERS, to the benefit of our members.

We are excited and cautiously optimistic to begin reaping the benefits of the resources and years of hard work and sacrifice that have been put into this effort!

Remember to visit the Dashboard on the Board Website to view the latest data on MOSERS members and service levels.

Preparing Phoenix Training for Staff and Employer Reps

We are working with Carole Jarvis, a training specialist with Linea Solutions, to assess, design, develop, implement, and evaluate Phoenix training for employer reps and MOSERS staff.

Candy Smith in the Communications & Education section is serving as the MOSERS point person for Carole. Several other staff members are heavily involved as well, especially Jamie Mullen and Shelley Lehmann in the Employer Services Section, and Amber Arnold, Education Supervisor.

To-date, we have already produced a training needs assessment. We are also working on:

- A training strategy document,
- An employer training plan, and a
- MOSERS staff training plan.

Sr. Communications Analyst, Tracy Upschulte, has worked with staff from Employer Services to develop two process maps for future users: **Capturing Leave Events in Phoenix** and **Reporting Termination Dates**, and we have started work on course outlines, quick reference guides, and handouts.

Heather Dulle with the PMO has set up several different environments to use for testing and training purposes.

Angie Voss, Sheila Hock, and Paul Salarano in IT are configuring our existing Seminar Enrollment Program so we can use it for Phoenix Training. They have made significant progress to allow us to use our existing resources to schedule, enroll, and track Phoenix training for both MOSERS staff and employer reps.

Employer Reps

- The draft employer plan includes four courses specifically for employer reps.
- We anticipate developing videos and quick reference guides for topics that relate to a small number of members, occur infrequently, or are seasonal.
- We will send out a survey to employer reps in mid-September to gather more information needed for employer training.
- We will host an employer webinar in October to provide a live sneak peek into Phoenix with emphasis on several advantages for employer reps in Phoenix such as no more transfer and termination forms and how the Phoenix process will result in a higher degree of accuracy related to member salary and service data!

MOSERS Staff

- The draft training plan for MOSERS staff includes courses specifically for MOSERS staff. Some staff may also want to take courses for employer reps to better understand their interactions with Phoenix.
- Training will include quick reference guides, manuals, and various handy job aids – both hard copy and online.
- We will begin the Phoenix Sandbox Challenge in September. It will provide a fun introductory way for staff to start digging in the sandbox (*secure test environment*) and discovering where to find member data and how to process typical tasks in the new system.

Assuming a Phoenix go-live launch in March 2023, we plan to start posting training opportunities in December and will begin conducting formal training in January/February.

PHOENIX MOSERS

Benefits of Phoenix

Employers

- Easier to use and more intuitive
- More transparency and access to information

MOSERS Staff

- More nimble through a single integrated solution
- Improved security

Employers & MOSERS Staff

- Sustained and improved customer service
- More efficient and increased automation
- Improved accuracy and controls

Missouri State Employees' Retirement System
Board of Trustees Meeting
MOSERS Office Building, 907 Wildwood Drive, Jefferson City, MO
www.gotomeeting.com, Meeting ID 729-609-221
September 22, 2022 – 9:00 a.m.
Agenda

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
BOARD EDUCATIONAL CONFERENCE
REGULAR SESSION MINUTES
MISSOURI STATE CAPITOL, SENATE LOUNGE, JEFFERSON CITY, MO
WITH OPTIONAL CONFERENCE CALL
JUNE 15, 2022 – 9:00 A.M.

Ms. Crystal Wessing, Mr. Gary Findlay, Commissioner Ken Zellers, Rep. Rusty Black, Sen. Paul Wieland, Mr. Joe Keifer, Ms. Jenny Jacobs, Treasurer Scott Fitzpatrick, and Mr. Gary Metzger attended in person. Rep. John Wiemann attended via telephone. Ms. Stacy Neal, designee of the Commissioner, and Mr. Mike Price, designee of the Treasurer, attended in person as guests.

Attending from MOSERS: Ronda Stegmann, Executive Director; Abby Spieler, Deputy Executive Director/General Counsel; TJ Carlson, Chief Investment Officer; Tyson Rehfeld, Deputy Chief Investment Officer; Scott Hankins, Managing Director – Investment Risk & Operations; Cindy Rehmeier, Manager of Defined Contribution Plans; Paul Moyer, Chief Technology Officer; Lisa Verslues, Human Resources Officer; and Melissa Johnson, Board Administrator. Nicki Russell, Chief Auditor; Patrick Morgan, Legal and Compliance Counsel; Shelby Murdock-Kempf, Associate Counsel; Candy Smith, Communications and Public Information Officer; Andrea Binkley, Chief Benefits Officer; Lindsey Evers, Internal Auditor; Jeremy Pond, Chief Financial Officer; and Pettina Duenckel, Executive Project Coordinator, attended via telephone.

Tom Litz, Thompson Coburn; Eileen Neill, Verus Investments; Pat Beckham, and Bryan Hogue, Cavanaugh Macdonald Consulting; and Vivek Ramaswamy, Strive Asset Management, attended in person.

The Board held its annual educational conference in the Senate Lounge of the Missouri State Capitol.

The topics listed on the attached agenda were presented and discussed.

Senator Wieland moved to adjourn the meeting. Ms. Jacobs seconded. Motion carried.

Crystal Wessing, Chairwoman	Ronda Stegmann, Executive Director

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
BOARD OF TRUSTEES MEETING
REGULAR SESSION MINUTES
MOSERS OFFICE, 907 WILDWOOD DRIVE, JEFFERSON CITY, MO
WITH OPTIONAL CONFERENCE CALL
JUNE 16, 2022 – 9:00 A.M.

Ms. Crystal Wessing, Mr. Gary Findlay, Mr. Joe Keifer, Mr. Gary Metzger, Ms. Jenny Jacobs, Commissioner Ken Zellers, Treasurer Scott Fitzpatrick, and Sen. Paul Wieland attended in person. Rep. John Wiemann and Sen. John Rizzo attended via telephone. Mr. Mike Price, designee of the Treasurer, and Ms. Stacy Neal, designee of the Commissioner, attended the meeting in person, as guests.

Attending from MOSERS: Ronda Stegmann, Executive Director; Abby Spieler, Deputy Executive Director/General Counsel; TJ Carlson, Chief Investment Officer; Tyson Rehfeld, Deputy Chief Investment Officer; Scott Hankins, Managing Director – Investment Risk & Operations; Cindy Rehmeier, Manager of Defined Contribution Plans; Jeremy Pond, Chief Financial Officer; Paul Moyer, Chief Technology Officer; Pettina Duenckel, Executive Project Coordinator; and Melissa Johnson, Board Administrator. Nicki Russell, Chief Auditor; Patrick Morgan, Legal and Compliance Counsel; Shelby Murdock-Kempf, Associate Counsel; Candy Smith, Communications and Public Information Officer; Andrea Binkley, Chief Benefits Officer; and Lisa Verslues, Human Resources Officer, attended via telephone.

Pat Beckham, Cavanaugh MacDonald Consulting; Tom Litz, Thompson Coburn; and Eileen Neill, Verus Investments, attended in person.

Attendance roll call was taken.

Mr. Metzger moved to approve the regular session minutes from the February 18, 2022 Board meeting. Mr. Findlay seconded. Motion carried.

Mr. Findlay moved to approve the regular session minutes from the March 3, 2022 Special Board Meeting. Mr. Metzger seconded. Motion carried.

Ms. Beckham provided information on how the passage of HB 3005, which provides an extraordinary payment of $500 million to MOSERS, would impact the employer contribution rate for FY24. Mr. Findlay moved to recognize the $500 million dollar payment immediately to lower the assumption rate. Mr. Jacobs seconded. Mr. Findlay withdrew his motion. Ms. Jacobs withdrew her second. Mr. Findlay moved to recognize half of the $500 million dollar payment to lower the assumption rate. Ms. Jacobs seconded. Mr. Findlay withdrew his motion. Ms. Jacobs withdrew her second. After Board discussion, Sen. Rizzo moved to accept the $500 million dollar payment and reduce the unfunded liability. Treasurer Fitzpatrick seconded. Motion carried.

Ms. Stegmann discussed two proposed budget amendments. Mr. Metzger moved to approve an FY23 budget amendment of $57,600 to cover an increase in MOSERS employer match for Deferred Compensation, should such a match be signed by the Governor. Commissioner Zellers seconded. Motion carried. Ms. Jacobs moved to approve a FY23 budget amendment of $50,000 to increase the actuarial services budget for additional analysis of a legislative proposal to materially modify the future membership of the system. Mr. Metzger seconded. Motion carried.

Ms. Neill presented MOSERS 1st Quarter summary performance report.

Mr. Carlson presented MOSERS 1st Quarter investment summary report.

Ms. Stegmann discussed potential revisions to the Investment Policy Statement regarding development of a proxy voting policy.

In accordance with Section 610.021, RSMo, Treasurer Fitzpatrick moved to go into executive session for the purpose of hearing legal advice regarding the proxy voting policy and the Investment Policy Statement. Mr. Keifer seconded. A roll call vote was taken. Mr. Findlay, Treasurer Fitzpatrick, Ms. Jacobs, Mr. Keifer, Mr. Metzger, Sen. Rizzo, Sen. Wieland, Rep. Wiemann, Ms. Wessing, and Commissioner Zellers voted in favor of the motion. Motion carried.

Upon return to open session, Sen. Wieland moved to instruct Blackrock to send us our proxies and for the Investment Committee and MOSERS staff to develop a proxy voting policy. Treasurer Fitzpatrick seconded. Mr. Keifer moved to amend the motion to instruct Blackrock to stop voting our proxies, send us our proxies, and for the Investment Committee and MOSERS staff to develop a proxy voting policy. Treasurer Fitzpatrick seconded. Treasurer Fitpatrick moved to amend the motion to instruct Blackrock to stop voting our proxies, send us our proxies, and instructed staff to abstain from voting those proxies while the proxy voting policy is being considered and adopted by the Board through the Investment Committee. Sen. Wieland seconded. Mr. Metzger moved to amend the motion to instruct Blackrock, and NISA as it applies to our REITS portfolio, to stop voting our proxies, send us our proxies, and instructed staff to abstain from voting those proxies while the proxy voting policy is being considered and adopted by the Board through the Investment Committee. Treasurer Fitzpatrick seconded. Motion carried.

Mr. Hankins presented the quarterly risk report.

Mr. Keifer provided the Investment Committee report. Mr. Keifer moved to approve the proposed private equity benchmark modifications, as presented. Mr. Metzger seconded. Motion carried.

Mr. Metzger provided the Strategic Planning and Governance Committee report. Mr. Metzger moved to adopt the FY23-25 Strategic Plan, as presented. Mr. Keifer seconded. Motion carried.

Ms. Stegmann discussed proposed revisions to the MOSERS Governance Manual. Mr. Metzger moved to approve proposed revisions to the Board Expense Reimbursement Policy. Mr. Findlay seconded. Motion carried. Mr. Metzger moved to approve proposed revisions to the Personal Trading Policy. Mr. Keifer seconded. Motion carried.

Ms. Jacobs provided the Audit Committee report.

Ms. Stegmann provided the legislative report.

Ms. Wessing discussed the proposed FY23 Executive Director Performance Evaluation. Mr. Metzger moved to approve the FY23 Executive Director Performance Evaluation, as presented. Mr. Findlay seconded. Motion carried.

In accordance with Section 610.021, RSMo, Mr. Findlay moved to go into executive session for the purpose of approving the minutes, discussing service provider contracts, hearing the legal/litigation report, and discussing personnel matters. Mr. Keifer seconded. A roll call vote was taken. Rep. Black, Mr. Findlay, Treasurer Fitzpatrick, Ms. Jacobs, Mr. Keifer, Mr. Metzger, Sen. Wieland, Ms. Wessing, and Commissioner Zellers voted in favor of the motion. Motion carried.

Upon return to open session, Mr. Metzger moved to adjourn the meeting. Mr. Findlay seconded. Motion carried.

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Crystal Wessing, Chairwoman   Ronda Stegmann, Executive Director

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
BOARD OF TRUSTEES MEETING
REGULAR SESSION MINUTES
MOSERS OFFICE, 907 WILDWOOD DRIVE, JEFFERSON CITY, MO
WITH OPTIONAL CONFERENCE CALL
JULY 18, 2022 – 12:30 P.M.

Ms. Crystal Wessing, Mr. Gary Findlay, Mr. Gary Metzger, Ms. Jenny Jacobs, Mr. Mike Price, designee of the Treasurer, and Commissioner Ken Zellers attended in person. Rep. Rusty Black, Sen. John Rizzo, and Mr. Joe Keifer attended the meeting via telephone.

Attending from MOSERS: Ronda Stegmann, Executive Director; and Melissa Johnson, Board Administrator.

Tom Litz, Thompson Coburn, attended in person.

In accordance with Section 610.021, RSMo, Mr. Metzger moved to go into executive session to discuss personnel matters. Mr. Findlay seconded. A roll call vote was taken. Rep. Black, Mr. Findlay, Mr. Price, Ms. Jacobs, Mr. Keifer, Mr. Metzger, Sen. Rizzo, Ms. Wessing, and Commissioner Zellers voted in favor of the motion. Motion carried.

Upon return to open session, Mr. Metzger moved to adjourn the meeting. Ms. Jacobs seconded. Motion carried.

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Crystal Wessing, Chairwoman	Ronda Stegmann, Executive Director

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Tentative Schedule for MOSERS 2023 Board Meetings

Friday, February 17, 2023	**9:00 a.m.**	**First Quarter Board Meeting**
Friday, April 21, 2023	**9:00 a.m.**	**Tentative – If Needed**
Wednesday, June 14, 2023	**TBD**	**Board Educational Conference**
Thursday, June 15, 2023	**9:00 a.m.**	**Second Quarter Board Meeting**
Thursday, September 21, 2023	**9:00 a.m.**	**Third Quarter Board Meeting**
Thursday, November 16, 2023	**9:00 a.m.**	**Fourth Quarter Board Meeting**

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

FY23 Executive Director Performance Evaluation Criteria

September 22, 2022

Item Type: **Action**

Action: *Approval of the proposed FY23 Executive Director Performance Evaluation Criteria*

Executive Summary

In accordance with the Executive Director Evaluation governance policy, which in part states,

> "At the regularly scheduled Board meeting held in the second quarter, the Board, working with the Executive Director, should adopt a set of performance goals and criteria to be used in evaluating the performance of the Executive Director for the upcoming fiscal year."

As discussed at the June 2022 Board meeting, included in the Board materials is the proposed revision to the performance evaluation form for Incoming Director Spieler's FY23 performance evaluation which will be conducted in September 2023. This performance evaluation form is considered the "set of performance goals" described in the governance policy.

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MOSERS

Executive Director Evaluation Form

To facilitate MOSERS' governance model, the MOSERS Board of Trustees will provide the Executive Director with feedback regarding performance from the previous fiscal year during the 3rd quarter meeting of the Board. It is the opinion of the Board of Trustees that every MOSERS employee, including the leadership positions, benefits from a review of one's performance.

Instructions: Rate the Executive Director on each of the following items using the rating scale below.

Rating Scale:

5 Superior performance – performance consistently exceeds expectations, adds value to the job/task through anticipating risks and opportunities and works from a strategic position instead of a reactive position, performance is clearly outstanding and obvious to others.

4 Above average performance – performance frequently exceeds expectations, performance is consistent, direction is required for only the most difficult and/or critical tasks, anticipates and deals with problems independently.

3 Satisfactory performance – performance meets expectations, results are consistent, performs duties and responsibilities of the job in a capable manner with normal guidance.

2 Below expected performance, results achieved are below those expected of an experienced employee, required performance levels have been met (50-75% of the time), but not consistently or impactful underperformance in specific areas occurred.

1 Unsatisfactory performance, results achieved are below acceptable levels, required performance levels may have been met occasionally, and requires significant direction.

SECTION A: ORGANIZATIONAL MANAGEMENT

		High				Low
1	Administers the defined benefit, defined contribution, long-term disability, and life insurance plans according to policies and laws ensuring high customer service ratings and member engagement.	5	4	3	2	1
2	Ensures member communication for all benefits is complete, timely, and presented in an understandable level. Member communications delivery methods include websites, social media, publications, letters, emails, etc.	5	4	3	2	1
3	Ensures investment department operates efficiently, and in accordance with~~,~~ policies and the law.	5	4	3	2	1
4	Develops reasonable operating budgets and functions within approved budgetary limits, seeking exceptions and board input as needed.	5	4	3	2	1
5	Ensures proper risk management strategies are utilized including, but not limited to, audits, IT security strategies, organization insurance coverage, and business continuity planning.	5	4	3	2	1
6	Identifies administrative issues and resolves problems appropriately.	5	4	3	2	1
7	Ensures organizational policies are developed, relevant, updated, and adhered to throughout the organization.	5	4	3	2	1

Comments relative to Organizational Management:

SECTION B: LEADERSHIP

		High				Low
1	Develops and maintains effective relationships with the Board, staff, members of the general assembly, Governor and his/her staff members, other retirement systems, and other benefit providers.	5	4	3	2	1
2	Develops effective relationships with the media, responds appropriately to media requests and maintains a positive public image.	5	4	3	2	1
3	Demonstrates an ability to foresee ~~problems~~ challenges and utilizes preventative problem-solving strategies.	5	4	3	2	1
4	Ensures Board and Committee Chairs have appropriate meeting dynamic information, such as timing of motions.	5	4	3	2	1
5	Communicates with the Board to ensure compliance with statutory, fiduciary, and governance policy requirements. Notifies the Board of any instances of noncompliance by Board members or staff regarding Board policies, laws, or regulations in a timely manner.	5	4	3	2	1
6	Participates in relevant and worthwhile professional organizations.	5	4	3	2	1
7	Ensures the efficient and effective functioning of the System through delegation to the executive team.	5	4	3	2	1

Comments relative to Leadership:

SECTION C: COMMUNICATION

		High				Low
1	Transparent and candid communication to the Board on all issues affecting the plans and system.	5	4	3	2	1
2	Properly implements Board directives.	5	4	3	2	1
3	Works with Board and Committee chairs to develop agendas and provide appropriate and clear materials for meetings.	5	4	3	2	1
4	Represents MOSERS in an approachable and transparent manner.	5	4	3	2	1
5	Provides updates, guidance, and technical support on legislative and appropriation bills to Board members, policy makers, and other stakeholders.	5	4	3	2	1
6	Facilitates positive relationships and strives to educate MOSERS many constituencies.	5	4	3	2	1
7	Responds to Board members’ questions and comments to enhance Board member~~’~~s’ understanding of system matters.	5	4	3	2	1

Comments relative to Communication:

SECTION D: STAFF ENGAGEMENT & DEVELOPMENT High Low

		High				Low
1	Ensures staff are well trained by providing and supporting ongoing opportunities for continued development.	5	4	3	2	1
2	Prepares appropriately for turnover to ensure the continuation of high-productivity at reasonable costs. Ensures appropriate cross-training within the organization.	5	4	3	2	1
3	Effectively recruits, motivates, retains, disciplines, and when necessary, terminates staff.	5	4	3	2	1
4	Creates and maintains a strong culture that encourages staff retention and employee satisfaction and staff engagement.	5	4	3	2	1
5	Ensures employees have access to various modes of professional development and certifications (i.e. online classes, in person training, self-study materials, etc.)	5	4	3	2	1
6	Ensures staff receive adequate feedback regarding performance through regular communication and at least an annual, formal performance review.	5	4	3	2	1
7	Ensures sections are staffed appropriately to manage workloads and meet organizational goals.	5	4	3	2	1

Comments relative to Staff Engagement & Development:

SECTION E: MOSERS' STRATEGIC PLAN High Low

		High				Low
1	Facilitates the strategic planning process with the Board.	5	4	3	2	1
2	Conducts a SWOT analysis and establishes goals accordingly.	5	4	3	2	1
3	Establishes organizational goals (business plan) to ensure the implementation and achievement of strategic planning goals.	5	4	3	2	1
4	Communicates progress on the strategic plan to the Board.	5	4	3	2	1
5	Achieves strategic plan goals. The Executive Director shall not be held accountable for missed strategic plan deadlines IF the missed deadlines are a result of shifting priorities from the MOSERS Board of Trustees or due to significant unexpected events that take precedent over strategic planning goals. Examples include litigation, business interruption, legislation, and investment market crash.	5	4	3	2	1
6	Engages staff in the development and implementation of the strategic plan.	5	4	3	2	1

Comments relative to MOSERS' Strategic Plan:

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Adoption of FY24 Contribution Rates

September 22, 2022

Item Type: **Action**

Executive Summary: *At this meeting, the Board will certify the FY24 employer contribution rates for the MSEP and the Judicial Plan.*

Per Sections 104.436(2) and 104.1066(2), RSMo, at least ninety days before each regular session of the general assembly, the board shall certify to the division of budget the contribution rate necessary to cover the liabilities of the plan administered by the system, including costs of administration, expected to accrue during the next appropriation period. The commissioner of administration shall request appropriation of the amount calculated pursuant to the provisions of this subsection.

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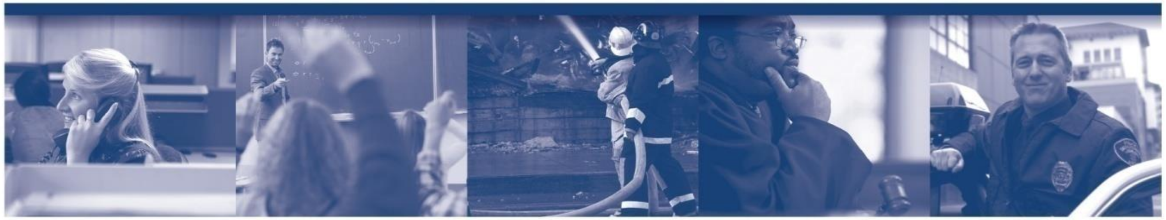
Missouri State Employees' Retirement System
June 30, 2022 Actuarial Valuation Results

Presented by

Patrice Beckham, FSA, EA, FCA, MAAA
Bryan Hoge, FSA, EA, FCA, MAAA

September 22, 2022



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Discussion Topics

- Legislation passed by 2022 General Assembly

- 2022 Actuarial Valuation Results for MSEP and Judicial (FY 2024 Contribution Rates)
  - Actual versus expected experience since June 30, 2021 valuation
  - Changes due to data refinement and programming changes resulting from actuarial audit recommendations

- Projections of future results

Legislation Passed in 2022 Session

- Legislation passed by 2022 General Assembly provided for an additional contribution of $500 million to MOSERS
  - Funds received on July 13, 2022
    - ✓ After the valuation date so not reflected in the asset values in this valuation.
    - ✓ In determining the actuarial contribution rate, the UAAL payment is calculated by rolling the UAAL forward one year. Absent the Board action in June, the additional contribution would have impacted the UAAL contribution rate and, therefore, the actuarial contribution rate.
    - ✓ In June, the Board elected not to reflect the additional contribution in setting the employer contribution rate.
  - June 30, 2022 valuation results: no impact on funded status (funded ratio and UAAL) or employer contribution rate

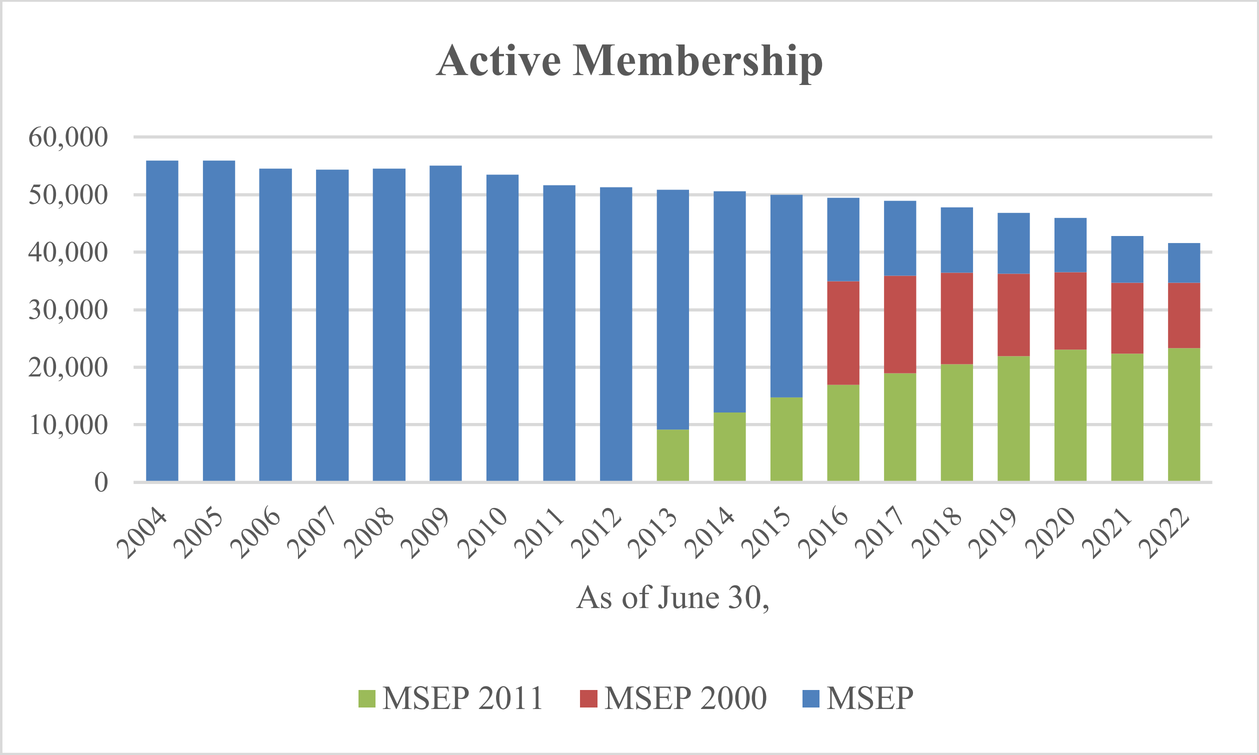
MSEP: Actual vs Expected Experience

- Investment return on market value basis for the year ending June 30, 2022 was -9.0%. With asset smoothing, the return on actuarial assets was 5.1%.
  - Resulted in $163M actuarial loss on actuarial assets
  - Deferred investment experience is now net loss of $646M vs net gain of $611M in 2021 valuation
  - Increased the actuarial contribution rate by 0.56%
- Net liability loss for fiscal year 2022 of $30M
  - Loss from larger salary increases than assumed
  - Loss from higher COLAs than anticipated
  - Increased the actuarial contribution rate by 0.10%
- Decline of 2.9% in active membership resulted in lower payroll growth than expected

MSEP Valuation Results

	June 30, 2022	June 30, 2021
Unfunded Actuarial Accrued Liability ($M)	$6,515	$6,201
Funded Ratio (Actuarial Assets)	57.72%	58.96%
Normal Cost Rate	8.81%	8.83%
UAAL Amortization Rate	20.49%	19.38%
Total Actuarial Required Contribution Rate	29.30%	28.21%
Member Contribution Rate	(2.04%)	(1.88%)
Employer Contribution Rate	27.26%	26.33%
Employer Contribution Amount ($M)	$576.3	$552.7

Total MSEP Active Membership



- 26% decline in the active membership since 2004 – majority since 2009. Nearly 3% decline from the 2021 to the 2022 valuation.
- MSEP 2011 currently has about 56% of the total actives in the plan

Note – Split between MSEP and MSEP 2000 is not available prior to June 30, 2016.
MSEP 2011 active counts are not available for June 30, 2011 or June 30, 2012.

Actuarial Value of Assets

- Market value not used directly in valuation

- Asset valuation method used to smooth the effect of market fluctuations
  - Goal is to provide more stability in contribution rates
  - Smoothed value is called *"actuarial value of assets*" and is used in all measurements in the valuation

- Change to closed five-year smoothing of actual versus expected return beginning in 2018 valuation, along with seven-year recognition of the deferred investment experience loss of $927 million as of June 30, 2017

Application of MSEP Asset Smoothing Method

Plan Year Ended	Asset Gain/(Loss)	Gain/(Loss) Recognized in Prior Years	Gain/(Loss) Recognized This Year	Gain/(Loss) Deferred to Future Years
6/30/2017	(927,023,550)	(529,727,744)	(132,431,936) *	(264,863,870)
6/30/2018	(1,637,715)	(1,310,172)	(327,543)	0
6/30/2019	(253,470,489)	(152,082,294)	(50,694,098)	(50,694,097)
6/30/2020	(147,410,621)	(58,964,248)	(29,482,124)	(58,964,249)
6/30/2021	1,497,671,183	299,534,237	299,534,237	898,602,709
6/30/2022	(1,462,493,315)	0	(292,498,663)	(1,169,994,652)
Total	(1,294,364,507)	(442,550,221)	(205,900,127)	(645,914,159)

A. Market Value of Assets as of June 30, 2022	$	8,248,414,597
B. Total Deferred Investment Experience	$	(645,914,159)
C. Actuarial Value of Assets as of June 30, 2022 (A. - B.)	$	8,894,328,756
D. Ratio of Actuarial Value to Market Value		107.8%

* The unrecognized investment experience as of June 30, 2017 will be recognized over a closed seven-year period.

Estimated rate of return on the actuarial value was 5.1% which produced an actuarial loss of $163 million.

Schedule of Deferred Actuarial Investment Experience

- If all assumptions are met in the future, this schedule shows how the deferred experience will be reflected in the actuarial value of assets over the next four years.

Plan Year Ended	Gain/(Loss) Deferred to Future Years	Gain/(Loss) to be Recognized in Plan Year Ending 2023	2024	2025	2026
6/30/2017	(264,863,870)	(132,431,936)	(132,431,934)		
6/30/2019	(50,694,097)	(50,694,098)			
6/30/2020	(58,964,249)	(29,482,124)	(29,482,125)		
6/30/2021	898,602,709	299,534,237	299,534,237	299,534,235	
6/30/2022	(1,169,994,652)	(292,498,663)	(292,498,663)	(292,498,663)	(292,498,663)
Total	(645,914,159)	(205,572,584)	(154,878,485)	7,035,572	(292,498,663)

MSEP: Actuarial and Market Value of Assets

	Market Value ($M)		Actuarial Value ($M)	
Net Assets, June 30, 2021	$	9,519.93	$	8,909.25
- Employer and Member Contributions	+	516.73	+	516.73
- Miscellaneous Income	+	0.01	+	0.01
- Benefit Payments	-	962.59	-	962.59
- Net Investment Income	-	816.42	+	440.18
- Administrative Expenses	-	9.25	-	9.25
Net Assets, June 30, 2022	$	8,248.41	$	8,894.33
Estimated Net Rate of Return		(9.0%)		5.1%

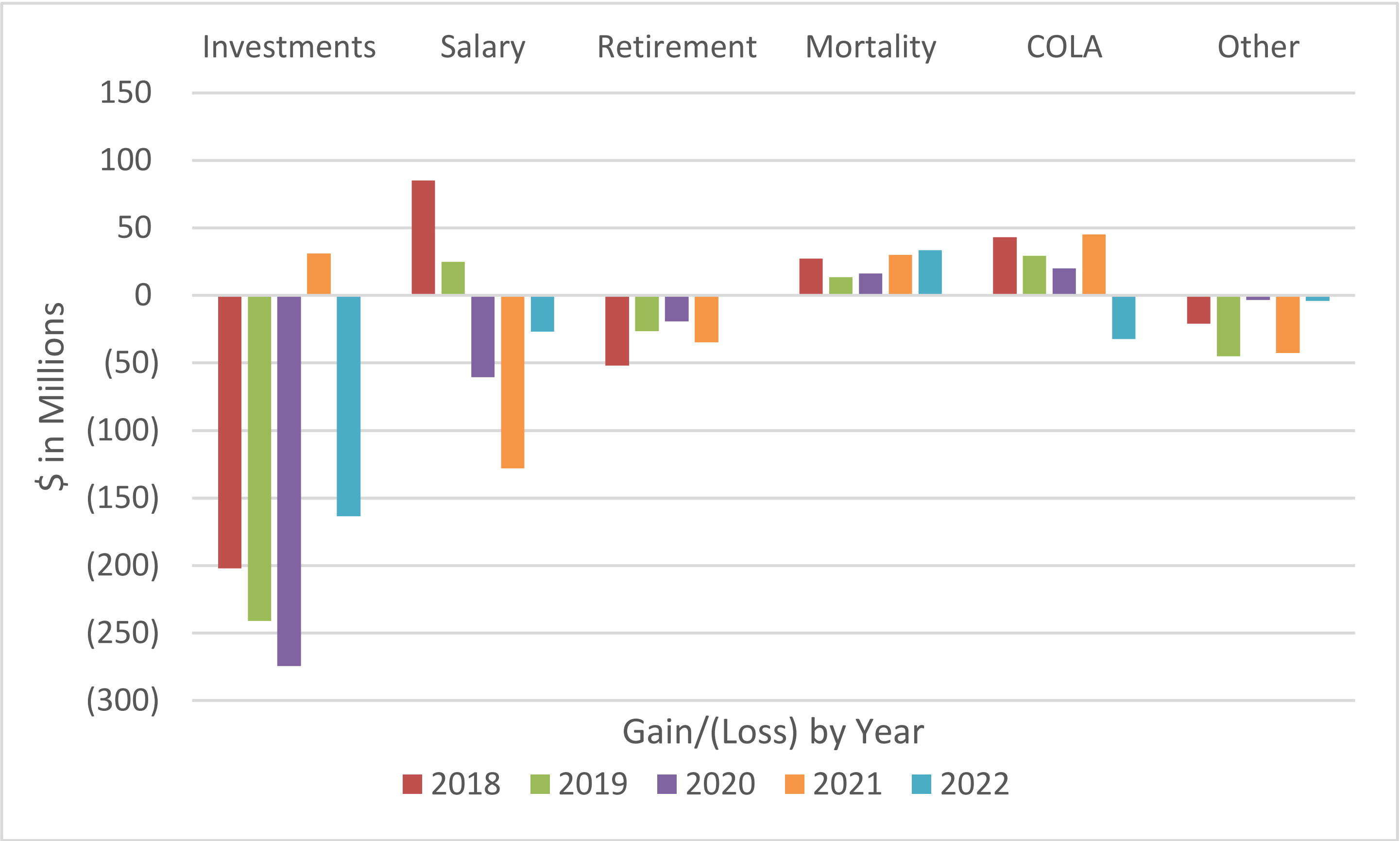
The return of 5.1% on the actuarial value of assets resulted in an actuarial loss of $163 million and changed the deferred investment experience from a net gain in last year's valuation to a net loss in the current valuation.

Change in MSEP Unfunded Actuarial Accrued Liability

	($ Millions)
Unfunded Actuarial Accrued Liability, June 30, 2021	$6,201.4
- Expected increase due to amortization method	81.1
- Investment experience	163.5
- Liability experience	30.1
- Data/Programming Refinement	41.7
- Other experience	(3.1)
Unfunded Actuarial Accrued Liability, June 30, 2022	$6,514.7

Note: liability loss of $30 million is about 0.2% of actuarial accrued liability.

MSEP Actuarial Gain/(Loss) By Source



- "Other" category includes Disability, Termination and all other liability experience.

MSEP Unfunded Actuarial Accrued Liability Contribution Rate

Amortization Base	Original Amount	Remaining Payments	Projected June 30, 2023 Balance	Annual Payment*
2018 Legacy UAAL	$ 4,861,507,879	26	$ 4,964,996,865	$ 327,423,886
2019 Assumption Changes	74,340,841	27	75,531,738	4,884,234
2019 Experience Base	259,714,456	27	263,874,929	17,063,383
2020 Assumption Changes	124,766,739	28	126,140,847	8,008,046
2020 Experience Base	196,930,919	28	199,099,800	12,639,841
2021 Assumption Changes	515,859,705	24	515,785,670	35,521,003
2021 Experience Base	152,907,202	24	152,885,257	10,528,865
2022 Experience Base	$ 254,311,768	25	254,311,768	17,126,032
Total			**$ 6,552,626,874**	**$ 433,195,290**

* Payment amount reflects mid-year timing.

1. Total UAAL Amortization Payments	$	433,195,290
2. Expected Payroll for FYE 2024	$	2,114,068,511
3. UAAL Amortization Payment Rate (1) / (2)		20.49%

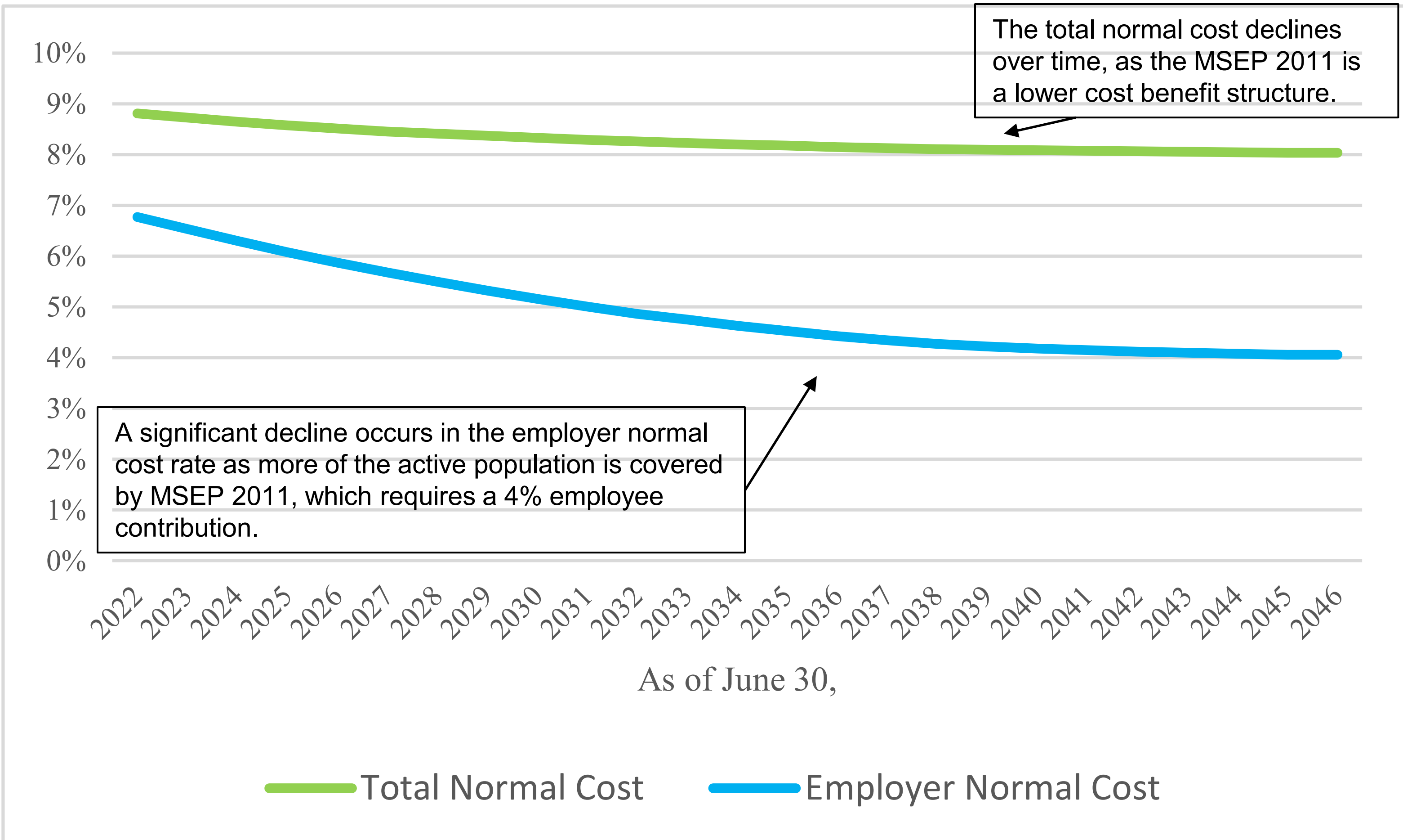
Note: amortization period changed from 30 to 25 beginning in 2021 valuation

Development of MSEP Employer Normal Cost Rate

	Percent of Payroll		
	MSEP & MSEP 2000	MSEP 2011	Weighted Average
A. Normal Cost			
(1) Service retirement benefits	6.30 %	4.91 %	5.58 %
(2) Termination benefits	1.82	2.52	2.18
(3) Survivor benefits	0.11	0.16	0.14
(4) Disability benefits	0.46	0.46	0.46
(5) Administrative expenses	0.45	0.45	0.45
(6) Total	9.14	8.50	8.81
B. Less Member Contributions	0.00	4.00	2.04
C. Employer Normal Cost [A(6) - B]	9.14	4.50	6.77
D. Unfunded Actuarial Accrued Liabilities (UAAL) (level percent-of-payroll amortization with layered bases)			20.49
E. EMPLOYER CONTRIBUTION RATE [C. + D.]			**27.26 %**

- Employer Normal Cost rate is expected to decrease as more of the active population is covered by MSEP 2011. The reduction in the number of active members has limited the impact over time.
- Employers pay all the Normal Cost for MSEP and MSEP 2000 members and roughly 50% of the Normal Cost for MSEP 2011 members

Projection of MSEP Normal Cost Rate



Assumes all actuarial assumptions are met in the future.

MSEP Computed Employer Contribution Rate

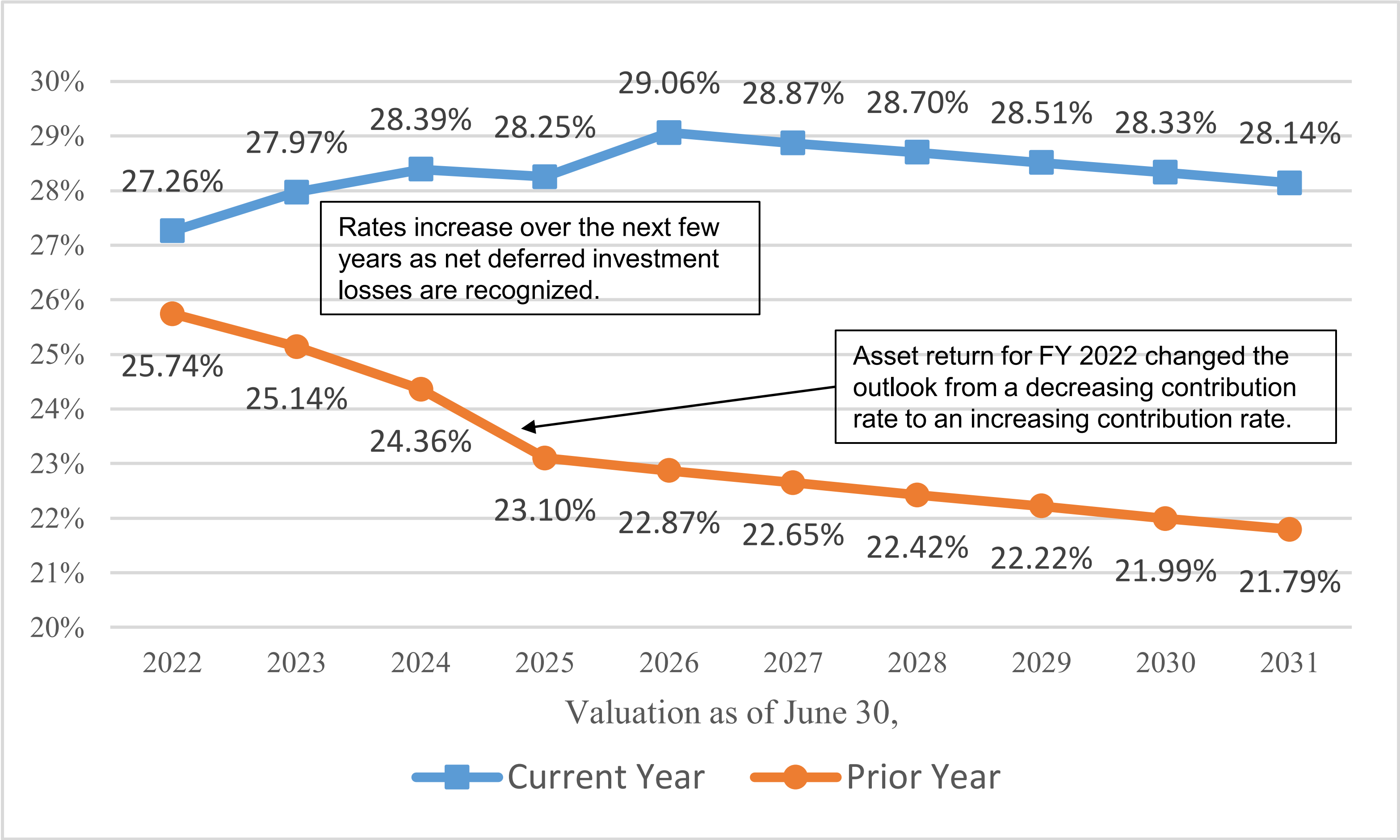
Valuation Date	June 30, 2021	June 30, 2022
Contribution for Fiscal Year Ending	June 30, 2023	June 30, 2024
Normal Cost Rate	8.83%	8.81%
UAAL Amortization Rate	19.38%	20.49%
Actuarial Contribution Rate	28.21%	29.30%
Member Contribution Rate	(1.88%)	(2.04%)
Employer Contribution Rate	**26.33%**	**27.26%**
Projected Payroll ($M)	**$2,099**	**$2,114**
Estimated Contribution ($M)	**$552.7**	**$576.3**

Change in Computed MSEP Employer Contribution Rates

	% of Payroll
6/30/2021 Employer Contribution Rate	**26.33%**
Asset (Gain)/Loss	0.56%
Liability (Gain)/Loss	0.10%
Data/Programming Refinement	0.22%
Projected Payroll Lower than Expected	0.32%
Change in Normal Cost Rate	(0.02%)
Change in Effective Member Contribution Rate	(0.16%)
Other Experience	(0.09%)
6/30/2022 Employer Contribution Rate	**27.26%**

The change in the contribution rate due to actual experience and lower than projected payroll pushed the employer contribution rate higher by nearly 1.00% of payroll.

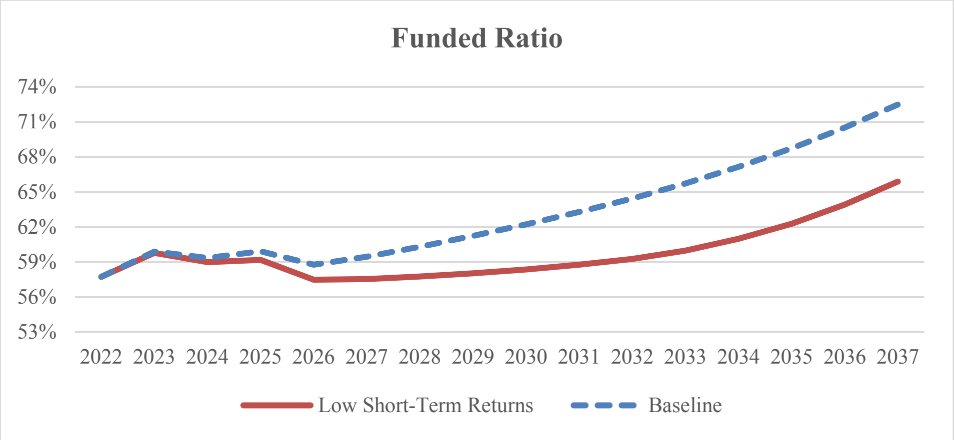
Projected MSEP Employer Contribution Rates



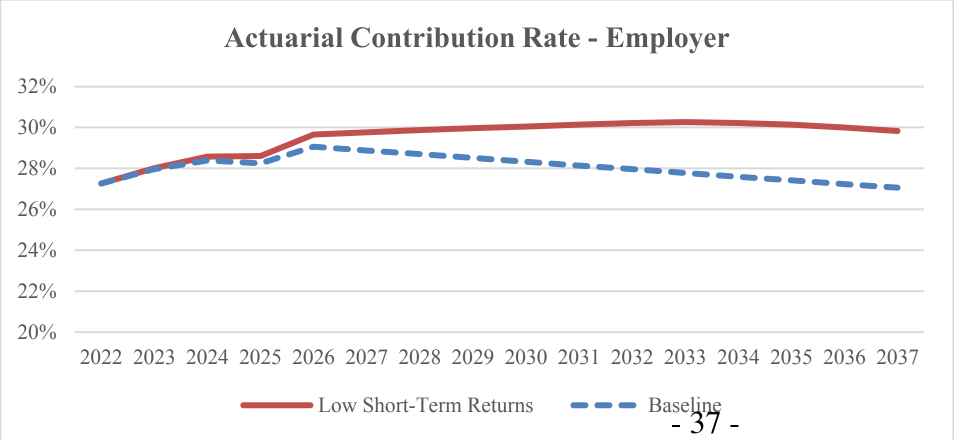
Assumes all actuarial assumptions are met in the future including a 6.95% return on the market value of assets.

MSEP Scenario Testing: Low Returns for Sustained Period

- Returns are 1% less than assumed (5.95%) over the next 10 years



Funded ratio improves as $500M additional contribution is received. Then declines for a few years as deferred asset losses are recognized. In the scenario with low returns, the funded ratio is about 7% lower than in the baseline scenario.



Employer contribution rates increase as deferred asset losses are recognized. In the scenario with low returns, the employer contribution rate remains steady around 30% of pay compared to a declining rate under the baseline scenario.

Sensitivity Analysis: Cost-of-Living Adjustment

Estimate of future Cost-of-Living Adjustment impact on Actuarial Accrued Liability and Employer contribution rate in the 2023 valuation, based on different price inflation measurements.

Actual Price Inflation	0.00%	2.25%	4.25%	6.25%
Formula 1 COLA:	4.00%	4.00%	4.00%	5.00%
Formula 2 COLA:	0.00%	1.80%	3.40%	5.00%
Estimated Liability Gain/(Loss)	$130M	$0M	$(110M)	$(240M)
Estimated Impact on Employer Contribution Rate	(0.4%)	0.0%	0.4%	0.9%

Note: All other assumptions are unchanged for purposes of this sensitivity analysis.

JUDICIAL RETIREMENT SYSTEM

VALUATION RESULTS AND PROJECTIONS

Judicial: Actual vs Expected Experience

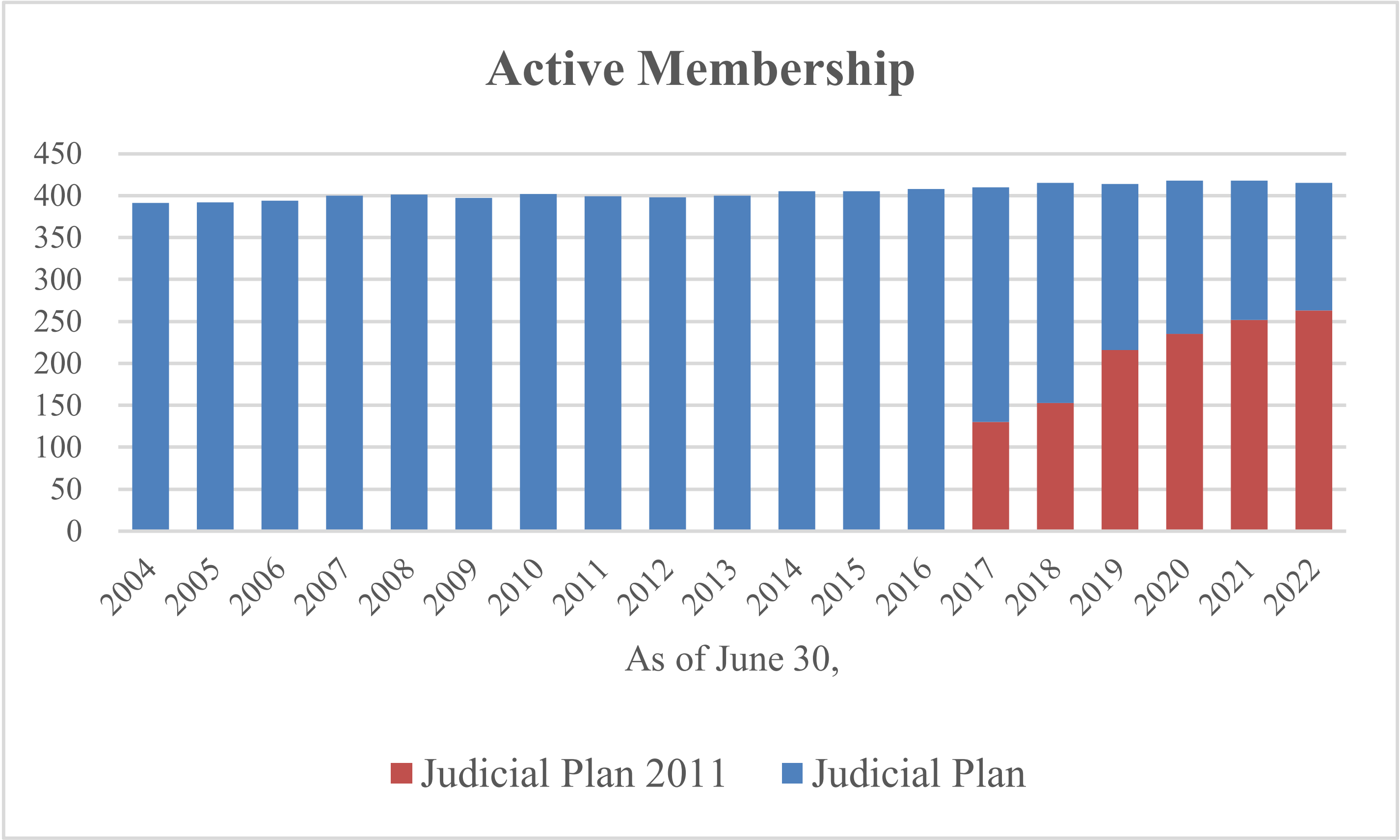
- Investment return on market value basis for the year ending June 30, 2022 was -9.0%. Due to asset smoothing, the return on actuarial assets was 5.6%.
  - Resulted in $2.6M actuarial loss on assets
  - Deferred investment experience is now net loss of $13.5M vs gain of $16.1M in 2021 valuation
  - Increased the actuarial contribution rate by 0.29%

- Net liability gain for fiscal year 2022 of $6M
  - Gains from lower salary increases than expected and more deaths than anticipated by the assumptions

Judicial Valuation Results

	June 30, 2022	June 30, 2021
Unfunded Actuarial Accrued Liability ($M)	$426.0	$431.3
Funded Ratio (Actuarial Assets)	32.4%	31.1%
Normal Cost Rate	20.25%	20.57%
UAAL Amortization Rate	42.16%	42.02%
Total Actuarial Required Contribution Rate	62.41%	62.59%
Member Contribution Rate	(2.58%)	(2.42%)
Employer Contribution Rate	59.83%	60.17%
Employer Contribution Amount ($M)	$39.9	$39.9

Active Membership



About 63% of active members are covered by the Judicial 2011 Plan in the June 30, 2022 valuation. Note: the split is not available prior to June 30, 2017.

Judicial: Actuarial and Market Value of Assets

		Market Value ($M)		Actuarial Value ($M)
Net Assets, June 30, 2021	$	211.08	$	194.99
- Employer and Member Contributions	+	40.78	+	40.78
- Benefit Payments	-	42.53	-	42.53
- Net Investment Income	-	18.80	+	10.84
- Administrative Expenses	-	0.08	-	0.08
Net Assets, June 30, 2022	$	190.45	$	204.00
Estimated Net Rate of Return		(9.0%)		5.6%

The return of 5.6% on the actuarial value of assets resulted in an actuarial loss of $2.6 million and changed the deferred investment experience from a net gain in last year's valuation to a net loss in the current valuation.

Change in Judicial Unfunded Actuarial Accrued Liability

	($ Millions)
Unfunded Actuarial Accrued Liability, June 30, 2021	$431.3
- Expected increase from amortization method	0.7
- Investment experience	2.6
- Liability experience	(6.1)
- Data/Programming Refinement	(3.0)
- Other experience	0.5
Unfunded Actuarial Accrued Liability, June 30, 2022	$426.0

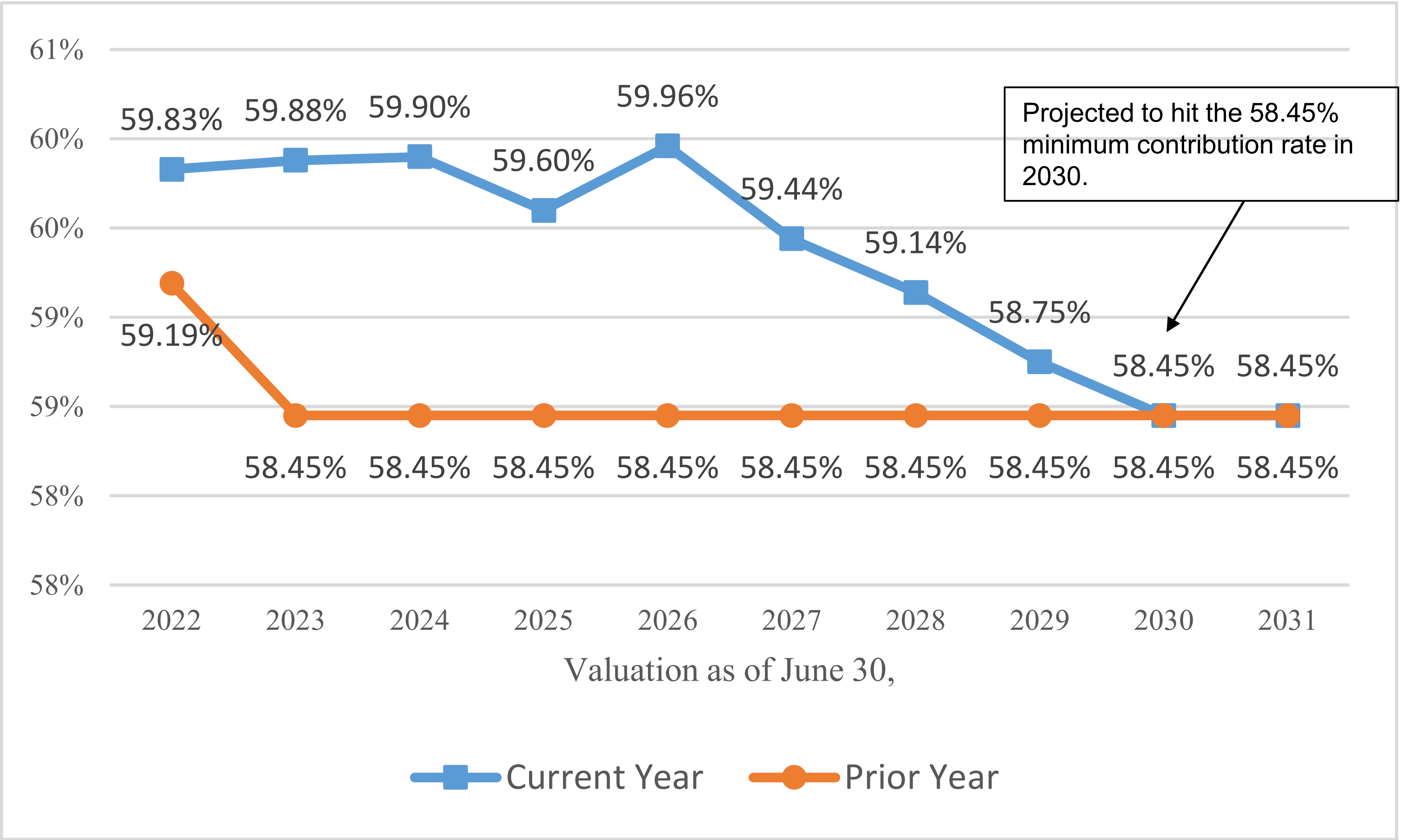
Judicial Computed Employer Contribution Rate

Valuation Date Contribution for Fiscal Year Ending	June 30, 2021 June 30, 2023	June 30, 2022 June 30, 2024
Normal Cost Rate	20.57%	20.25%
UAAL Amortization Rate	42.02%	42.16%
Actuarial Contribution Rate	62.59%	62.41%
Member Contribution Rate	(2.42%)	(2.58%)
Employer Contribution Rate	**60.17%**	**59.83%**
Projected Payroll ($M)	**$66.4**	**$66.7**
Estimated Contribution ($M)	**$39.9**	**$39.9**

Change in Computed Judicial Employer Contribution Rates

	% of Payroll
6/30/2021 Employer Contribution Rate	**60.17%**
Asset (Gain)/Loss	0.29%
Liability (Gain)/Loss	(0.66%)
Data/Programming Refinement	(0.33%)
Projected Payroll Lower than Expected	0.80%
Change in Normal Cost Rate	(0.32%)
Change in Effective Member Contribution Rate	(0.16%)
Other Experience	0.04%
6/30/2022 Employer Contribution Rate	**59.83%**

Judicial: Projected Employer Contribution Rates



Assumes all actuarial assumptions are met in the future, including the investment return assumption of 6.95%.

Caveats and Disclosures

- Additional information regarding the assumptions and methods can be found in the MOSERS June 30, 2022 actuarial valuation report.

- The Appendix on the following pages shows some additional information that may be useful.

- The actuaries who prepared these results, Patrice Beckham, FSA, EA, MAAA, FCA, and Bryan Hoge, FSA, EA, MAAA, FCA, are members of the American Academy of Actuaries and are qualified to render the actuarial opinions presented herein.

APPENDIX

Supplemental Information from the June 30, 2022 Actuarial Valuation

Purpose of Actuarial Valuation

- Measurement of Assets and Liabilities

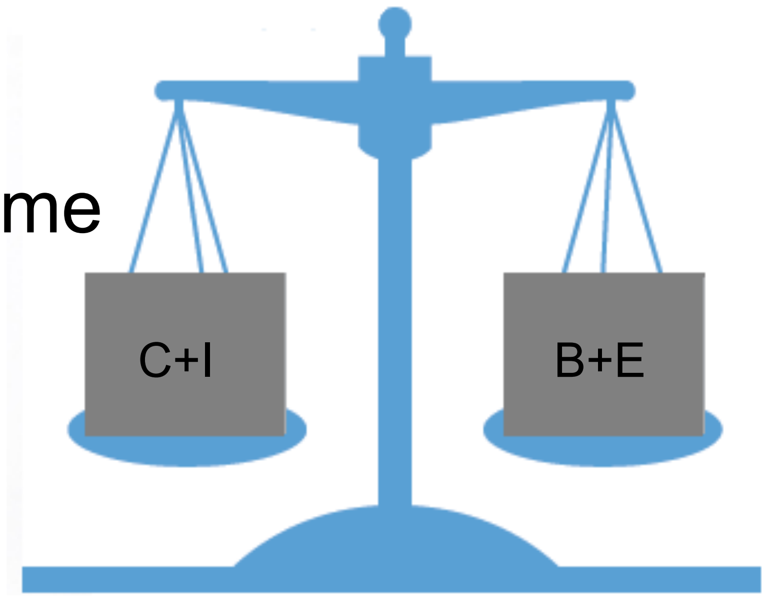
- Best Estimate of Ultimate Costs
  - Project expected future benefit payments using actuarial assumptions
  - Calculate present value of future benefits
  - Apply actuarial cost method to allocate benefit cost to periods of service for each member (past, current, future)

- Calculate Employer Contribution Rate for FYE June 30, 2024

Basic Retirement Funding Formula

$$C + I = B + E$$

C = contributions
I = investment income
B = benefits paid
E = expenses



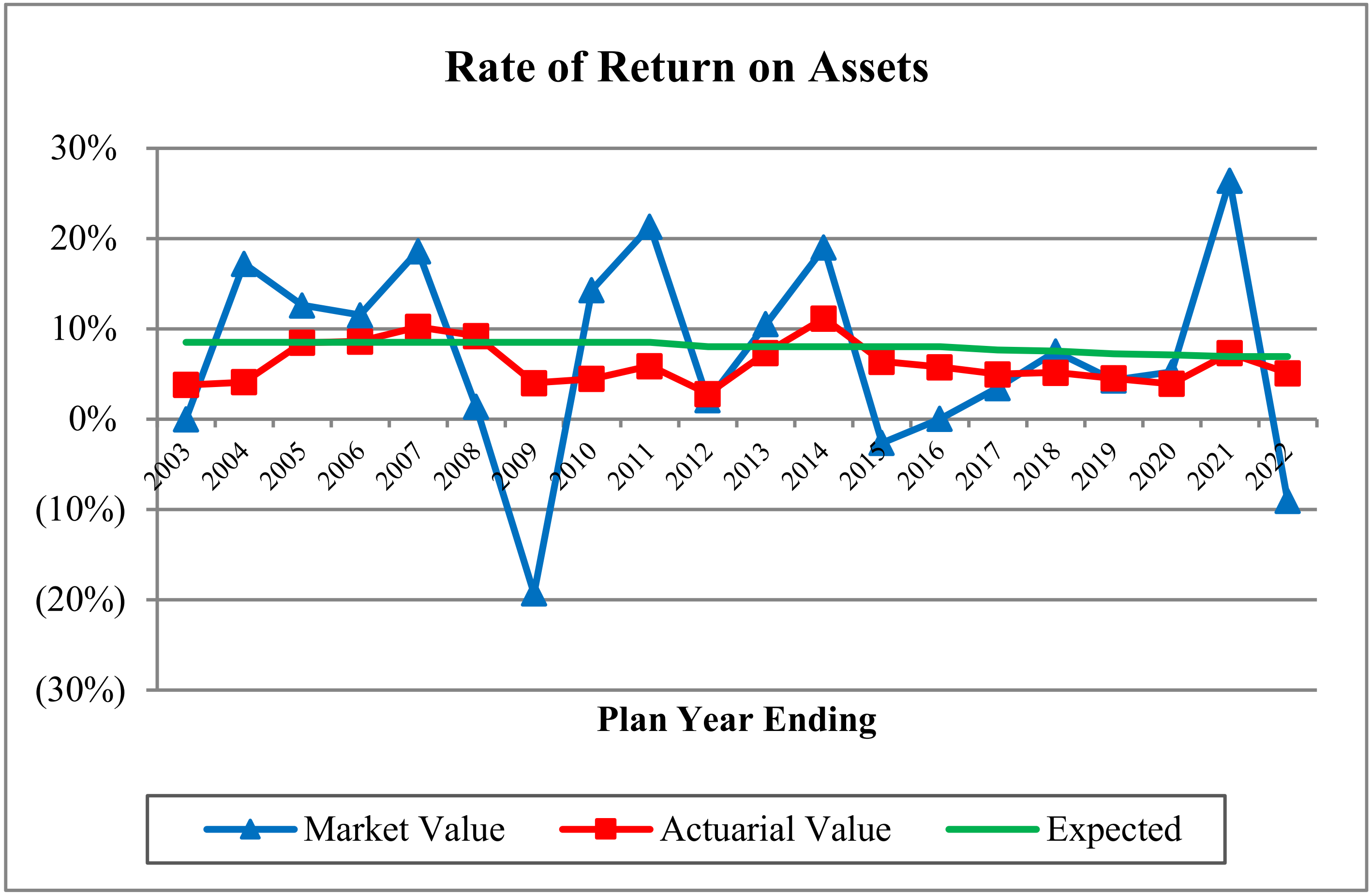
Cost = Obligations

MSEP Asset Experience for FY 2022

Fiscal Year End June 30,	2018	2019	2020	2021	2022
A. Market Value of Assets, Beginning of Year	$ 7,941,650,400	$ 8,034,508,424	$ 7,916,465,279	$ 7,910,830,533	$ 9,519,930,080
B. Contributions During Year	413,179,927	429,323,185	476,091,401	504,683,875	516,725,950
C. Miscellaneous Income	0	0	0	80,121	5,852
D. Benefit Payments and Expenses During Year	896,510,729	861,022,406	882,214,402	928,655,535	971,839,742
E. Expected Rate of Return	7.50%	7.25%	7.10%	6.95%	6.95%
F. Expected Net Investment Income	577,826,541	567,126,565	547,898,876	535,319,903	646,085,772
G. Expected Market Value of Assets, End of Year	8,036,146,139	8,169,935,768	8,058,241,154	8,022,258,897	9,710,907,912
H. Market Value of Assets, End of Year	8,034,508,424	7,916,465,279	7,910,830,533	9,519,930,080	8,248,414,597
I. Excess/(Shortfall) of Net Investment Income	$ (1,637,715)	$ (253,470,489)	$ (147,410,621)	$ 1,497,671,183	$ (1,462,493,315)

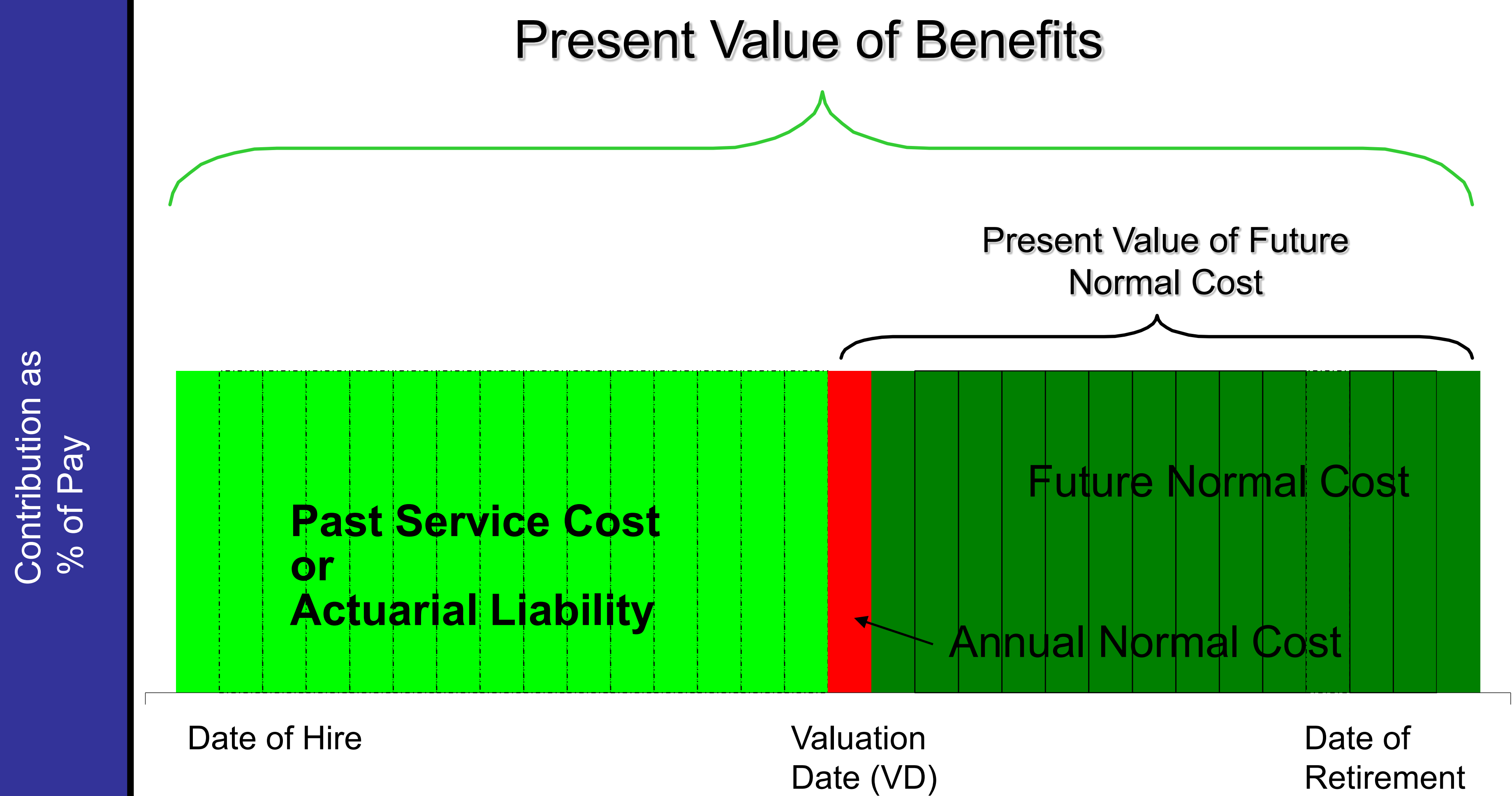
Note: the return shortfall in FY 2022 is almost equal to the excess return in FY 2021.

Historical Rates of Return



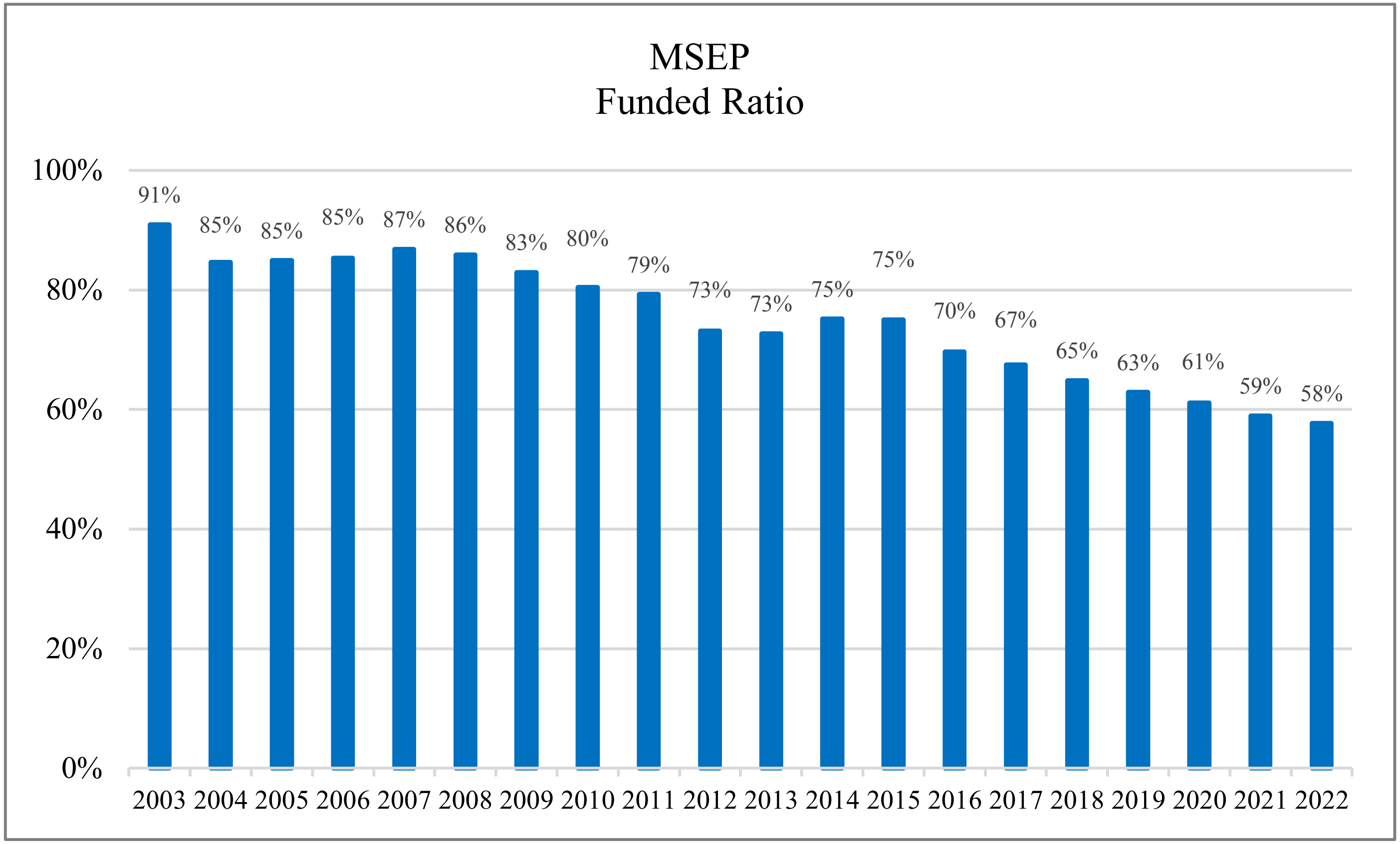
Note: Rates of return are dollar-weighted

Actuarial Funding Process



Actuarial Accrued Liability – Actuarial Assets = Unfunded Actuarial Accrued Liability

Historical Funded Ratio
(Actuarial Assets/Actuarial Accrued Liability)

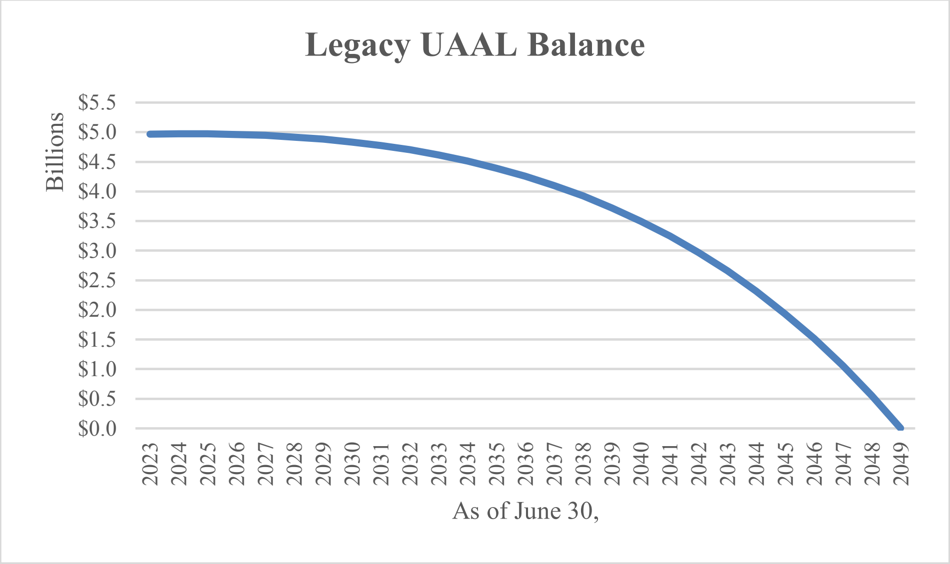


Numerous changes occurred during this period, including changes to the investment return assumption in:

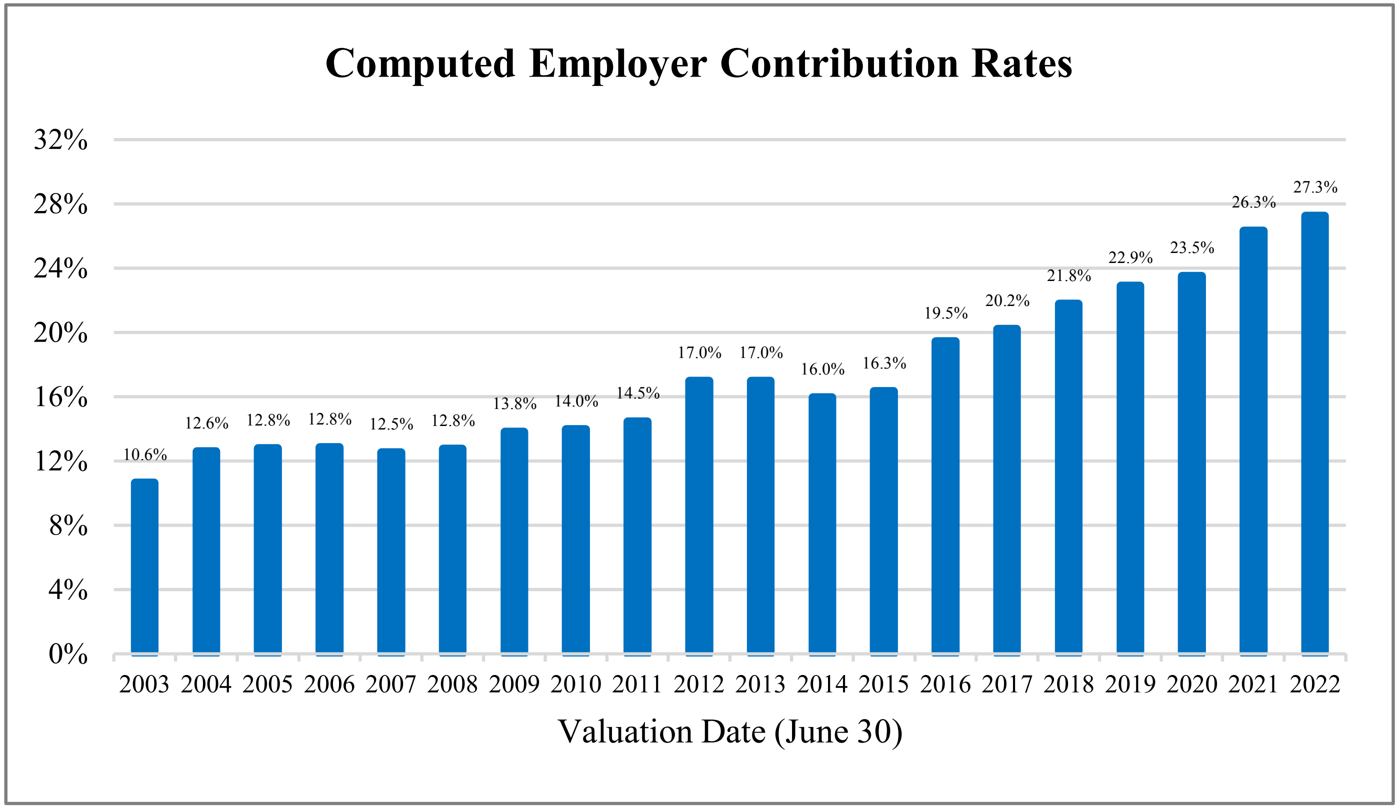
2012: 8.50% to 8.00%	2018: 7.50% to 7.25%
2016: 8.00% to 7.65%	2019: 7.25% to 7.10%
2017: 7.65% to 7.50%	2020: 7.10% to 6.95%

Unfunded Actuarial Accrued Liability

- Effective with the June 30, 2018 valuation, the Unfunded Actuarial Accrued Liability is amortized using a *"Layered"* approach
  - Eight "layers" in the current valuation, new layer(s) added each year
  - Payments in future years are assumed to increase 2.25% using the "level percent of pay" amortization methodology
  - UAAL balance holds steady in the short term before ultimately declining



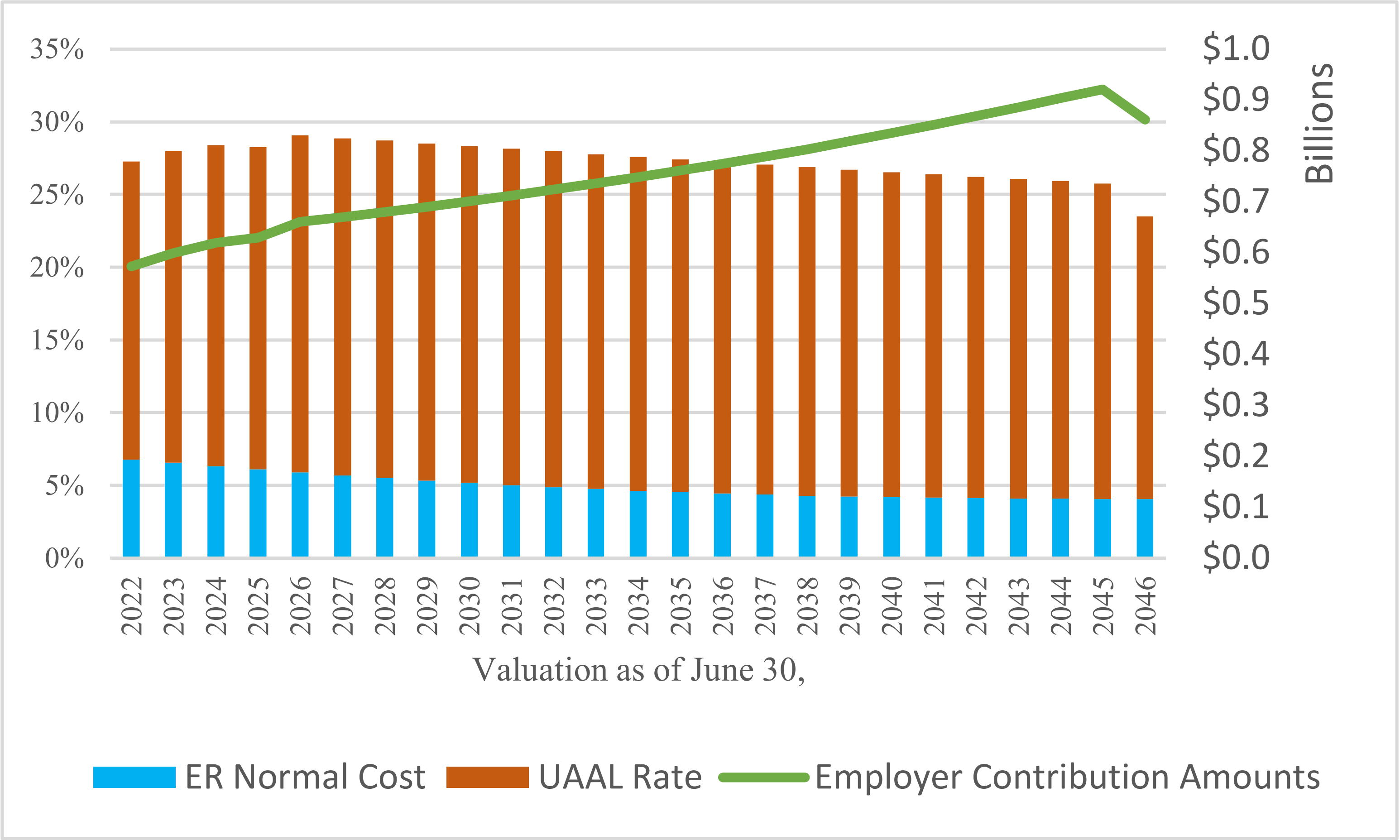
Historical MSEP Employer Contribution Rates



Numerous changes occurred during this period, including changes to the investment return assumption in:

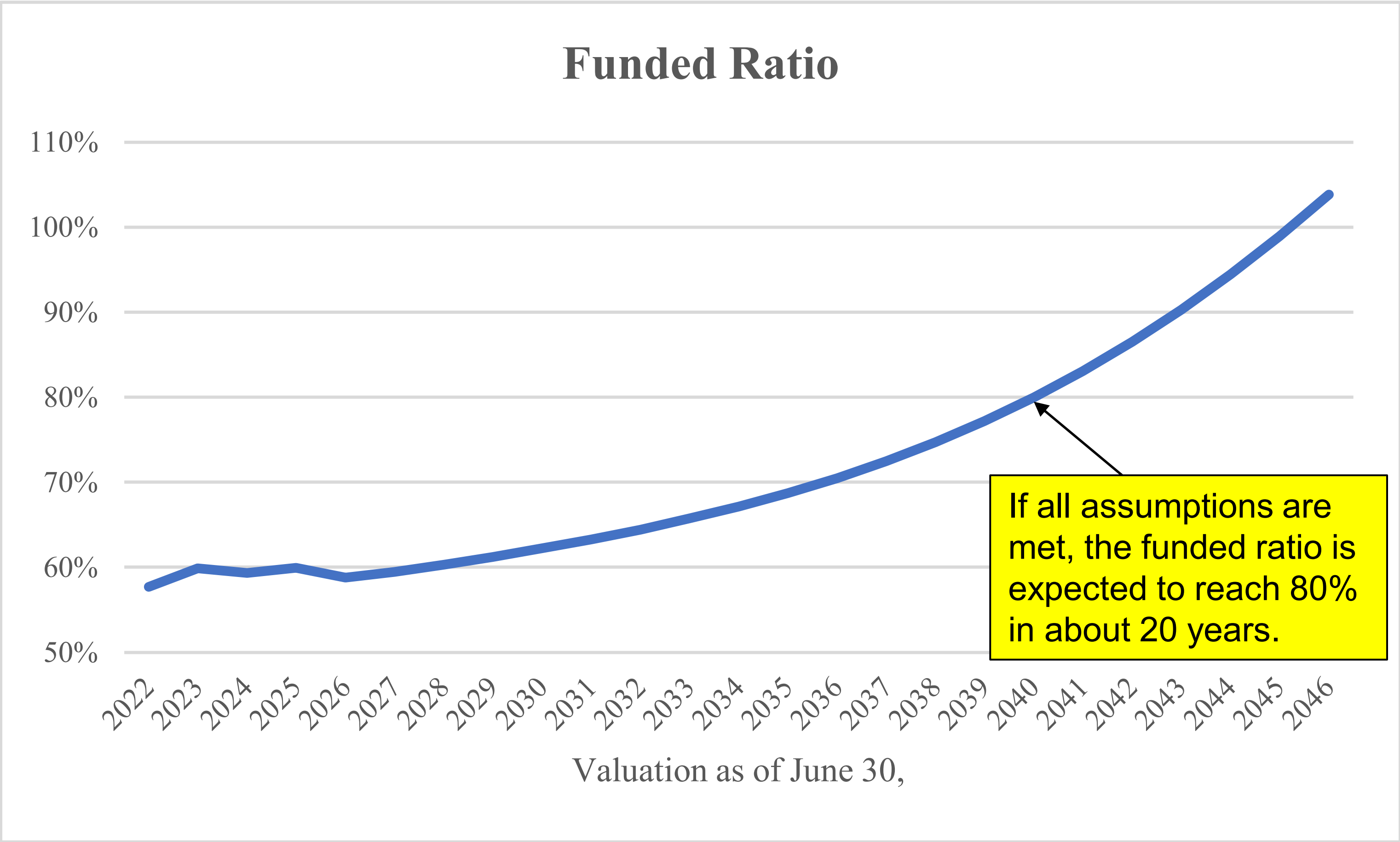
2012: 8.50% to 8.00%	2018: 7.50% to 7.25%
2016: 8.00% to 7.65%	2019: 7.25% to 7.10%
2017: 7.65% to 7.50%	2020: 7.10% to 6.95%

Projected MSEP Employer Contribution Rates by Component



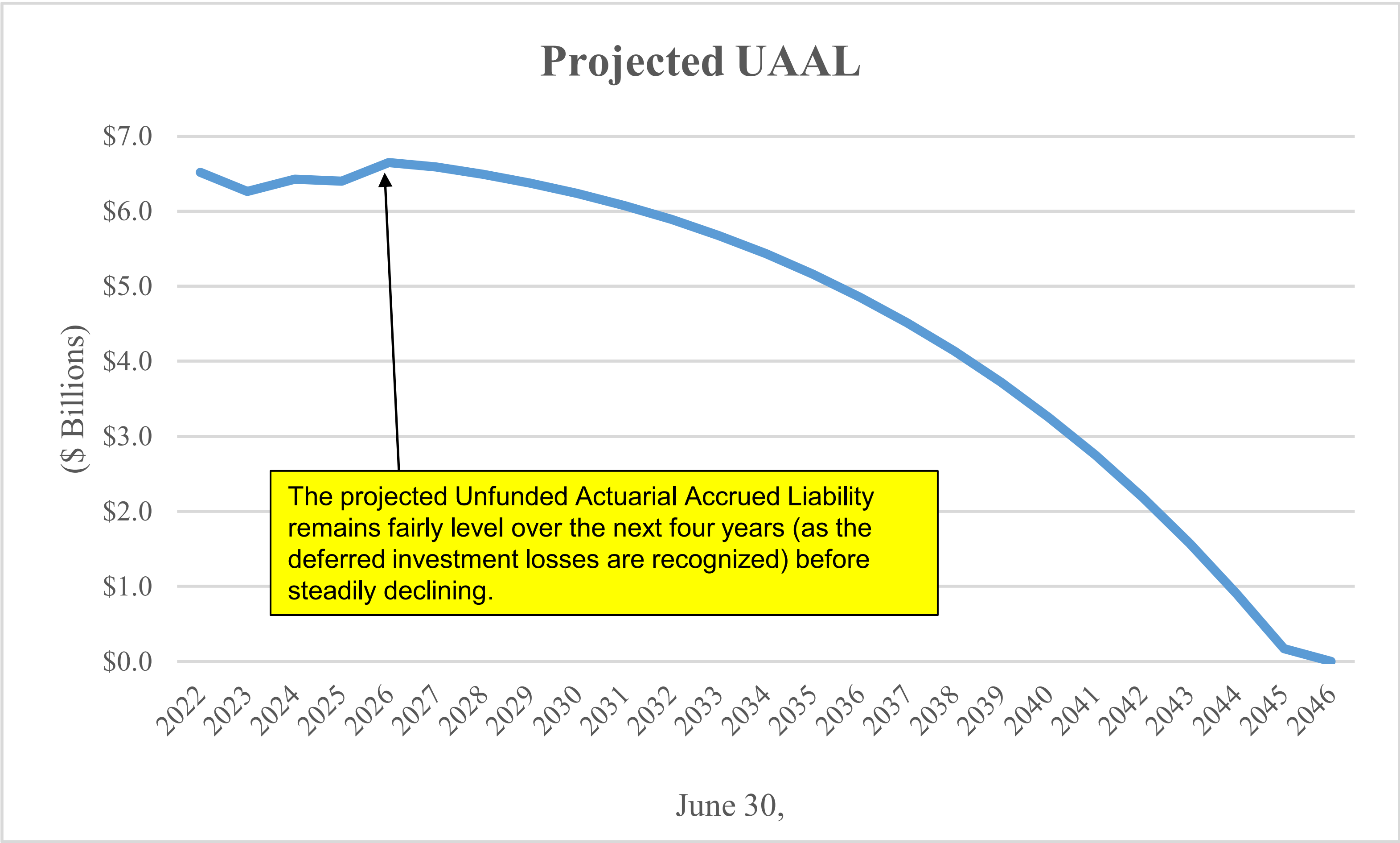
Assumes all actuarial assumptions are met in the future including a 6.95% return on the actuarial value of assets.

Projection of MSEP Funded Ratio



Assumes all actuarial assumptions are met including the 6.95% return on the market value of assets.

Projected MSEP Unfunded Actuarial Accrued Liability

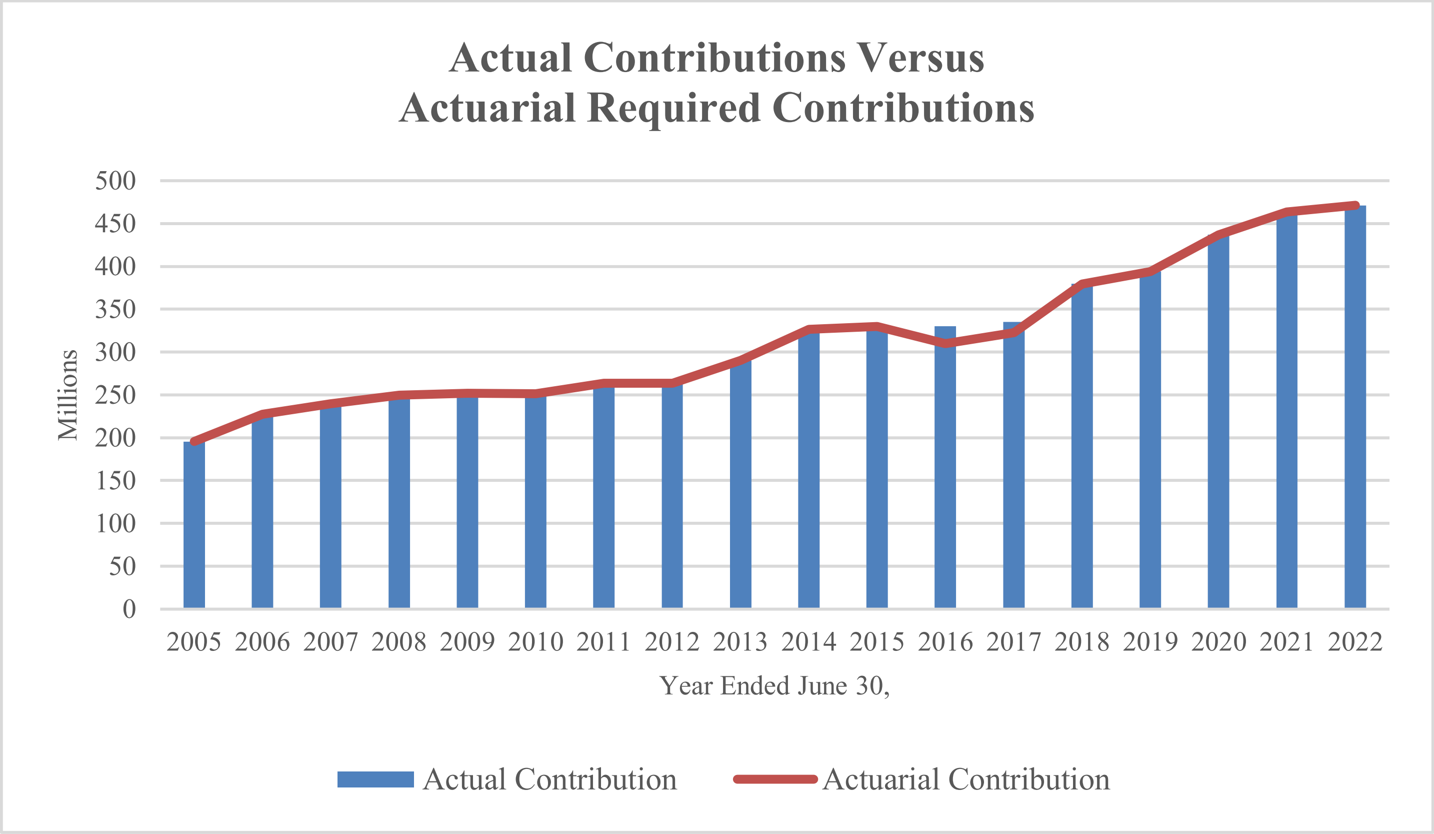


Assumes all actuarial assumptions are met including the 6.95% return on the market value of assets.

MSEP
RISK ANALYSIS

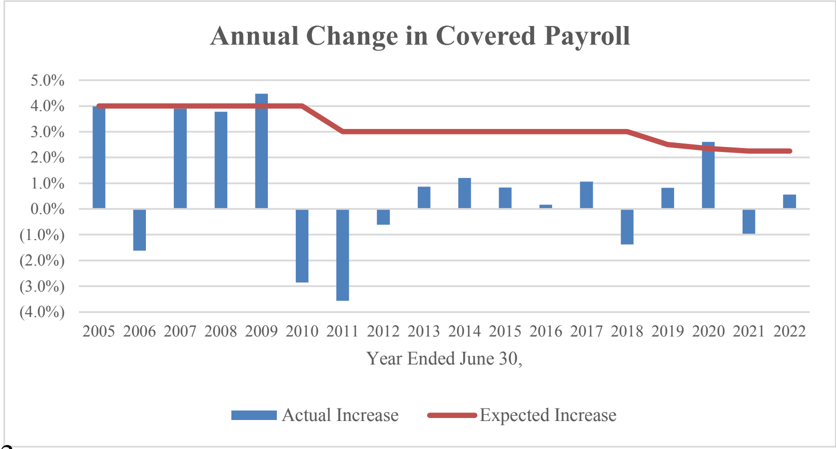
MSEP Actual and Actuarial Contributions

➢ Positive factor: State's commitment to contribute the full actuarial contribution rate

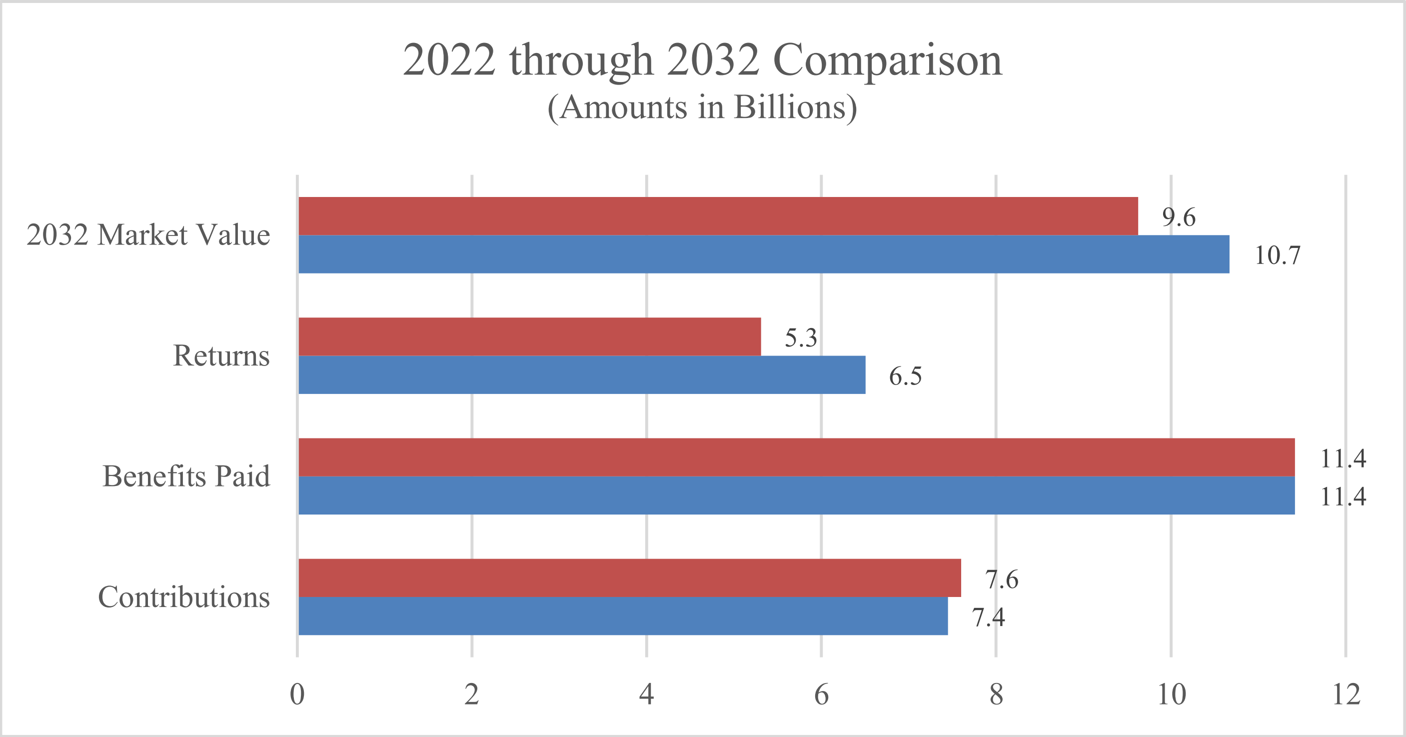


MSEP Active Membership and Covered Payroll

- Size of active membership continues to decline
  - UAAL amortized as level percent of payroll (increasing dollars of contribution) so an assumption is used to anticipate future changes in payroll (2.25% increase per year)
  - If active membership decreases or salary increases are lower than assumed, covered payroll may not increase as assumed
  - Forces the UAAL contribution **rate** to increase (payment is same)



MSEP Scenario Testing:
1% Lower Returns for 10 Years



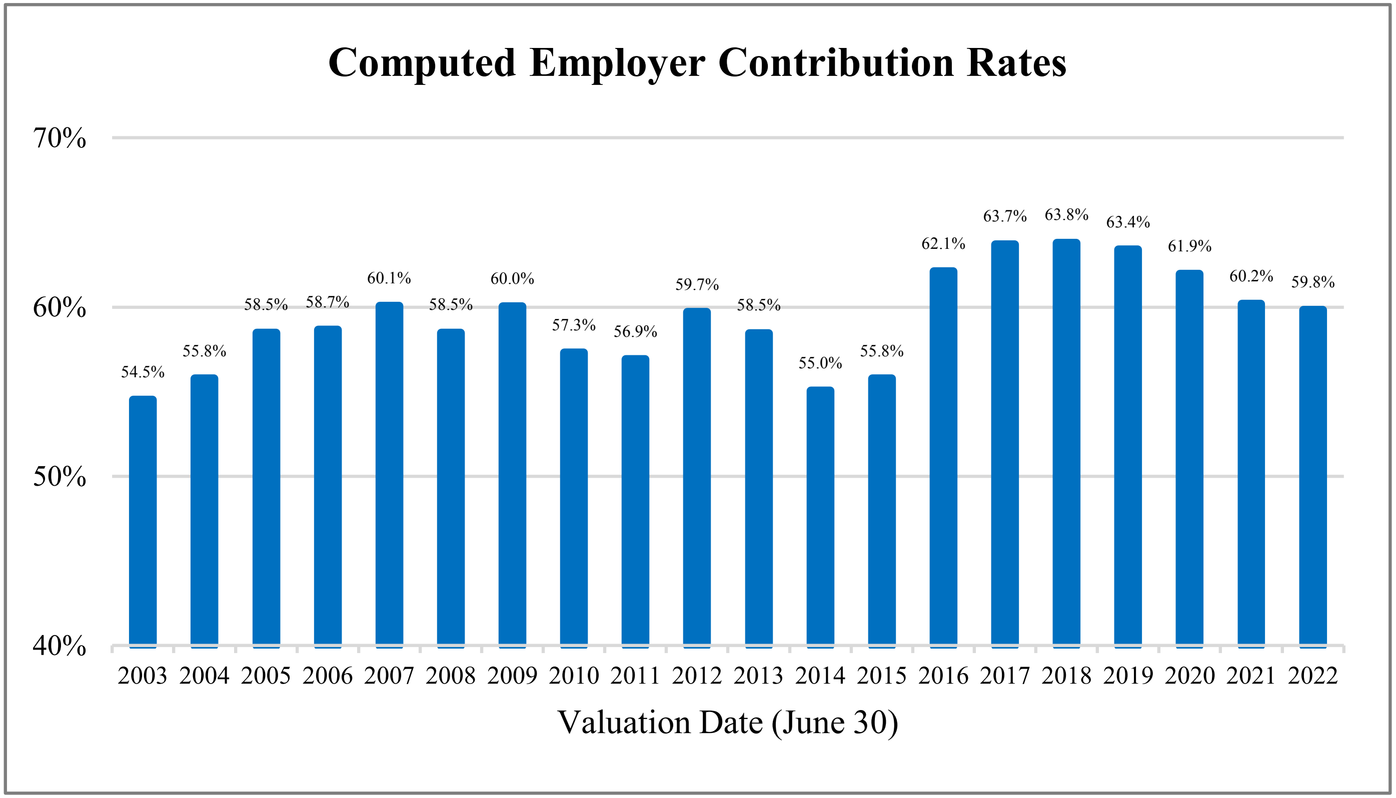
- Returns 1% lower than assumed over the next 10 years reduce returns, increase contributions and reduce the market value of assets by $1.1 billion.

MSEP Investment Return Assumption Sensitivity Analysis

Investment Return Assumption	5.95%	6.45%	6.95%	7.45%	7.95%
Contributions					
Total Normal Cost	11.23%	9.93%	8.81%	7.85%	7.03%
Member Contributions	(2.04%)	(2.04%)	(2.04%)	(2.04%)	(2.04%)
Employer Normal Cost	9.19%	7.89%	6.77%	5.81%	4.99%
Unfunded Actuarial Accrued Liability	23.99%	22.24%	20.49%	18.73%	16.97%
Employer Contribution Rate	33.18%	30.13%	27.26%	24.54%	21.96%
Estimated Employer Contribution Amount	$701.4	$637.0	$576.3	$518.8	$464.2
Actuarial Accrued Liability	$17,205.3	$16,265.8	$15,409.0	$14,625.8	$13,908.3
Actuarial Value of Assets	$8,894.3	$8,894.3	$8,894.3	$8,894.3	$8,894.3
Unfunded Actuarial Accrued Liability	$8,310.9	$7,371.5	$6,514.7	$5,731.5	$5,014.0
Funded Ratio	51.7%	54.7%	57.7%	60.8%	63.9%

- All other assumptions are unchanged for purposes of this sensitivity analysis

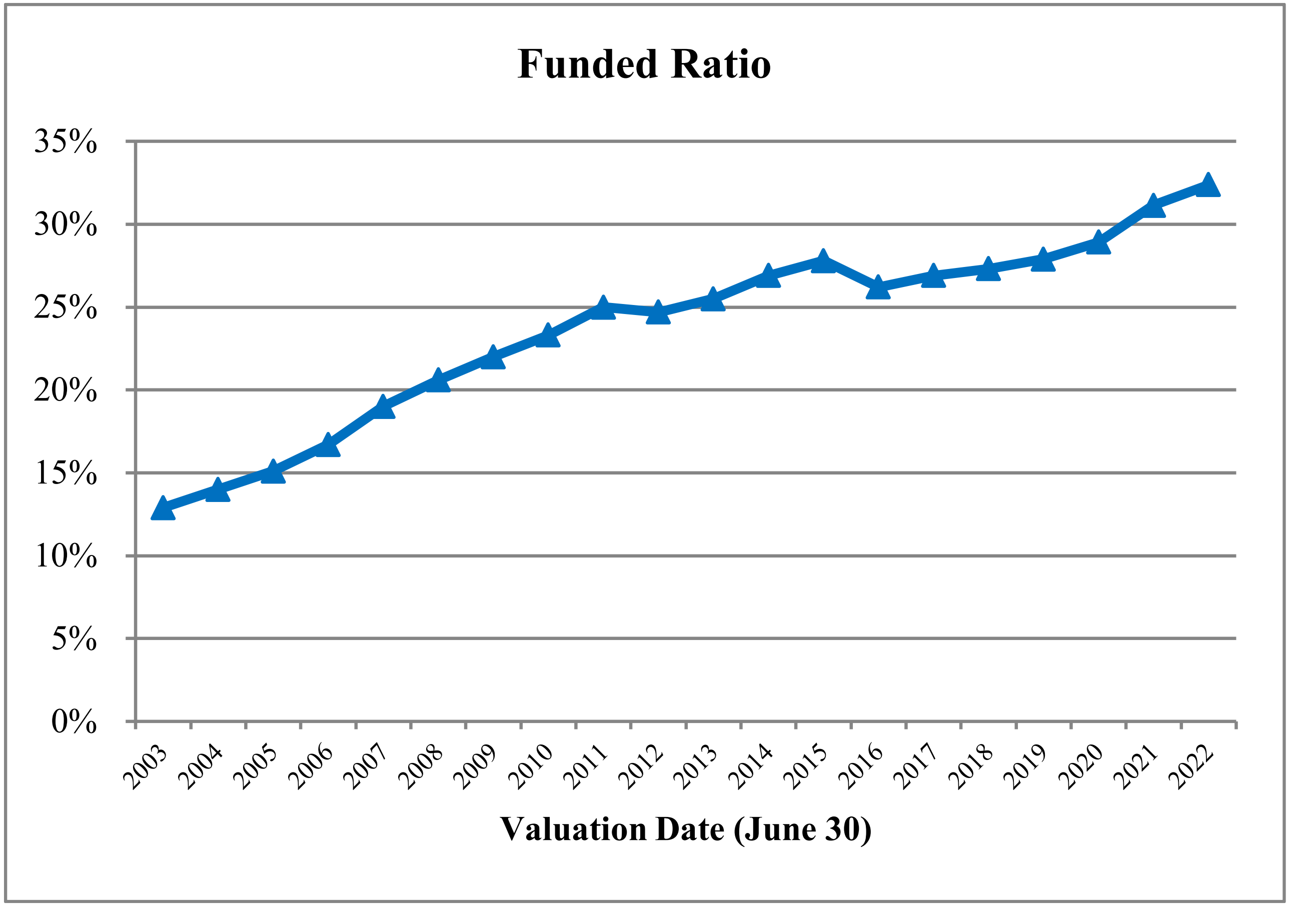
Historical Computed Judicial Employer Contribution Rates



Numerous changes occurred during this period, including changes to the investment return assumption in:

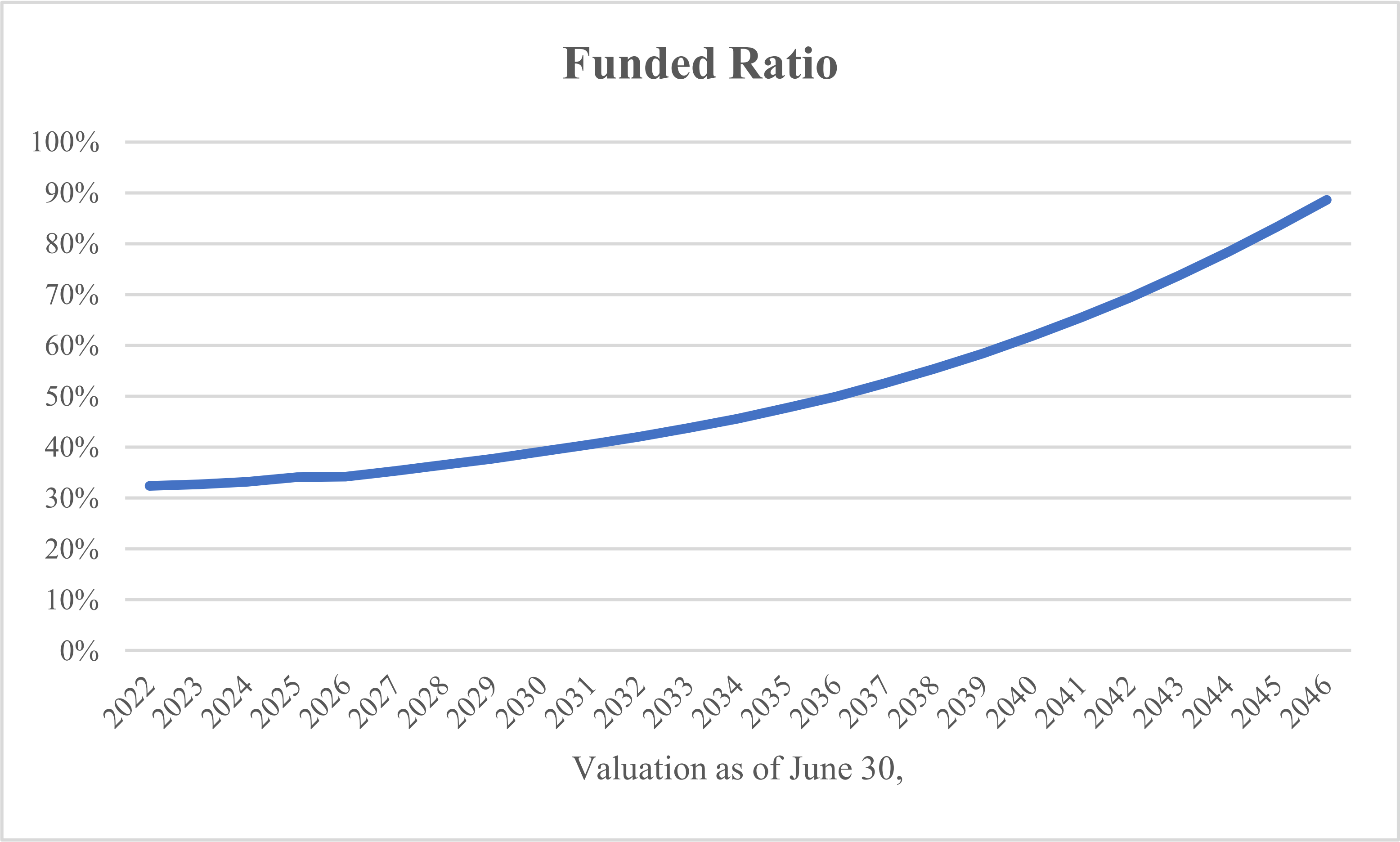
2012: 8.50% to 8.00%	2018: 7.50% to 7.25%
2016: 8.00% to 7.65%	2019: 7.25% to 7.10%
2017: 7.65% to 7.50%	2020: 7.10% to 6.95%

Judicial: Historical Funded Ratio



Until 1999, Judicial Retirement System was funded on a pay-as-you-go basis (effectively a 0% Funded Ratio)

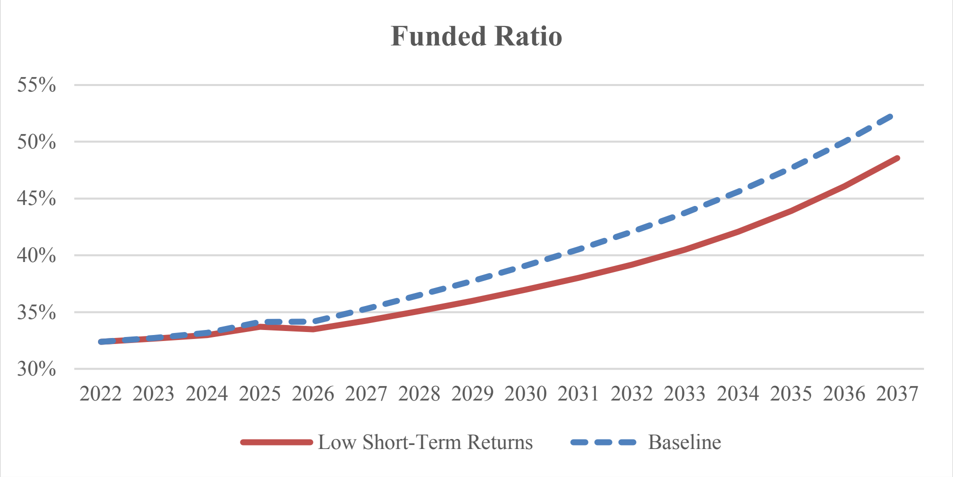
Judicial: Projection of Funded Ratio



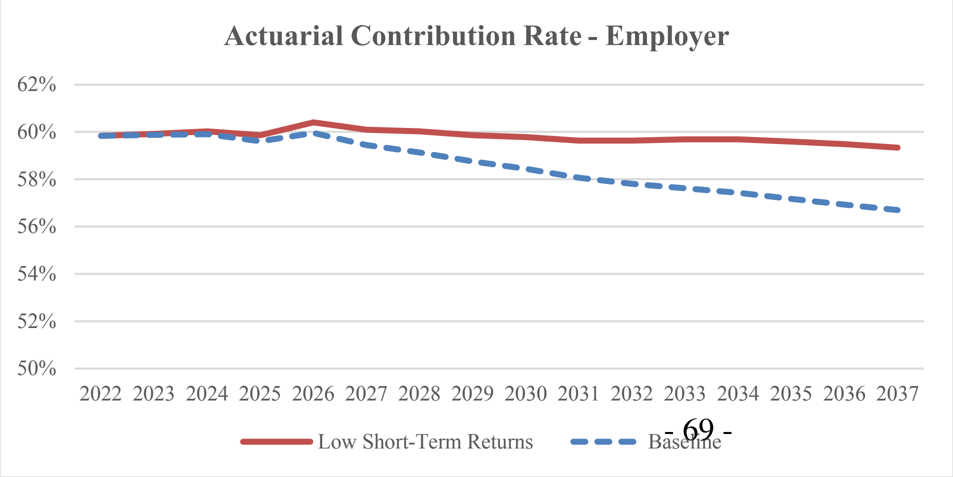
- Judges was pay-as-you-go until 1999. Funded Ratio is projected to continue to steadily increase, if all assumptions are met.

Judicial Scenario Testing:
Low Returns for Sustained Period

- Returns are 1% less than assumed (5.95%) over the next 10 years



Funded ratio gradually increases in both scenarios. The Judicial System is still in the early stages of accumulating assets, so contributions are more significant than investment income. That said, the funded ratio is about 4% lower under the low return scenario.



The employer contribution rate is fairly stable in the low return scenario. In the baseline, the employer contribution rate slowly declines as more of the active membership is covered by the Judicial 2011 Plan. The 58.45% minimum would come into play in the baseline scenario.

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MOSERS
MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Investment Committee Report

September 22, 2022

Item Type: Action

Action: *The committee recommends the consideration of the full Board to approve the proposed proxy voting policy and proxy voting advisor.*

Executive Summary

The Investment Committee met on July 25, August 24, and September 1, 2022. Verus and staff discussed second quarter 2022 performance and FYE June 30, 2022 returns with the committee. Verus and staff also presented information regarding development of a proxy voting policy for MOSERS, as requested by the Board at the June Board meeting. Included in the packet is the proxy voting policy which will be reviewed for the Board today prior to consideration.

Committee Members:
Joe Keifer, Chairman
Treasurer Scott Fitzpatrick
Commissioner Ken Zellers
Gary Metzger
Representative Rusty Black

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Proxy Voting Policy Discussion

MOSERS Board of Trustees
September 22, 2022

Recent Activities

- To implement the Board's motion from the June Board meeting, staff transitioned the existing global public equity exposure, previously held at BlackRock, into our "derivatives plus portable alpha" program. This was conducted in three phases and was completed on August 31st.

- Staff also worked with Verus to review potential proxy voting policies, and potential IPS statement options. These were presented to, and discussed with, MOSERS Investment Committee.

Overview of “Off the Shelf” Options

- Leading Vendor Options Available

Egan Jones	Glass Lewis	ISS
Standard Policy	Standard Policy	Benchmark Policy
Conservative Policy	Climate Policy	Sustainability Policy
G/SRI Policy	ESG Policy	SRI Policy
Catholic Policy	Catholic Policy	Climate Policy
Taft-Hartley Policy	Public Pension Policy	Catholic Policy
	Taft-Hartley Policy	Public Fund Policy
		Taft Hartley Policy
		Board Aligned Policy

- Staff and Verus reviewed three “off the shelf” proxy policies with the committee.
  - Egan Jones – Conservative Investor (31 pages)
  - Glass Lewis – Standard Policy (83 pages)
  - ISS – Board Aligned Policy (8 pages)

- The complete versions of all three policies are available on the Board’s website.

Key Positions

Topic/Focus	Egan Jones	Glass Lewis	ISS
Policy Focus Summary	Management is accountable to Directors, Directors are independent and accountable to shareholders, shareholders are treated fairly and equitably, i.e., one share/one vote. Against most ESG and DEI reporting requirements.	Directors serve shareholders. Transparency, shareholder rights, ESG and DEI (Diversity, Equity and Inclusion) topics are important factors in analysis.	The Board Aligned policy would vote with company management unless that position is not consistent with widely accepted governance and compensation practices while protecting shareholder rights and long-term value creation for shareholders.
Board Independence	Wants 2/3rds independent	Wants 2/3rds Independent	Wants at least 1/2 Independent
Support Board Election	Annually	Annually	Annually
Board Diversity	No DEI Testing/Reporting	DEI Targets and minimums	DEI Targets and minimums
Bylaw amendments	Simple Majority	Simple Majority	Simple Majority
Favor Simple-majority or Super-majority	Simple Majority	Simple Majority	Simple Majority
Auditor	For management recommendation	For management recommendation	For management recommendation
Capital structure/business combinations	Case-by-case	Case-by-case	Case-by-case

Other Typical Items

Typical Items	Egan Jones - Conservative	Glass Lewis	ISS - Board Aligned
Poison Pills	For shareholder proposals asking to submit for shareholder ratification	Typically, no	For management recommendation, in most cases
Special Meeting Requirement	10% of Shareholders	10-15% of Shareholders	For management recommendation, in most cases
Vote on Executive Compensation	Annual Advisory vote	For Advisory Vote	For management recommendation, in most cases
Compensation of Officers	Mostly Stock (No ESG metrics)	Mostly Stock (Tie to ESG metrics)	For management recommendation, in most cases
Proposals Enhancing Shareholder Rights	Yes	Yes	For management recommendation, in most cases
Shareholder Proposals for ESG/DEI Reporting Requirements	No	Yes	For management recommendation, in most cases
Support Reasonable Access to Proxy Materials	Yes	Yes	For management recommendation, in most cases

Environmental and Social Items

Typical Items	Egan Jones - Conservative	Glass Lewis	ISS - Board Aligned
Shareholder proposals on Environmental and Social Issues	Against shareholder proposals for reporting requirements and most changes in business practices related to ESG issues	For ESG oversight and reporting requirements	For management recommendation, in most cases
Lobbying/Climate Lobbying Report	Against	Generally, for	For management recommendation, in most cases
Shareholder Requests to follow CERES Principles (Coalition for Environmentally Responsible Economies)	Against	Generally, for	For management recommendation, in most cases
Sustainability Reports	Against	Generally, for	For management recommendation, in most cases
Nomination an Environmental Expert to the Board	Against	Generally, for	For management recommendation, in most cases
Establishment of a Climate Change Committee on the Board	Against	Generally, for	For management recommendation, in most cases
Establishment of a Human Rights Committee or Human Trafficking Reporting	Against	Generally, for	For management recommendation, in most cases
Use of Corporate Assets to Create Reports on: Electronic Waste; renewable Energy Adoption; Climate Change; Drug Pricing; Stranded Assets	Against	Generally, for	For management recommendation, in most cases

Recommendations

- The Investment Committee recommends that the Board consider adopting the Egan Jones – Conservative "off the shelf" proxy voting policy as the MOSERS proxy voting policy:
  - The Egan Jones – Conservative policy appears to be the policy most consistent with recent Committee and Board discussions. It highlights the principle of maximizing shareholder value and votes against ESG proposals that do not support shareholder value.
  - Estimated annual cost to implement, ($10 – $15k)

- The Investment Committee also recommends proxy voting language be added to the Investment Policy Statement.

Potential ESG Language for the IPS

V. Roles and Responsibilities

D. External Providers

4. Proxy Voting Advisor

To assist the System in the continued execution of its fiduciary duties, in connection with exercising the voting rights of the investments directly held by the System, the System shall retain a proxy voting advisor and utilize the Board approved proxy policy* (the Proxy Voting Policy) no later than January 1, 2023. In voting MOSERS' shares, the proxy voting advisor shall consider only those factors that relate to the economic value of the System's investments, such that MOSERS' votes are cast in the best economic interest of the System. For avoidance of doubt, voting of MOSERS' shares, including on proposals regarding social, governance or environmental proposals and on election of boards of directors, will be based solely on enhancing or protecting long-term economic value, and not on establishing or endorsing social policy.

In addition to investments directly held by MOSERS, MOSERS invests in securities indirectly through pooled investment funds where third party investment managers possess the voting rights with respect to investments of the fund and vote in the best interest of the pooled funds. In those circumstances, the System may request the third-party managers to exercise voting rights in accordance with the Proxy Voting Policy, but the third-party manager will not be required to do so.

* The Board approved Proxy Voting Policy is the Egan Jones – Conservative Investor Policy

Proxy Voting Implementation Map

	Public Equity Portfolio Exposure Summary	May 31, 2022 Dollar Exposure	August 12, 2022 Dollar Exposure	Historic Source	August 31, 2022 Implementation	New Proxy Policy Current Impact
Growth	Global Public Equity US Exposure	75,699,015	0	BlackRock Index Fund	Derivatives + Portable Alpha	No
	Global Public Equity Non-US Exposure	1,055,588,879	1,043,988,015	5 Actively Managed Funds	5 Actively Managed Funds	No
	Private Equity P4P US Exposure	373,290,897	369,573,933	BlackRock Index Fund	Derivatives + Portable Alpha	No
	Private Equity P4P Non-US Exposure	243,509,223	222,403,548	5 Actively Managed Funds	5 Actively Managed Funds	No
Inflation	US Public REIT Portfolio – Separately Managed Account	444,161,703	500,483,820	SMA	SMA	Yes
Absolute Return	ACWI US Exposure - Passive Fund	27,144,440	29,900,000	BlackRock Index Fund	Derivatives	No
	ACWI Non-US Exposure - Passive Fund	17,354,642	20,000,000	BlackRock Index Fund	Derivatives	No
	Total Public Equity Portfolio Exposure	**2,236,748,799**	**2,186,349,316**			

US Equities
Non-US Equities
REITs

Proxy Policy Implementation

- Currently, there are limited opportunities within the existing portfolio to apply a new Board-approved proxy policy. The new policy would apply solely to MOSERS' REIT Index fund in the current portfolio.

- When considering new investment opportunities, overall risk and net of fee return will continue to be the determinate factor in selecting the manager or structure.
  - A Board-approved Proxy Voting Policy will be one of the considerations in the hiring process when analyzing total risk and return.

- Any new Board-approved Proxy Voting Policy:
  - *will* apply to:
    - all passively managed separately managed accounts (SMA's)
    - any actively managed SMA where we have the option to apply the Board's new Proxy Policy
    - any commingled fund (CIT's, mutual fund etc.) where MOSERS has the option to apply the Board's new Proxy Policy
  - *will not* apply to:
    - any actively managed SMA's where the voting of proxies is important to the success of a manager's investment strategy
    - any commingled fund where we do not have the option to apply the Board's new Proxy Policy

Questions and Discussion

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Strategic Planning and Governance Committee Report

September 22, 2022

Item Type: **Informational**

Executive Summary

The Strategic Planning and Governance Committee met on August 19, 2022. The committee was provided an update on the progress of MOSERS Strategic Plan, which was approved by the Board at the June Board meeting. A copy of MOSERS Strategic Plan is included in the packet.

Committee Members:
Gary Metzger, Chairman
Gary Findlay
Jenny Jacobs
Crystal Wessing
Representative John Wiemann

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PLAN SUSTAINABILITY

1

GOAL
Set an asset allocation that promotes the long-term sustainability of the System and meets the organization's objectives.

Objective

- Facilitate asset study by June 30, 2023 and adopt any necessary changes.

Measure

- Asset allocation is anticipated to meet or exceed the Board-adopted assumed rate of return on investments over the long term.

Target

- *Complete by June 30, 2023*

MOSERS

STRATEGIC PLAN
Fiscal Years 2023-2025

RISK MANAGEMENT

1

GOAL
Ensure the business continuity of MOSERS' vital services.

Objective

- Perform a post-Phoenix full back-up/replication test to validate the timely recovery of the critical systems.

Measure

- Ensure recovery time is within acceptable ranges.

Target

- *Complete by June 30, 2024*

2

GOAL
Ensure that MOSERS continues to comply with federal IRS code provisions for qualified plans.

Objective

- Identify the necessary steps and submit documentation required by the IRS for MOSERS to remain a qualified plan for tax purposes.

Measure

- Completed submission by MOSERS to the IRS.

Target

- *Necessary documents on file with IRS by June 30, 2024*

3

GOAL
Reduce the risk of gaps in knowledge, skills, and abilities due to vacancies.

Objective

- Cross-train for critical business functions.

Measure

- Manager/supervisors provide report to applicable deputy director on section cross training needs for critical operation coverage.

Target

- *50% complete by June 30, 2024*
- *100% complete by June 30, 2025*

MEMBER & EMPLOYER RELATIONS

1

GOAL
Better manage the distribution of and response time for employer contacts.

Objective

- Implement a contact center management system in the Employers Services section that automatically routes employer calls, emails, and other communications to available staff, creates workflows, and provides contact center data to the section manager.

Measure

- Improved response time and oversight.

Target

- *Complete by December 31, 2024*

2

GOAL
Increase knowledge of MOSERS policies and procedures among employers.

Objective

- Conduct additional employer training and implement an employer certification program.

Measure

- Fewer errors on monthly reports after completion of employer certification training.

Target

- *Develop program by June 30, 2024*

WORKFORCE ENGAGEMENT

1

GOAL
Develop a program for continuous leadership development to ensure appropriate skill sets.

Objective

- Implement a training plan for new managers and supervisors to include formal training in supervision concepts as well as MOSERS-specific supervisory tasks.

Measure

- Once implemented, all new managers and supervisors earn a certificate of completion within one year of assuming the leadership role.

Target

- *Develop program by June 30, 2023*
  Implement program by June 30, 2024

Objective

- Establish annual training program for all managers and supervisors.

Measure

- Once implemented, all managers and supervisors will complete annual training.

Target

- *Develop program by June 30, 2023*
  Implement program by June 30, 2024

Audit Committee Report

September 22, 2022

Item Type: **Informational**

Executive Summary

The Audit Committee met on August 16, 2022. Brad Berls, from Eide Bailly, provided an update on the FY22 audit and discussed the timeline for the upcoming field work in September. Staff provided the committee with year-end actuals for the FY22 budget. The Office of Internal Audit provided a quarterly update.

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Summary Performance Report

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

September 22, 2022

Item Type: **Informational**

Executive Summary

Per Section XVI of the Investment Policy Statement, the Board Investment Consultant (BIC) is required to provide a quarterly report on the investment performance for the Total Fund, for each asset class, and by investment manager. The report will provide analysis based on return over various periods (3 months, 1 year, 3 years, 5 years, etc.).

The Investment Policy Statement also requires the CIO to provide a quarterly update on the investment decisions related to policy, strategy, and implementation.

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Missouri State Employees' Retirement System

Board Report

Period Ending: June 30, 2022

Verus

VERUSINVESTMENTS.COM

SEATTLE 206-622-3700
LOS ANGELES 310-297-1777
SAN FRANCISCO 415-362-3484
PITTSBURGH 412-784-6678

U.S. economics summary

— U.S. real GDP fell -0.9% annualized during Q2 (+1.6% over the past full year). Most aspects of economic activity showed decline, including private investment (-2.7%), government spending (-0.3%), and imports (-0.5%). This stoked fears of recession, as two quarters of negative growth is a common definition of technical recession.

— The Federal Reserve's objective of a "soft landing" for the economy appears to have failed. An increasingly aggressive stance during the first half of the year contributed to a broad market selloff. The negative wealth effect of the market selloff, paired with a slowdown in big ticket purchases, has slowed the economy.

— U.S. core CPI, which excludes food & energy prices, slowed to 5.9% year-over-year in June. However, headline inflation which includes food and energy prices, came in surprisingly hot at 9.1% year-over-year, exceeding expectations. Higher energy prices were a major driver of the inflation print, with energy commodities and gasoline moving more than 10% higher just from May to June.

— Unemployment was unchanged at 3.6% during Q2. The broader U-6 unemployment rate tightened from 6.9% to 6.7%. A strong job market likely emboldens the Federal Reserve in its fight against high inflation, as the Fed holds a dual mandate to maximize employment and keep prices stable.

— Consumer sentiment collapsed to the lowest reading on record, according to the University of Michigan survey, which moved from 59.4 to 50.0. Survey respondents across all income, age, education, region, and political affiliation groups displayed deterioration in their outlook for the economy. Nearly half of respondents feel that inflation is damaging living standards.

	Most Recent	**12 Months Prior**
Real GDP *(YoY)*	1.6% *6/30/22*	12.2% *6/30/21*
Inflation *(CPI YoY, Core)*	5.9% *6/30/22*	4.4% *6/30/21*
Expected Inflation *(5yr-5yr forward)*	2.1% *6/30/22*	2.2% *6/30/21*
Fed Funds Target Range	1.50% – 1.75% *6/30/22*	0.00% – 0.25% *6/30/21*
10-Year Rate	2.89% *6/30/22*	1.45% *6/30/21*
U-3 Unemployment	3.6% *6/30/22*	5.9% *6/30/21*
U-6 Unemployment	6.7% *6/30/22*	9.8% *6/30/21*

International economics summary

— Economic growth has moderated in most countries, moving toward average levels. Higher inflation continues to erode growth figures as GDP is typically quoted as *inflation-adjusted* growth.

— Inflation trends continue to be disparate around the world. Japan and China are experiencing very low inflation and muted price pressures, while Europe and the United States are coping with multidecade-high inflation. Countries with low inflation and countries with high inflation all appear to have experienced an uptick during the second quarter.

— Labor markets have been relatively stable in developed markets, with conditions in the Eurozone strengthening. Unemployment in emerging markets were mixed—Brazil and Russia experienced improvement, while India and China saw slight weakening.

— Russia's invasion of Ukraine continued in the second quarter, leading to heavy loss of life on both sides. Most fighting has taken place in the east, as Russia generally gradually pushing forward. Concerns around food shortages in nearby countries that depend on Ukrainian agriculture persist, though many commodity prices that had shot higher in March and April have eased, falling closer to pre-invasion costs.

— During the first week of July, millions of Chinese citizens were put back into lockdown, and subjected to mass testing, as small outbreaks have led to renewed restrictions. China continues to stick to a "zero COVID" approach, which is increasingly at odds with the recognition by most nations that civilization will have to live *with* the virus for the long-term, while moving back to normal life.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	1.6% 6/30/22	9.1% 6/30/22	3.6% 6/30/22
Eurozone	5.4% 3/31/22	8.6% 6/30/22	6.6% 5/31/22
Japan	0.4% 3/31/22	2.3% 6/30/22	2.6% 5/31/22
BRICS Nations	4.4% 3/31/22	4.6% 6/30/22	5.2% 12/31/21
Brazil	1.7% 3/31/22	11.9% 6/30/22	9.8% 5/31/22
Russia	3.5% 3/31/22	15.9% 6/30/22	3.9% 5/31/22
India	4.1% 3/31/22	7.0% 6/30/22	7.8% 6/30/22
China	4.8% 3/31/22	2.5% 6/30/22	5.9% 5/31/22

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.

Equity environment

— U.S. equities suffered large losses during the second quarter (S&P 500 -16.1%), as many highly priced growth stocks took an exceptionally large hit due to interest rate rises and risk-off sentiment. International developed equities (MSCI EAFE -14.5%) experienced similar losses, while emerging market equities (MSCI Emerging Markets -11.4%) outperformed materially, on an unhedged currency basis.

— As mentioned during Q2 earnings calls, a rising number of S&P 500 companies were concerned about material & commodity costs, COVID costs, and oil & gas prices. A decreasing number of companies were concerned about labor costs & shortages, supply chain disruptions, transport & freight costs, and Russia/Ukraine.

— Currency movement generated large losses for investors who do not hedge their foreign currency exposure. Investors in international developed markets would have seen a loss of approximately -7.3% with a currency hedging program, rather than the -14.5% loss of unhedged investors. Over the past full year, losses from currency movement were -12.4%.

— Value stocks outperformed Growth stocks by a wide margin again in Q2 (Russell 1000 Value -12.2% vs Russell 1000 Growth -20.9%) as many Growth stocks with lofty valuations suffered due to rising interest rates and broader risk-off sentiment. Large capitalization stocks outperformed small cap stocks slightly (Russell 1000 -16.7%, Russell 2000 -17.2%).

— The Cboe VIX Index rose during the quarter from 20.6% to 28.7%, as risk assets sold-off and investors began focusing on potential recession. Investors remain acutely focused on the path of inflation, and market volatility may ease if inflation does in fact begin to moderate in future months.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	(16.1%)		(10.6%)	
U.S. Small Cap (Russell 2000)	(17.1%)		(25.2%)	
U.S. Equity (Russell 3000)	(16.7%)		(13.9%)	
U.S. Large Value (Russell 1000 Value)	(12.2%)		(6.8%)	
US Large Growth (Russell 1000 Growth)	(20.9%)		(18.8%)	
Global Equity (MSCI ACWI)	(15.7%)	(13.5%)	(15.8%)	(12.1%)
International Large (MSCI EAFE)	(14.5%)	(7.3%)	(17.8%)	(5.4%)
Eurozone (Euro Stoxx 50)	(15.3%)	(9.2%)	(23.1%)	(11.3%)
U.K. (FTSE 100)	(11.2%)	(3.6%)	(7.1%)	6.2%
Japan (NIKKEI 225)	(14.8%)	(4.2%)	(23.8%)	(6.0%)
Emerging Markets (MSCI Emerging Markets)	(11.4%)	(8.2%)	(25.3%)	(21.5%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 6/30/22

Fixed income environment

— The 10-year U.S. Treasury yield jumped during Q2 from 2.34% to nearly 3.50%, ending the quarter at 2.89%. Yields have fallen from their highs as recession fears mount. The Federal Reserve has a history of cutting interest rates during recession. This implies a higher chance of rate cuts as it appears the U.S. may currently be in recession.

— Credit markets sold off during Q2, impacted by concerns of a slowing economy and recession as the Fed signaled a willingness to raise rates until inflation slows. Bank loans performed the best at -4.4% and outperformed longer duration bonds such as investment grade and high yield (-7.3% and -9.8%, respectively).

— Credit spreads jumped considerably alongside the broader market selloff. U.S. high yield spreads increased from 3.4% to 5.6% and U.S. investment grade spreads headed from 1.2% to 1.6%. In contrast to the recent low yield environment, fixed income now offers investors more robust yields.

— The U.S. yield curve remained fairly flat during the second quarter. The 10-year minus 2-year yield spread fluctuated between -0.05% and 0.4%. Markets continue to price a flat or inverted yield curve, which is generally recognized as a sign of incoming recession.

— In June, the U.S. Federal Reserve began to unwind its $9 trillion balance sheet. Initially this action involved *not purchasing new bonds* and letting existing bonds mature and roll off. The Fed signaled plans to allow $30 billion of U.S. Treasuries and $17.5 billion of mortgage-backed securities to fall off the balance sheet by end of month. Leadership has admitted that this size of divestment program is essentially the first of its kind and that the committee will be moving with caution.

	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	(4.7%)	(10.3%)
Core Plus Fixed Income (Bloomberg U.S. Universal)	(5.1%)	(10.9%)
U.S. Treasuries (Bloomberg U.S. Treasury)	(3.8%)	(8.9%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	(9.8%)	(12.8%)
Bank Loans (S&P/LSTA Leveraged Loan)	(4.4%)	(2.7%)
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(8.6%)	(19.3%)
Emerging Market Debt Hard (JPM EMBI Global Diversified)	(11.4%)	(21.1%)
Mortgage-Backed Securities (Bloomberg MBS)	(4.0%)	(9.0%)

Source: Bloomberg, as of 6/30/22

Public real assets environment

- REITs - REITs declined 16.8% during the 2nd quarter, reflecting increased global economic risk, the possibility of a recession on the horizon, and central banks globally pursuing higher rates in an effort to tame extremely high inflation. Investment activity, has declined due to the the impact of higher interest rates and increased construction costs.
- Listed Infrastructure – Although infrastructure returned 5.6% YOY, performance has rolled over with QTD returns of -5.7%, reflecting an increasingly risk-off appetite even for an ostensibly stable asset class with the ability to pass on inflationary pressures. Increasing rates, and the probability of a recession have weighed on pricing and returns, however of the 4 categories of publicly traded real assets tracked here, Infrastructure fared the least poorly.
- Commodities – Despite a material YOY gain of 24.3%, commodities fell 5.7% in Q2, 2022, reflecting a stalled, yet volatile, market for raw materials. Tin, lumber, aluminum, and nickel led markets lower, as risk of recession, rising rates, and a stronger US dollar weighed on sentiment.
- TIPS - The Bloomberg U.S. TIPS index returned -6.1% in the most recent quarter and is down 5.1% year-over-year. This is unsurprising given not only the Federal Reserve's dramatic rate increases, but their continued messaging that they will continue to fight inflation with the tools at their disposal, and that, with a robust labor market, their key focus is the second part of their mandate, price stability.

	QTD Total Return	1 Year Total Return
REITs (FTSE EPRA/NAREIT Global)	(16.8%)	(13.5%)
Listed Infrastructure (S&P Global Infrastructure)	(7.4%)	5.6%
Commodities (Bloomberg Commodity Index)	(5.7%)	24.3%
TIPS (Bloomberg US TIPS)	(6.1%)	(5.1%)

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	(8.3)	(16.1)	(20.0)	(10.6)	10.6	11.3	13.0
S&P 500 Equal Weighted	(9.4)	(14.4)	(16.7)	(9.4)	9.7	9.9	12.7
DJ Industrial Average	(6.6)	(10.8)	(14.4)	(9.1)	7.2	10.0	11.7
Russell Top 200	(7.8)	(16.6)	(20.7)	(11.5)	11.5	12.2	13.4
Russell 1000	(8.4)	(16.7)	(20.9)	(13.0)	10.2	11.0	12.8
Russell 2000	(8.2)	(17.2)	(23.4)	(25.2)	4.2	5.2	9.4
Russell 3000	(8.4)	(16.7)	(21.1)	(13.9)	9.8	10.6	12.6
Russell Mid Cap	(10.0)	(16.8)	(21.6)	(17.3)	6.6	8.0	11.3
Style Index							
Russell 1000 Growth	(7.9)	(20.9)	(28.1)	(18.8)	12.6	14.3	14.8
Russell 1000 Value	(8.7)	(12.2)	(12.9)	(6.8)	6.9	7.2	10.5
Russell 2000 Growth	(6.2)	(19.3)	(29.5)	(33.4)	1.4	4.8	9.3
Russell 2000 Value	(9.9)	(15.3)	(17.3)	(16.3)	6.2	4.9	9.1

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	(8.4)	(15.7)	(20.2)	(15.8)	6.2	7.0	8.8
MSCI ACWI ex US	(8.6)	(13.7)	(18.4)	(19.4)	1.4	2.5	4.8
MSCI EAFE	(9.3)	(14.5)	(19.6)	(17.8)	1.1	2.2	5.4
MSCI EM	(6.6)	(11.4)	(17.6)	(25.3)	0.6	2.2	3.1
MSCI EAFE Small Cap	(11.0)	(17.7)	(24.7)	(24.0)	1.1	1.7	7.2
Style Index							
MSCI EAFE Growth	(8.6)	(16.9)	(26.8)	(23.8)	1.3	3.5	6.3
MSCI EAFE Value	(10.0)	(12.4)	(12.1)	(11.9)	0.2	0.5	4.2
Regional Index							
MSCI UK	(8.6)	(10.5)	(8.8)	(4.0)	1.2	2.2	3.7
MSCI Japan	(7.9)	(14.6)	(20.3)	(19.9)	1.0	1.8	5.6
MSCI Euro	(11.3)	(15.8)	(25.2)	(23.8)	(1.1)	0.4	5.3
MSCI EM Asia	(4.8)	(9.3)	(17.2)	(25.9)	3.1	3.4	5.5
MSCI EM Latin American	(17.0)	(21.9)	(0.6)	(16.1)	(6.3)	(0.6)	(2.2)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
Bloomberg US TIPS	(3.2)	(6.1)	(8.9)	(5.1)	3.0	3.2	1.7
Bloomberg US Treasury Bills	(0.0)	0.1	0.0	0.0	0.6	1.1	0.6
Bloomberg US Agg Bond	(1.6)	(4.7)	(10.3)	(10.3)	(0.9)	0.9	1.5
Bloomberg US Universal	(2.0)	(5.1)	(10.9)	(10.9)	(0.9)	0.9	1.8
Duration							
Bloomberg US Treasury 1-3 Yr	(0.6)	(0.5)	(3.0)	(3.5)	0.2	0.9	0.8
Bloomberg US Treasury Long	(1.5)	(11.9)	(21.3)	(18.5)	(2.9)	0.5	1.6
Bloomberg US Treasury	(0.9)	(3.8)	(9.1)	(8.9)	(0.9)	0.7	1.0
Issuer							
Bloomberg US MBS	(1.6)	(4.0)	(8.8)	(9.0)	(1.4)	0.4	1.2
Bloomberg US Corp. High Yield	(6.7)	(9.8)	(14.2)	(12.8)	0.2	2.1	4.5
Bloomberg US Agency Interm	(0.6)	(1.3)	(5.0)	(5.6)	(0.3)	0.8	0.9
Bloomberg US Credit	(2.6)	(6.9)	(13.8)	(13.6)	(1.0)	1.2	2.5

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	(10.8)	(5.7)	18.4	24.3	14.3	8.4	(0.8)
Wilshire US REIT	(7.3)	(5.4)	(14.9)	4.4	7.4	7.5	8.8
CS Leveraged Loans	(2.1)	(4.4)	(4.4)	(2.7)	2.0	3.0	3.9
S&P Global Infrastructure	(7.7)	(7.4)	(0.5)	5.6	3.5	4.8	7.2
Alerian MLP	(14.0)	(7.4)	10.1	4.1	(1.2)	(1.2)	0.8
Regional Index							
JPM EMBI Global Div	(6.2)	(11.4)	(20.3)	(21.2)	(5.2)	(1.2)	2.2
JPM GBI-EM Global Div	(4.5)	(8.6)	(14.5)	(19.3)	(5.8)	(2.3)	(1.5)
Hedge Funds							
HFRI Composite	(3.1)	(4.9)	(5.9)	(5.8)	6.1	5.0	5.0
HFRI FOF Composite	(0.9)	(3.6)	(6.3)	(5.2)	4.1	3.7	3.8
Currency (Spot)							
Euro	(2.4)	(6.0)	(8.1)	(11.8)	(2.8)	(1.7)	(1.9)
Pound Sterling	(3.6)	(7.8)	(10.3)	(12.1)	(1.5)	(1.3)	(2.5)
Yen	(5.3)	(10.7)	(15.2)	(18.3)	(7.4)	(3.7)	(5.2)

Source: Morningstar, HFRI, as of 6/30/22.

	Current Balance	Current Allocation	Policy	Target Ranges
Growth	$3,765,332,234	45%	45%	35-55%
Income	$2,976,331,010	35%	35%	30-40%
Inflation Hedge	$3,432,709,907	41%	40%	35-45%
Absolute Return	$1,756,000,738	21%	20%	15-25%
Cash		0%	0%	0-2%
Total	$11,930,373,889	142%	140%	

Global Public Equities	$2,503,487,643	30%	30%	15-45%
Global Private Equities	$1,261,844,591	15%	15%	5-20%
Long Treasuries	$2,082,713,493	25%	25%	20-30%
Core Bonds	$893,617,517	11%	10%	5-15%
Commodities	$407,014,082	5%	5%	0-10%
TIPS	$2,174,474,326	26%	25%	20-30%
Private Real Assets	$438,594,765	5%	5%	0-10%
Public Real Assets	$412,626,735	5%	5%	0-10%
Direct Hedge Funds	$426,969,620	5%	5%	0-10%
Alternative Beta	$856,299,581	10%	10%	5-15%
Private Credit	$472,731,537	6%	5%	0-10%
Total	$11,930,373,889	142%	140%	

Performance Attribution
Quarter Ending June 30, 2022

	Last 3 Mo.
Wtd. Actual Return	-10.6
Wtd. Index Return	-11.1
Excess Return	**0.5**
Selection Effect	0.5
Allocation Effect	0.0
Interaction Effect	0.0

*Calculated from benchmark returns and weightings of each component.

Attribution Summary
Quarter Ending June 30, 2022

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Global Public Equities	-14.9	-15.6	0.7	0.2	0.0	0.0	0.2
Total Global Private Equities	-7.4	-7.9	0.5	0.1	0.0	0.0	0.1
Total Long Treasuries - New	-11.9	-12.1	0.2	0.0	0.1	0.0	0.1
Total Core Bonds	-4.3	-4.7	0.4	0.0	0.0	0.0	0.0
Total Commodities - New	-6.0	-5.9	0.0	0.0	0.0	0.0	0.0
Total TIPS - New	-3.8	-3.6	-0.2	-0.1	0.0	0.0	-0.1
Total Private Real Assets	3.8	3.1	0.7	0.0	0.0	0.0	0.0
Total Public Real Assets	-14.9	-14.9	0.0	0.0	0.0	0.0	0.0
Total Hedge Funds	-0.4	-1.5	1.1	0.1	0.0	0.0	0.1
Total Alternative Beta - Beta	3.1	2.4	0.7	0.1	0.0	0.0	0.1
Total Private Credit	-3.9	-3.9	0.0	0.0	0.0	0.0	0.0
Total	**-10.6**	**-11.1**	**0.5**	**0.5**	**0.0**	**0.0**	**0.5**

Weighted returns shown in attribution analysis may differ from actual returns. due to underlying cash flows. Total sums may not add due to rounding. Selection, allocation, and interaction effect line items reflect total fund impact.

MOSERS fund attribution – 2Q 2022

- Total Fund outperformed Policy by 50 basis points (-10.6% vs. -11.1%)
- All major asset classes outperformed their respective policy benchmarks except for very modest underperformance of Inflation Hedge assets
- Outperformance was driven by Selection Effect primarily from Global Public Equities; however, Hedge Funds produced best benchmark relative performance

Weighted returns shown in attribution analysis may differ from actual returns. due to underlying cash flows. Total sums may not add due to rounding. Selection, allocation, and interaction effect line items reflect total fund impact.

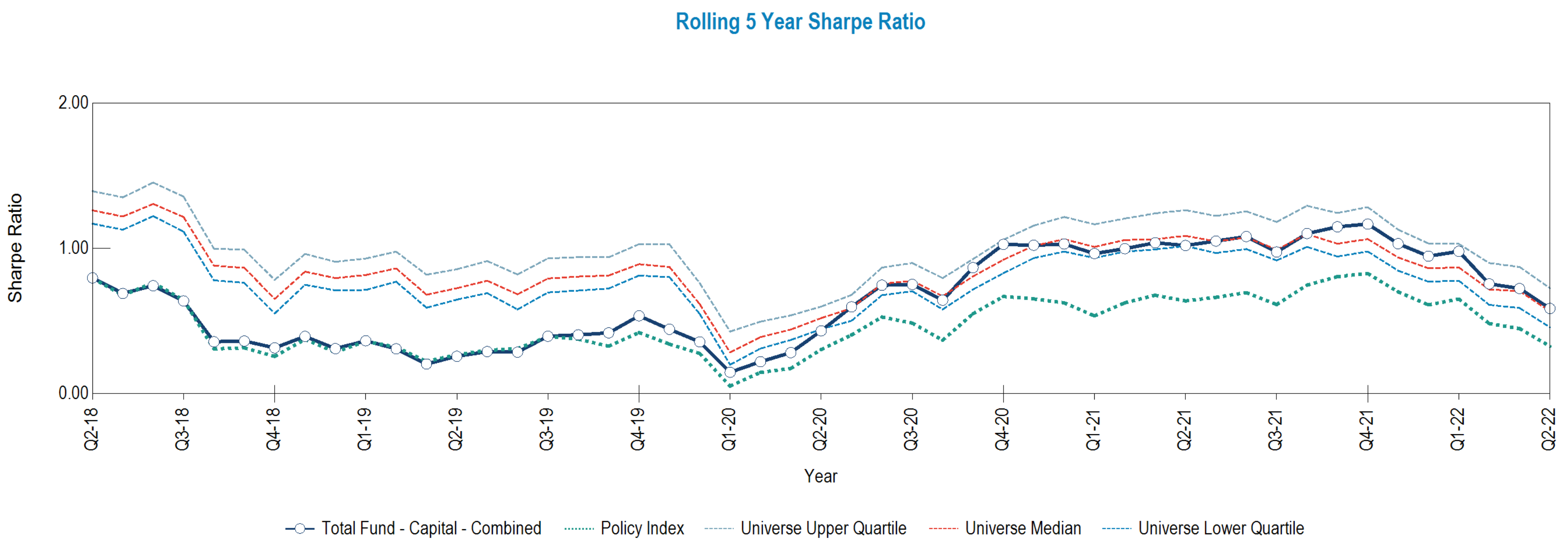
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	Inception	Inception Date
Missouri State Employees' Retirement System										
Total Fund - Capital - Combined	**8,412,240,177**	**-10.6**	**-9.0**	**-9.0**	**6.6**	**6.3**	**6.1**	**7.1**	**9.3**	**Apr-81**
Policy Index		*-11.1*	*-10.0*	*-10.0*	*4.7*	*4.3*	*5.3*	*6.1*	*8.8*	*Apr-81*
Real Return Objective		*4.1*	*13.8*	*13.8*	*9.7*	*8.7*	*7.7*	*7.7*	*--*	*Apr-81*

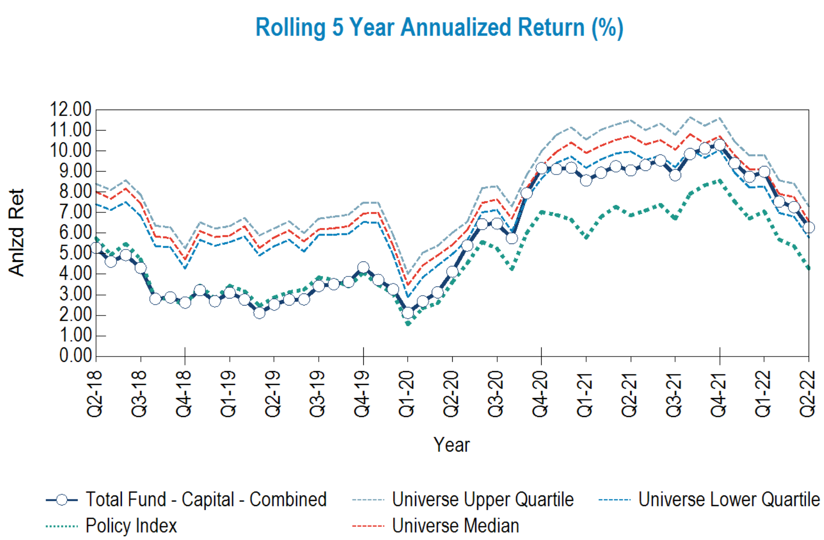
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	Inception	Inception Date
Missouri State Employees' Retirement System - New										
Total Fund New - Capital	**8,404,437,981**	**-10.6**	**-9.0**	**-9.0**	**6.4**	**--**	**--**	**--**	**7.8**	**Feb-19**
Total Fund NEW Policy		*-11.1*	*-10.0*	*-10.0*	*6.5*	*--*	*--*	*--*	*8.1*	*Feb-19*
Total Growth	**3,765,332,234**	**-12.4**	**-12.8**	**-12.8**	**7.2**	**--**	**--**	**--**	**8.2**	**Feb-19**
Total Growth Policy		*-13.1*	*-11.6*	*-11.6*	*9.4*	*--*	*--*	*--*	*10.1*	*Feb-19*
Total Global Public Equities	2,503,487,643	-14.9	-14.8	-14.8	6.1	--	--	--	7.6	Feb-19
Global Public Equities Policy		*-15.6*	*-15.6*	*-15.6*	*6.4*	*--*	*--*	*--*	*7.9*	*Feb-19*
Total Global Private Equities	1,261,844,591	-7.4	-8.8	-8.8	10.8	--	--	--	11.2	Feb-19
Global Private Equities Policy		*-7.9*	*-6.2*	*-6.2*	*15.0*	*--*	*--*	*--*	*15.7*	*Feb-19*
Total Income	**2,976,331,010**	**-9.8**	**-15.7**	**-15.7**	**-2.4**	**--**	**--**	**--**	**0.1**	**Feb-19**
Total Income Policy		*-10.0*	*-16.3*	*-16.3*	*-2.7*	*--*	*--*	*--*	*-0.1*	*Feb-19*
Total Long Treasuries - New	2,082,713,493	-11.9	-18.4	-18.4	-3.4	--	--	--	-0.4	Feb-19
Long Treasuries Policy		*-12.1*	*-18.7*	*-18.7*	*-3.5*	*--*	*--*	*--*	*-0.6*	*Feb-19*
Total Core Bonds	893,617,517	-4.3	-8.7	-8.7	-0.1	--	--	--	1.3	Feb-19
Core Bonds Policy		*-4.7*	*-10.3*	*-10.3*	*-0.9*	*--*	*--*	*--*	*0.6*	*Feb-19*
Total Inflation Hedge	**3,432,709,907**	**-4.6**	**4.2**	**4.2**	**6.0**	**--**	**--**	**--**	**6.2**	**Feb-19**
Total Inflation Policy		*-4.5*	*3.5*	*3.5*	*5.5*	*--*	*--*	*--*	*5.7*	*Feb-19*
Total Commodities - New	407,014,082	-6.0	23.7	23.7	14.8	--	--	--	12.2	Feb-19
Commodities Policy		*-5.9*	*23.8*	*23.8*	*13.6*	*--*	*--*	*--*	*11.4*	*Feb-19*
Total TIPS - New	2,174,474,326	-3.8	-2.2	-2.2	2.6	--	--	--	3.1	Feb-19
TIPS Policy		*-3.6*	*-2.3*	*-2.3*	*2.6*	*--*	*--*	*--*	*3.2*	*Feb-19*

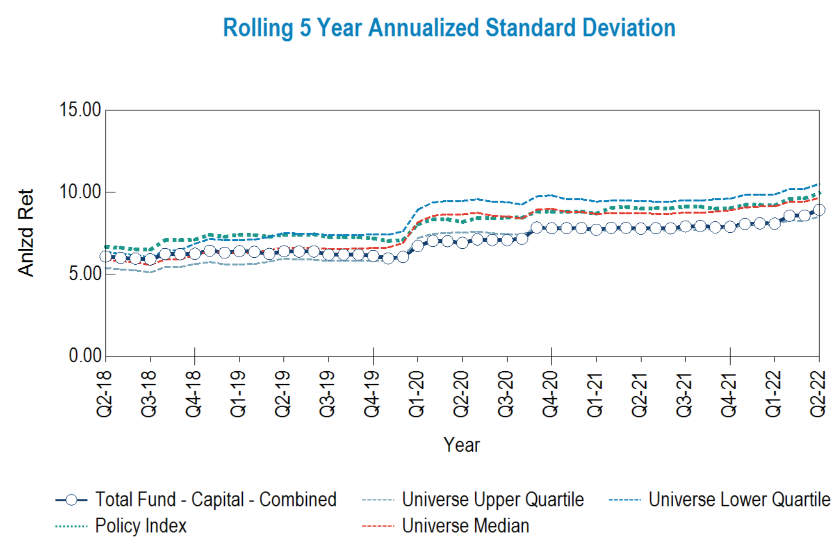
Total Fund market values include Cash Reserve $101,782, Residual Accounts $7,689,208, and Cash Reserve - Illiquids, $11,207.

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	Inception	Inception Date
Total Private Real Assets	438,594,765	3.8	30.3	30.3	12.2	--	--	--	11.9	Feb-19
Private Real Assets Policy		*3.1*	*23.1*	*23.1*	*10.1*	--	--	--	*9.5*	*Feb-19*
Total Public Real Assets	412,626,735	-14.9	-6.9	-6.9	4.5	--	--	--	5.9	Feb-19
Public Real Assets Policy		*-14.9*	*-6.9*	*-6.9*	*4.6*	--	--	--	*6.0*	*Feb-19*
Total Absolute Return	**1,756,000,738**	**0.4**	**4.1**	**4.1**	**4.6**	**--**	**--**	**--**	**4.3**	**Feb-19**
Total Absolute Return Policy		*-0.2*	*0.5*	*0.5*	*4.7*	--	--	--	*5.4*	*Feb-19*
Total Hedge Funds	426,969,620	-0.4	5.4	5.4	7.8	--	--	--	7.3	Feb-19
Hedge Funds Policy		*-1.5*	*0.8*	*0.8*	*8.5*	--	--	--	*8.5*	*Feb-19*
Total Alternative Beta - Beta	856,299,581	3.1	5.1	5.1	2.8	--	--	--	2.4	Feb-19
Alt Beta - Beta Policy		*2.4*	*0.8*	*0.8*	*3.0*	--	--	--	*4.0*	*Feb-19*
Total Private Credit	472,731,537	-3.9	1.0	1.0	5.3	--	--	--	5.5	Feb-19
Private Credit Policy		*-3.9*	*-0.8*	*-0.8*	*4.1*	--	--	--	*4.8*	*Feb-19*

Total Fund market values include Cash Reserve $101,782, Residual Accounts $7,689,208, and Cash Reserve - Illiquids, $11,207.


Rolling 5 Year Sharpe Ratio
Sharpe Ratio
2.00
1.00
0.00
Q2-18
Q3-18
Q4-18
Q1-19
Q2-19
Q3-19
Q4-19
Q1-20
Q2-20
Q3-20
Q4-20
Q1-21
Q2-21
Q3-21
Q4-21
Q1-22
Q2-22
Year
Total Fund - Capital - Combined
Policy Index
Universe Upper Quartile
Universe Median
Universe Lower Quartile


Rolling 5 Year Annualized Return (%)
Anlzd Ret
12.00
11.00
10.00
9.00
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
Q2-18
Q3-18
Q4-18
Q1-19
Q2-19
Q3-19
Q4-19
Q1-20
Q2-20
Q3-20
Q4-20
Q1-21
Q2-21
Q3-21
Q4-21
Q1-22
Q2-22
Year
Total Fund - Capital - Combined
Universe Upper Quartile
Universe Lower Quartile
Policy Index
Universe Median


Rolling 5 Year Annualized Standard Deviation
Anlzd Ret
15.00
10.00
5.00
0.00
Q2-18
Q3-18
Q4-18
Q1-19
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Q3-19
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Q2-20
Q3-20
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Q1-21
Q2-21
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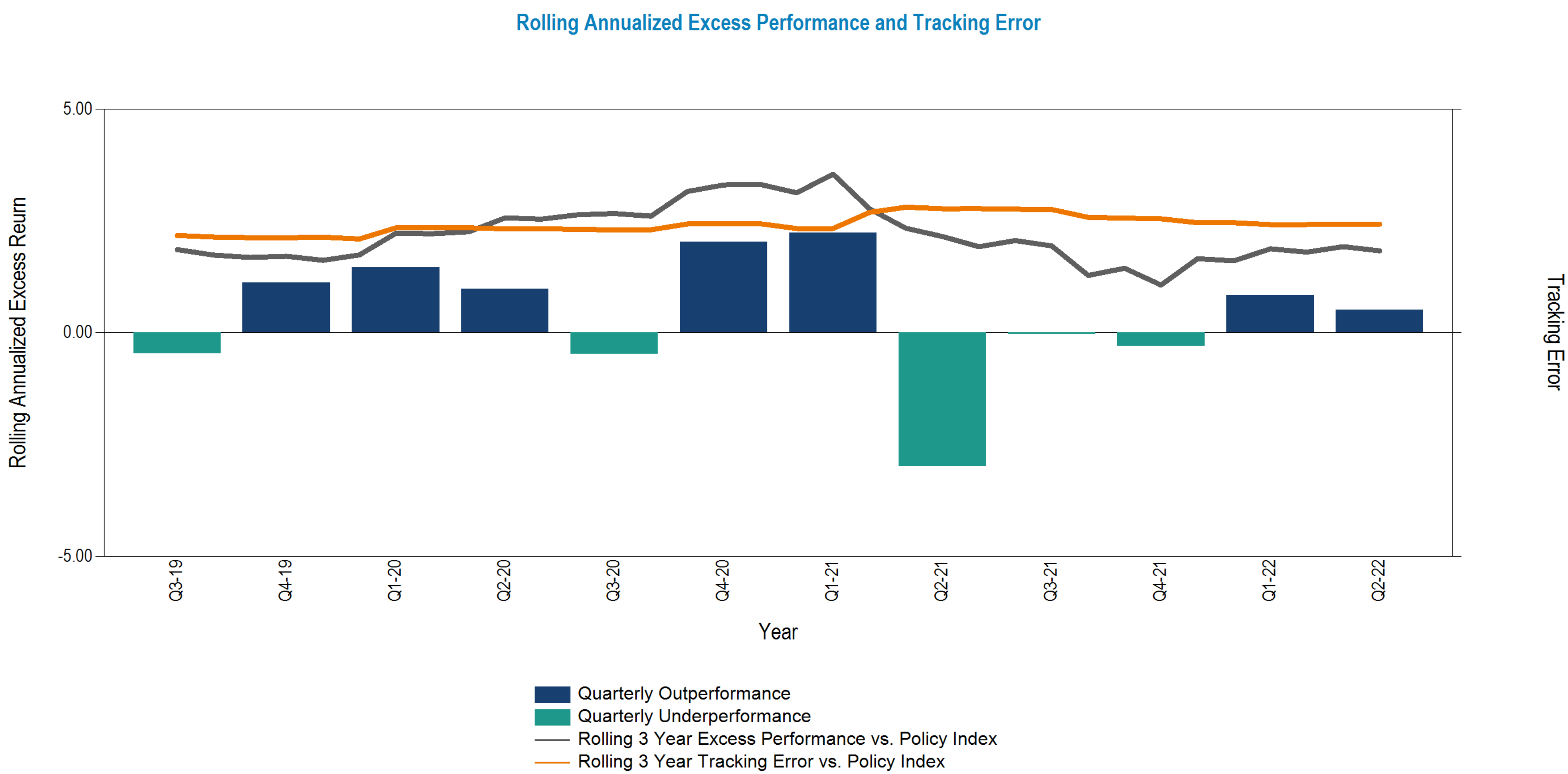
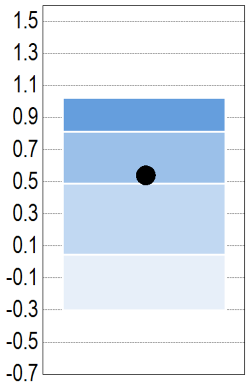
Year
Total Fund - Capital - Combined
Universe Upper Quartile
Universe Lower Quartile
Policy Index
Universe Median


Rolling Annualized Excess Performance and Tracking Error
5.00
0.00
-5.00
Rolling Annualized Excess Reurn
Tracking Error
Q3-19
Q4-19
Q1-20
Q2-20
Q3-20
Q4-20
Q1-21
Q2-21
Q3-21
Q4-21
Q1-22
Q2-22
Year
Quarterly Outperformance
Quarterly Underperformance
Rolling 3 Year Excess Performance vs. Policy Index
Rolling 3 Year Tracking Error vs. Policy Index

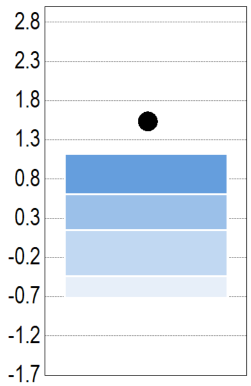
	Last Quarter	Year to Date	1 Year	3 Year	5 Year	10 Year
● Total Fund - Capital - Combined						
Value	-10.6	-13.7	-9.0	6.6	6.3	6.1
Rank	83	77	64	43	57	99
Universe						
5th %tile	-4.8	-5.7	0.2	8.7	8.4	8.9
25th %tile	-6.9	-8.9	-4.4	7.0	7.2	8.2
Median	-8.6	-11.9	-7.4	6.3	6.6	7.6
75th %tile	-9.8	-13.6	-10.5	5.2	5.8	7.1
95th %tile	-11.1	-15.6	-12.5	4.1	5.0	6.2
Observations	64	64	63	62	62	57

InvestorForce Public DB > $1B Net Universe used for comparative purposes.

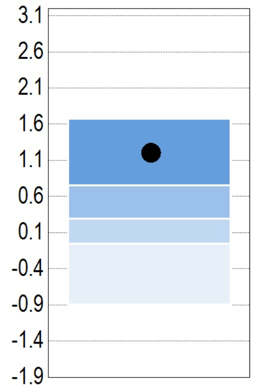
Last Quarter



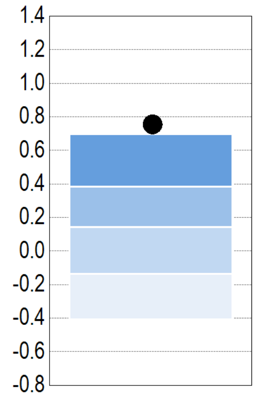
Year to Date



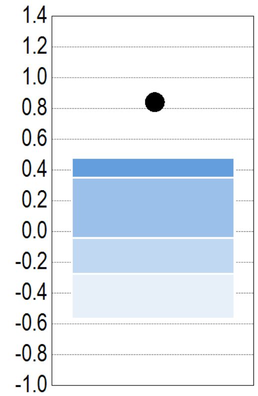
1 Year



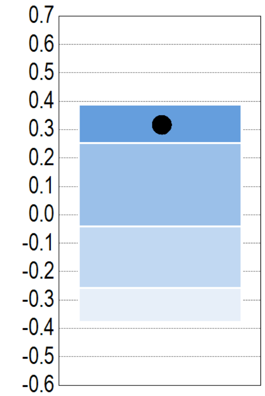
3 Year



5 Year

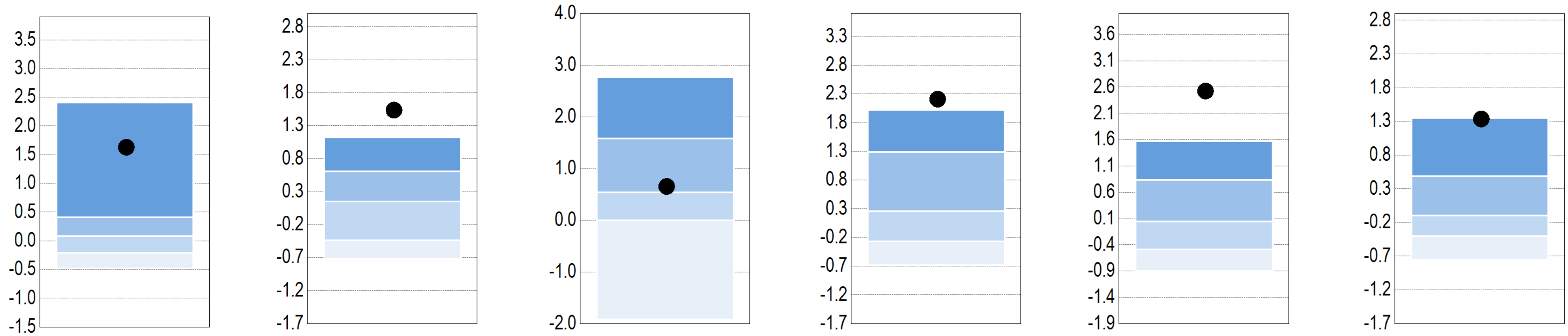


10 Year



● Total Fund - Capital - Combined	Last Quarter	Year to Date	1 Year	3 Year	5 Year	10 Year
Value	0.5	1.5	1.2	0.8	0.8	0.3
Rank	41	3	15	5	2	18
Universe						
5th %tile	1.0	1.1	1.7	0.7	0.5	0.4
25th %tile	0.8	0.6	0.8	0.4	0.4	0.3
Median	0.5	0.2	0.3	0.1	0.0	0.0
75th %tile	0.0	-0.4	0.0	-0.1	-0.3	-0.3
95th %tile	-0.3	-0.7	-0.9	-0.4	-0.6	-0.4
Observations	22	22	22	22	22	22

InvestorForce Public DB > $1B Net Universe used for comparative purposes.



	Last Quarter	Year to Date	1 Year	3 Year	5 Year	10 Year
●	Total Fund New - Capital	Total Fund - Capital - Combined	Total Fund - Capital - Combined	Total Fund - Capital - Combined	Total Fund - Capital - Combined	Total Fund - Capital - Combined
Value	1.6	1.5	0.7	2.2	2.5	1.3
Rank	8	3	49	5	3	6
Universe						
5th %tile	2.4	1.1	2.8	2.0	1.6	1.4
25th %tile	0.4	0.6	1.6	1.3	0.8	0.5
Median	0.1	0.2	0.5	0.3	0.1	-0.1
75th %tile	-0.2	-0.4	0.0	-0.3	-0.5	-0.4
95th %tile	-0.5	-0.7	-1.9	-0.7	-0.9	-0.7
Observations	22	22	22	22	22	22

InvestorForce Public DB > $1B Net Universe used for comparative purposes.

Total Fund: 45% Growth + 35% Income + 40% Inflation Hedge + 20% Absolute Return

Total Growth Policy: 33% (Custom Blend of MSCI ACWI + SSPEI) + 67% MSCI ACWI

Global Public Equities Policy: MSCI ACWI

Global Private Equities Policy: Custom weighted blend of MSCI ACWI and SSPEI weighted by Vintage Year after 12/31/2018. Prior to 12/31/2018, legacy Private Equity portfolio is benchmarked to actual portfolio returns since it is in run-off mode.

Total Income Policy: 30% Bloomberg Aggregate + 70% BB Long Treasury

Long Treasuries Policy: Bloomberg Long Treasury Core Bonds

Policy: Bloomberg Aggregate Bond (BB Agg)

Total Inflation Policy: 12.5% BCOM + 62.5% BB 1-10 TIPS + 12.5% Custom weighted blend of NAREIT and NCREIF ODCE) + 12.5% NAREIT Index

Commodities Policy: Bloomberg Commodity Index (BCOM)

TIPS Policy: Bloomberg 1-10 yr TIPS

Private Real Assets Policy: Custom weighted blend of NCREIF ODCE and NAREIT Public Real Assets Policy: FFTSE NAREIT All REITS Total Return Index ("NAREIT")

Total Absolute Return Policy: 25% (HFRI FoF Cons. + 70 bps) + 50% HFRX Macro/CTA + 25% S&P/LTSA LL + 2%

Hedge Funds Policy: HFRI Fund of Funds: Conservative Index + 70 basis points

Alternative Beta – Beta Policy: HFRX Macro/CTA

Private Credit Policy: S&P/ LTSA U.S. Leveraged Loan Index + 2%

* Benchmark Changes approved at the June 2021 meeting and effective July 1st, 2021. Changes to Private Equity historical benchmark prior to 12/31/2018 approved at June 2022 meeting and applied retroactively from July 1st, 2021.

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio Standard Deviation.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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Verus receives universe data from InvMetrics, eVestment Alliance, and Morningstar. We believe this data to be robust and appropriate for peer comparison. Nevertheless, these universes may not be comprehensive of all peer investors/managers but rather of the investors/managers that comprise that database. The resulting universe composition is not static and will change over time. Returns are annualized when they cover more than one year. Investment managers may revise their data after report distribution. Verus will make the appropriate correction to the client account but may or may not disclose the change to the client based on the materiality of the change.

MOSERS
Quarterly Investment Report

2nd Quarter of 2022

2nd Quarter of 2022 Portfolio Highlights

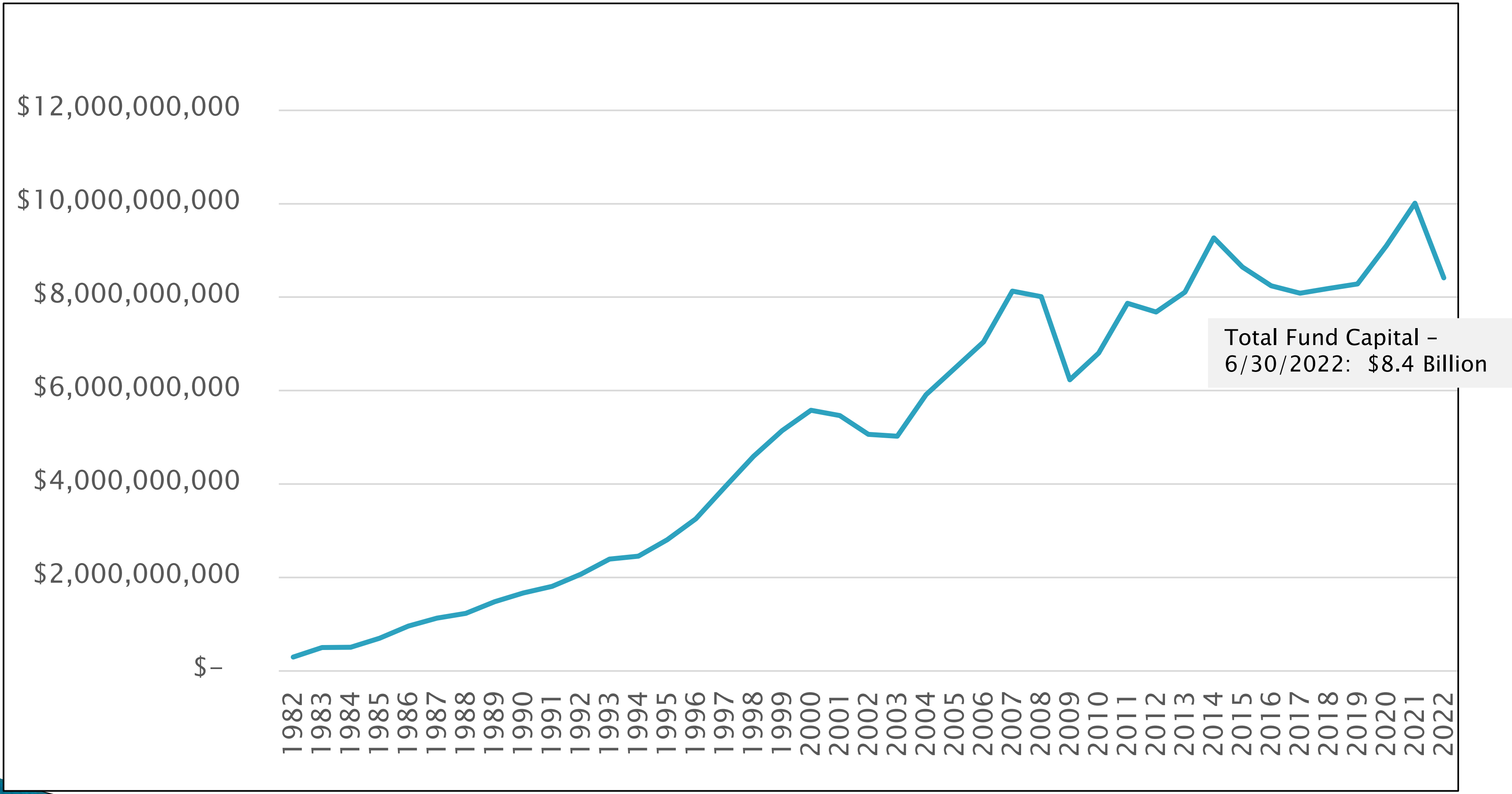
- ***During the quarter, the portfolio returned -10.6% while the policy benchmark returned -11.1%. This results in a 0.5% outperformance for the quarter.***
  - The Absolute Return portfolio was the best performing asset class on both absolute and relative basis. It was also the only asset class with a positive return for the quarter returning 0.4% while the benchmark returned -0.2%.
  - Growth Assets were the worst performer as global equities sold off during the quarter. MOSERS' Growth allocation was down -12.4% for the quarter but exceeded the policy return of -13.1%.
  - The Income portfolio also struggled in a rising interest rate environment and delivered a -9.8% return. However, the asset class outperformed its policy benchmark by 0.2% with the help of portable alpha within the Core Bond allocation.
  - Inflation Hedge assets slightly underperformed policy by 0.1% with a quarterly return of -4.6% vs. the benchmark return of -4.5%.

Portfolio Returns vs Policy Over Time

Period Ending 6/30/2022				
	MOSERS Returns			
Period	**Total Fund Actual - Annualized Return**	**Total Fund Policy - Annualized Return**	**Value Added in %**	**Value Added in $**
1 Year	-9.0%	-10.0%	1.0%	$ 96,063,939
3 Year	6.6%	4.7%	1.8%	$ 468,496,832
5 Year	6.3%	4.3%	2.0%	$ 878,962,020
10 Year	6.1%	5.3%	0.7%	$ 609,419,767
15 Year	5.1%	4.2%	0.8%	$ 1,298,666,236
20 Year	7.1%	6.1%	0.9%	$ 2,025,053,212
25 Year	6.7%	5.6%	1.1%	$ 3,318,587,799

MOSERS Historical Fund Value

Ended 6-30-2022

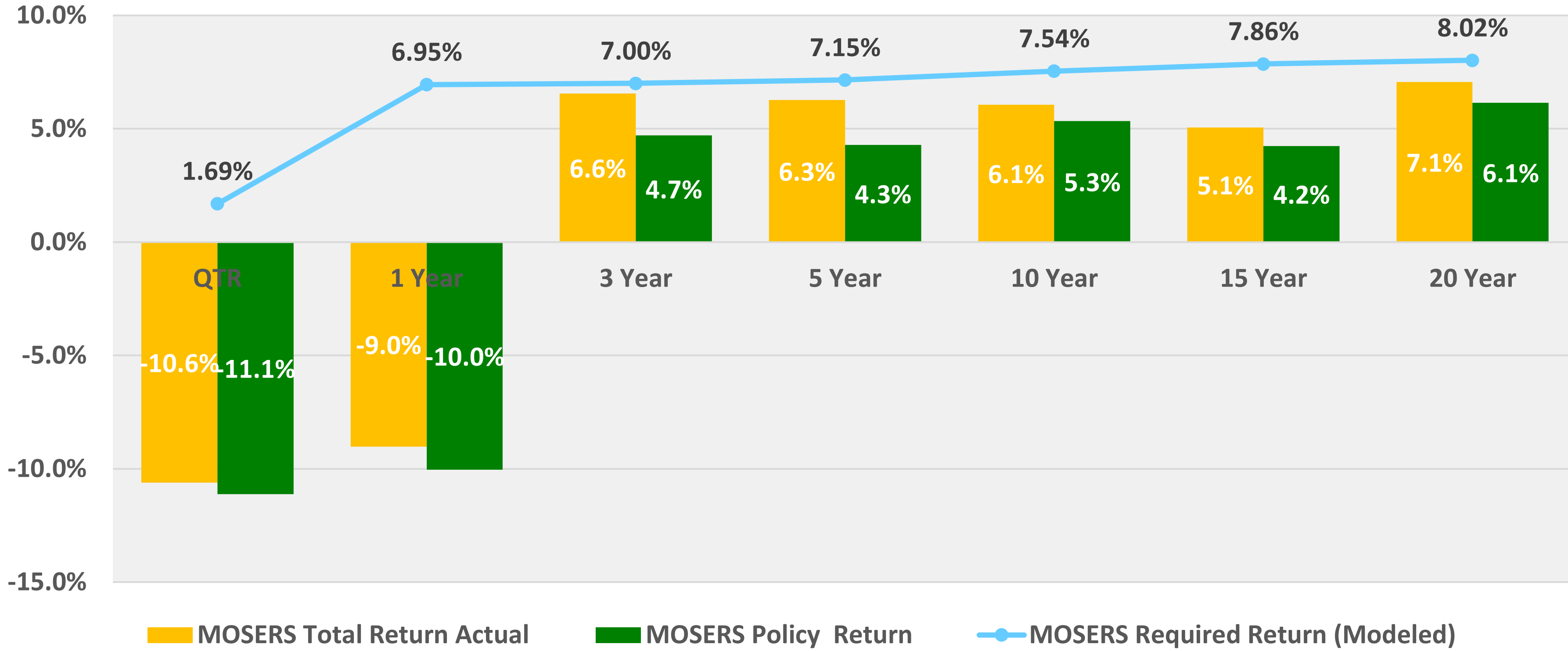


MOSERS Returns vs. Assumptions

HOW ARE WE DOING RELATIVE TO OUR ASSUMPTIONS?

Are we meeting our assumptions?

Ended 6-30-2022



Required Rate of Return (Modeled): This is the nominal rate of return the System has historically assumed necessary to achieve in order to fund the System's liabilities. It is the assumed real rate of return established by the actuarial assumption plus the assumed inflation for the period.

Portfolio Positioning

HOW ARE WE DIFFERENT FROM OUR BENCHMARKS?

Asset Class Weights

Portfolio at 6/30/2022				
	Policy Allocation	Policy Allocation Min and Max	Actual Allocation	Over/(Under) vs Policy Target
Total Growth	**45.0%**	**35% - 55%**	**44.8%**	**-0.2%**
Global Public Equities	30.0%	15% - 45%	29.8%	-0.2%
Global Private Equities	15.0%	5% - 20%	15.0%	0.0%
Total Income	**35.0%**	**30% - 40%**	**35.4%**	**0.4%**
Long Treasuries	25.0%	20% - 30%	24.8%	-0.2%
Core Bonds	10.0%	5% - 15%	10.6%	0.6%
Total Inflation Hedge	**40.0%**	**35% - 45%**	**40.8%**	**0.8%**
Commodities	5.0%	0% - 10%	4.8%	-0.2%
TIPS	25.0%	20% - 30%	25.9%	0.9%
Private Real Assets	5.0%	0% - 10%	5.2%	0.2%
Public Real Assets	5.0%	0% - 10%	4.9%	-0.1%
Total Absolute Return	**20.0%**	**15% - 25%**	**20.9%**	**0.9%**
Hedge Funds	5.0%	0% - 10%	5.1%	0.1%
Alt Beta	10.0%	5% - 15%	10.2%	0.2%
Private Credit	5.0%	0% - 10%	5.6%	0.6%

Total Portfolio - Capital	**140.0%**	**130% - 150%**	**142.0%**	**2.0%**

Portfolio Positioning – tactical active risk

How are we different from the benchmark in public markets?

- Active management in Global Public Equities
  - Targeted end result will be 100% active management in Global Public Equities:
    - Domestic Equity = 100% Portable Alpha
    - International Developed and Emerging Market Equity = 100% Active Managers (5 different funds utilized in order to diversify the active risk)
- Active management in Core Bonds
  - Portable Alpha on 42% of the total Core Bond exposure (100% Gov't)
- Active risk (tracking error) for public markets has been 0.9% over the past 3 years. IPS range is 0.5% to 3.5%

Portfolio Adjustments – 2nd Quarter 2022

List of Rebalancing Transactions

Date	Manager/Fund		Buy/(Sell)	Description
4/30/2022	NISA Real Assets	$	(78,000,000)	Reduced REITS exposure
4/30/2022	NISA Commodities	$	(25,000,000)	Reduced Commodities Index exposure
4/30/2022	NISA Long Treasuries	$	25,000,000	Increased Long Treasury Index exposure
4/30/2022	NISA TIPS	$	(45,000,000)	Reduced TIPS Index exposure
5/31/2022	NISA US Beta Portable Alpha	$	14,600,000	Increased US Equity exposure
5/31/2022	Artisan International Value Fund	$	4,200,000	Increased International active equity exposure
5/31/2022	NS Partners Emerging Markets	$	25,000,000	Increased International active equity exposure
5/31/2022	NISA Core Govt	$	(5,600,000)	Reduced core bond exposure
5/31/2022	NISA Core Credit	$	(9,500,000)	Reduced core bond exposure
5/31/2022	BlackRock Core Securitized	$	(4,900,000)	Reduced core bond exposure
5/31/2022	NISA Commodities	$	(38,000,000)	Reduced Commodities Index exposure
5/31/2022	NISA Long Treasuries	$	30,000,000	Increased Long Treasury Index exposure
5/31/2022	NISA TIPS	$	(70,000,000)	Reduced TIPS Index exposure
6/30/2022	NISA US Beta Portable Alpha	$	90,000,000	Increased US Equity beta exposure in portable alpha
6/30/2022	BlackRock US Equity	$	(90,000,000)	Reduced passive US Equity exposure
6/30/2022	Aberdeen HFRX Macro/CTA	$	(90,000,000)	Reduced Alt Beta index exposure

Fees

Breakdown of current fees

QE 6/30/2022	Management Fees	Incentive Fees	Fund Expenses	Admin Expenses*	Total Fees and Expenses
Dollars	$ 13,837,501	$ 18,905,241	$ 4,472,327	$ 1,303,577	$ 38,518,646
% of Fund based on capital	0.15%	0.21%	0.05%	0.01%	0.43%
% of Fund based on exposure	0.11%	0.15%	0.04%	0.01%	0.31%

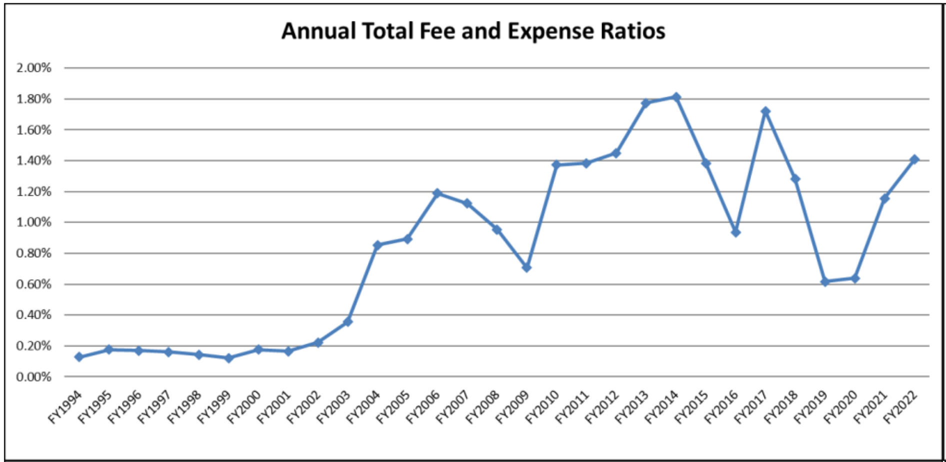
1 YE 6/30/2022	Management Fees	Incentive Fees	Fund Expenses	Admin Expenses*	Total Fees and Expenses
Dollars	$ 49,274,341	$ 54,192,864	$ 18,642,836	$ 5,020,305	$ 127,130,346
% of Fund based on capital	0.54%	0.60%	0.21%	0.06%	1.40%
% of Fund based on exposure	0.39%	0.43%	0.15%	0.04%	1.01%

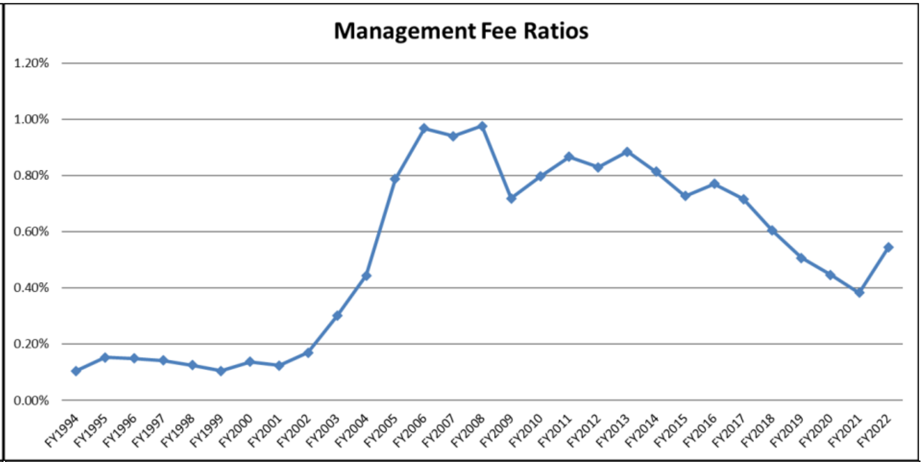
Peer Avg. Per CEM** 0.72%

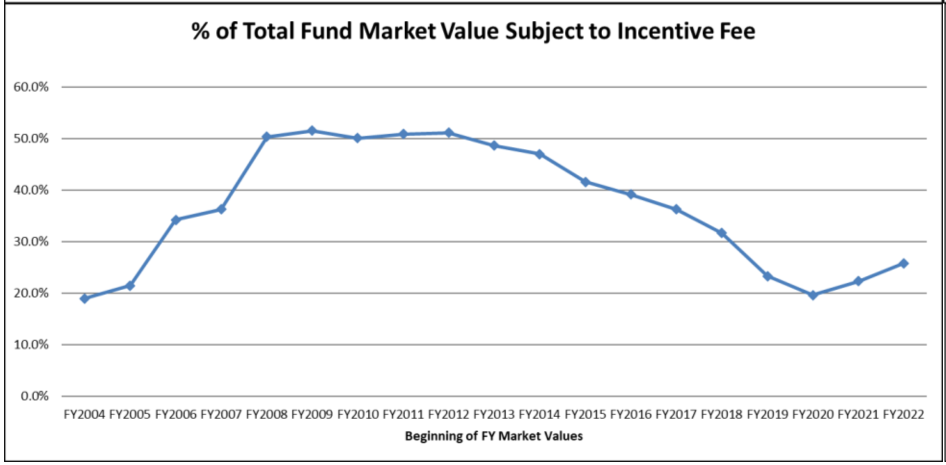
**CEM Report – 2020 Calendar Year

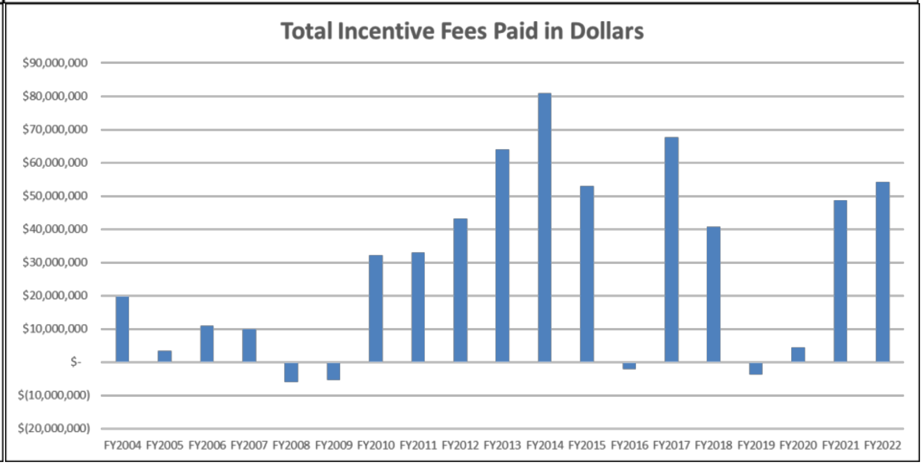
Fees have been increasing in the quarter and the year as we see the impact of hiring additional private market managers. We should expect fees to continue to increase as we build out the private asset classes and portable alpha.

Historical Fee Charts









Questions?

Appendix

Appendix: Supplemental Return Results

(As required by Section X of the IPS)

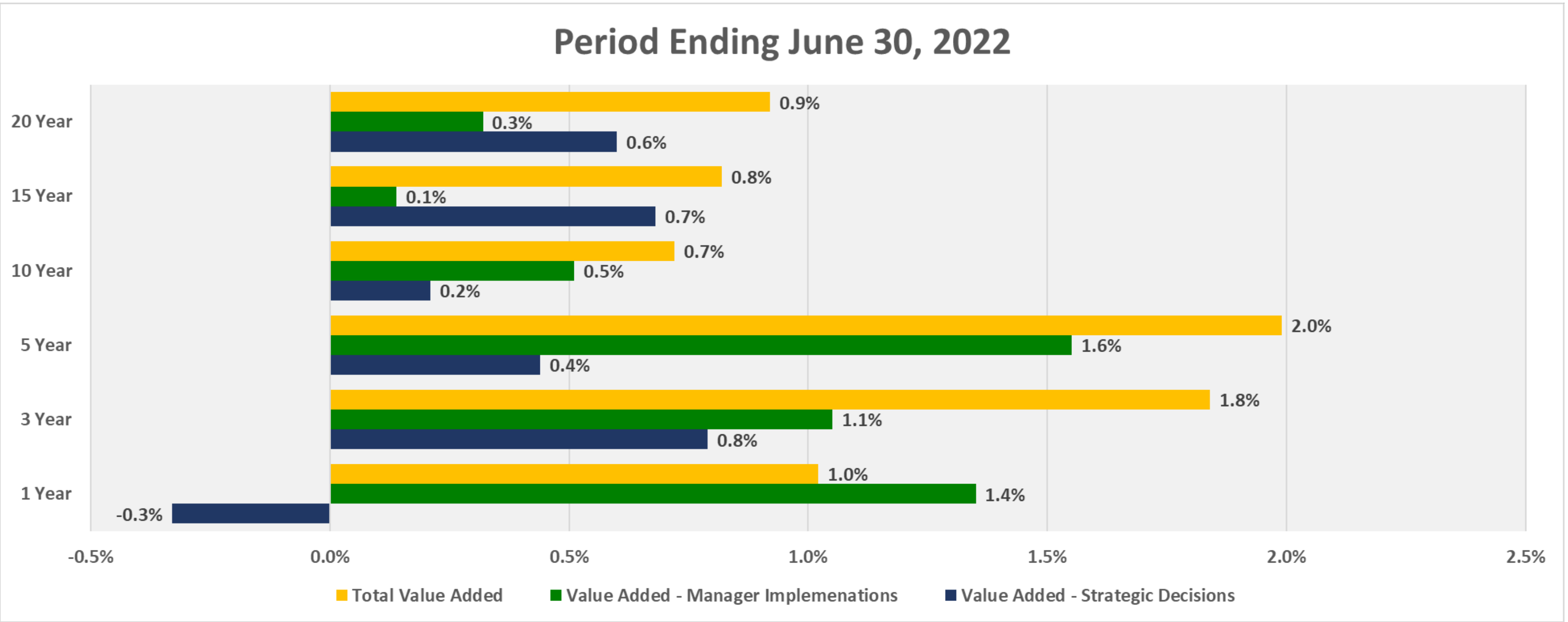
Period ended 6-30-2022

	Total Fund Policy - Annualized Return	Required Rate of Return (Actual)	Difference
1 Year	-10.0%	13.8%	-23.8%
3 Year	4.7%	9.7%	-5.0%
5 Year	4.3%	8.7%	-4.4%
10 Year	5.3%	7.7%	-2.4%
15 Year	4.2%	7.6%	-3.3%
20 Year	6.1%	7.7%	-1.5%

Required Rate of Return (Actual): This is the return the System has historically been required to generate in order to fund the System's liabilities. It is the (annualized) actuarially required return objective established by the Board, minus the inflation assumption used, plus the actual inflation rate during the period.

Appendix: Supplemental Return Results

(As required by Section X of the IPS)



Value Added – Manager Implementation (Green): Reflects the component of the value added which may be attributed to the (staff selected) manager decisions in implementing their respective mandates.

Value Added – Strategic Decisions (Blue): Reflects the component of the total value added which may be attributed to the strategic sub-class allocation decisions implemented by the CIO.

MOSERS
MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Investment Risk Report

September 22, 2022

Item Type: Informational

Executive Summary

Per Section X of the Investment Policy Statement, the Risk Manager will provide a written report that addresses Total Fund risk-management findings and initiatives ("Risk Report"), which includes detail on Total Fund leverage levels, cash levels, cash replenishment initiatives, active risk, and various other risk statistics.

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MOSERS Quarterly Risk Report

Quarter Ending 6/30/2022

Prepared for September 2022 Board Meeting

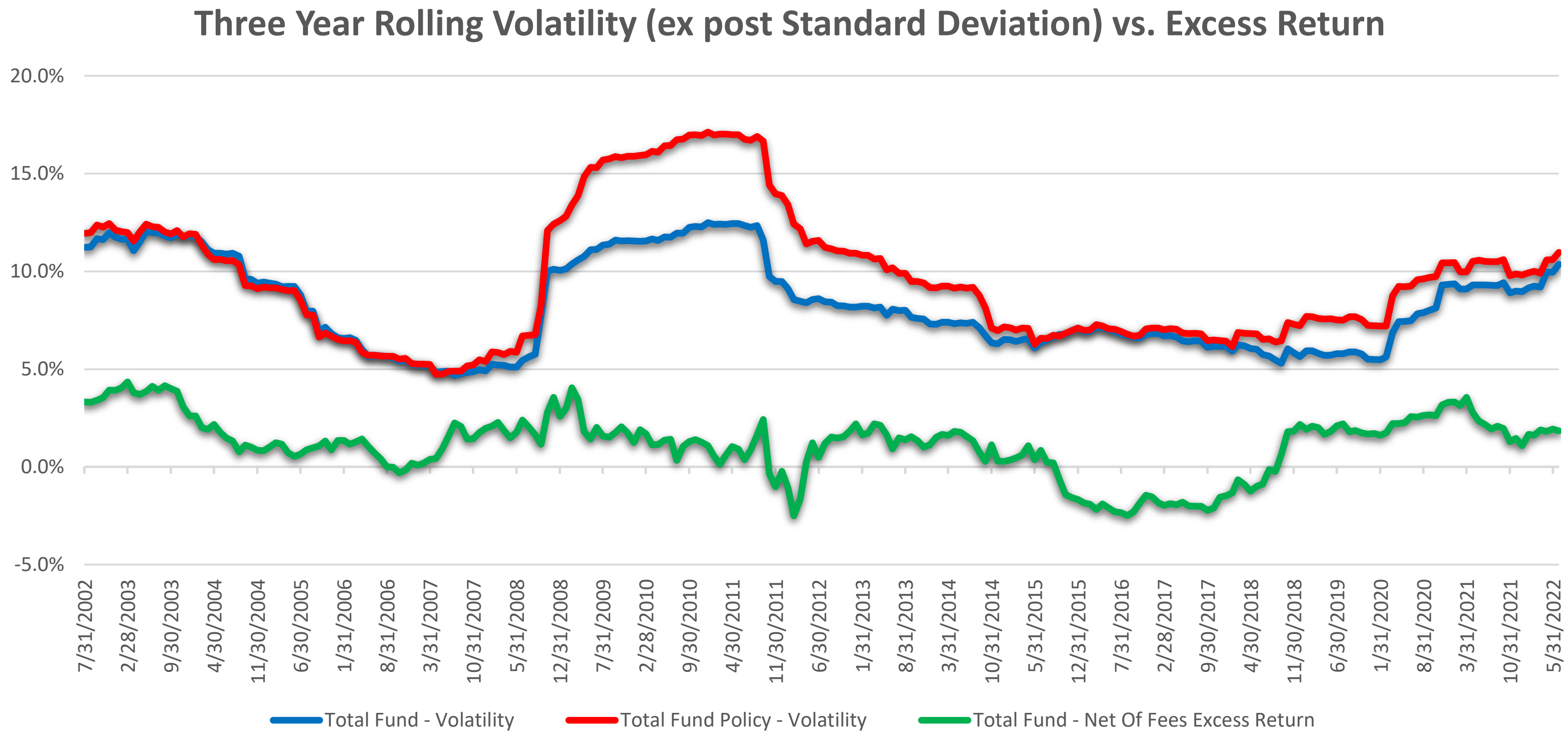
MOSERS Quarterly Risk Report

Contribution to Return and Risk - 1 Year Ending June 30, 2022								
Asset Classes	Performance Returns		Historical Volatility[1]		Projected Vol[2]		Tracking Error[3]	
Sub-Asset Class	Actual Return	Contribution to Total Return	Annual Historical Standard Deviation	Contribution to Standard Deviation	Annual Projected Standard Deviation	Contribution to Standard Deviation	Tracking Error 1 Yr Actual	Contribution to Tracking Error
Growth	**(12.7%)**	**(5.9%)**	**12.9%**	**56.3%**	**11.2%**	**58.2%**	**1.7%**	**44.1%**
Global Public Equities	(14.8%)	(4.6%)	15.1%	44.0%	13.5%	47.1%	1.0%	19.8%
Global Private Equities	(8.8%)	(1.3%)	8.9%	12.4%	7.0%	11.1%	2.7%	24.3%
Income	**(15.7%)**	**(5.7%)**	**9.8%**	**19.8%**	**8.8%**	**16.8%**	**0.5%**	**16.8%**
Long Treasuries	(18.4%)	(4.8%)	12.1%	16.7%	11.2%	13.7%	0.5%	13.3%
Core Bonds	(8.7%)	(0.9%)	4.8%	3.1%	3.4%	3.1%	0.4%	3.5%
Inflation Hedge	**4.2%**	**1.8%**	**6.3%**	**21.4%**	**4.2%**	**19.2%**	**0.5%**	**4.8%**
Commodities	23.7%	1.2%	20.4%	2.3%	14.0%	3.3%	0.2%	1.0%
TIPS	(2.2%)	(0.6%)	4.4%	7.6%	3.3%	7.9%	0.5%	4.4%
Private Real Assets	30.3%	1.4%	12.0%	2.5%	6.2%	(0.6%)	2.4%	0.2%
Public Real Assets	(6.9%)	(0.3%)	20.7%	9.0%	15.5%	8.6%	0.1%	(0.8%)
Absolute Return	**4.1%**	**0.8%**	**3.0%**	**2.5%**	**2.9%**	**5.8%**	**2.2%**	**34.3%**
Direct Hedge Funds	5.3%	0.3%	2.0%	0.4%	2.5%	1.1%	1.7%	3.9%
Alt Beta	5.1%	0.6%	4.5%	0.6%	3.9%	1.9%	3.0%	28.7%
Private Credit	1.0%	0.0%	1.2%	1.4%	5.1%	2.8%	3.2%	1.6%
TOTAL FUND - NET OF FEES	**(9.0%)**	**(9.0%)**	**9.9%**	**100.0%**	**7.2%**	**100.0%**	**0.8%**	**100.0%**

1. Annualized standard deviation of the actual monthly returns for the 1 year period ending June 30, 2022.
2. Annualized standard deviation based on the monthly returns of the actual holdings of the portfolio at June 30, 2022 over the last 10 years.
3. Annualized standard deviation of the monthly excess returns between actual portfolio and benchmark for the 1 year period ending June 30, 2022.

The Growth and Income allocations contributed all of the negative return over the past 1 year as equity markets fell and interest rates rose. The Inflation Hedge and Absolute Return buckets provided some support. Growth contributed the most to the Total Fund tracking error followed by the Absolute Return allocation.

Historical Volatility vs Excess Return



Key Takeaways:

- Over time, the fund consistently has had similar or less volatility than our policy asset allocation implies.
- There are several reasons for this:
  - Lower leverage maintained in the actual portfolio vs the policy target.
  - Our active risks have been diversifying; therefore, creating a lower volatility than the policy.
- For most time periods, taking less risk has not inhibited staff's ability to outperform the benchmark.

MOSERS Quarterly Risk Report

Total Fund Risk Summary

	Portfolio Volatility	Benchmark Volatility	Contribution to Portfolio Risk	Contribution to Benchmark Risk	Active Risk to Component Benchmark	Contribution to Total Fund Active Risk	Contribution to Total Fund AR - Allocation	Contribution to Total Fund AR - Selection/ Interaction	Monthly VaR (95%)	Monthly Benchmark VaR (95%)	Monthly Max Drawdown	Monthly Max Benchmark Drawdown
Total Fund	7.2%	7.3%	100.0%	100.0%	0.6%	100.0%	-1.0%	101.0%	-2.9%	-3.1%	-6.0%	-6.7%
Growth	11.2%	11.2%	58.2%	57.9%	1.0%	58.9%	-0.1%	59.0%	-5.8%	-5.9%	-11.2%	-11.1%
Global Public Equities	13.5%	13.4%	47.1%	46.4%	1.1%	37.0%	-0.1%	37.1%	-7.1%	-7.2%	-13.6%	-13.4%
Global Private Equities	7.0%	7.7%	11.1%	11.5%	2.2%	21.9%	0.0%	21.9%	-2.7%	-3.0%	-6.6%	-6.4%
Income	8.8%	8.9%	16.8%	16.8%	0.3%	11.1%	1.1%	10.0%	-3.9%	-4.1%	-7.2%	-7.5%
Long Treasuries	11.2%	11.3%	13.7%	14.0%	0.2%	3.6%	0.0%	3.6%	-5.3%	-5.3%	-8.9%	-8.9%
Core Bonds	3.4%	3.5%	3.1%	2.8%	0.2%	7.5%	1.0%	6.4%	-1.4%	-1.6%	-3.4%	-3.8%
Inflation Hedge	4.2%	4.3%	19.2%	19.1%	0.3%	5.4%	2.2%	3.1%	-1.3%	-1.4%	-5.2%	-5.3%
Commodities	14.0%	14.0%	3.3%	3.3%	0.1%	-0.2%	-0.1%	-0.1%	-7.3%	-7.3%	-12.9%	-12.9%
TIPS	3.3%	3.3%	7.9%	7.7%	0.2%	1.2%	1.1%	0.1%	-1.5%	-1.5%	-2.9%	-2.9%
Private Real Assets	6.2%	5.3%	-0.6%	-0.6%	1.6%	4.1%	0.9%	3.2%	-0.1%	0.0%	-1.0%	-1.8%
Public Real Assets	15.5%	15.5%	8.6%	8.7%	0.0%	0.3%	0.3%	0.0%	-7.0%	-7.0%	-20.9%	-20.8%
Absolute Return	2.9%	3.4%	5.8%	6.1%	1.6%	30.3%	1.4%	28.9%	-1.0%	-1.3%	-1.5%	-5.1%
Direct Hedge Funds	2.5%	3.5%	1.1%	1.5%	2.6%	8.0%	0.2%	7.8%	-0.5%	-0.9%	-0.9%	-6.7%
Alternative Betas	3.9%	4.6%	1.9%	2.7%	1.7%	13.0%	0.5%	12.6%	-1.3%	-1.9%	-2.6%	-3.4%
Private Credit	5.1%	5.2%	2.8%	2.0%	2.9%	9.2%	0.7%	8.5%	-1.0%	-1.1%	-8.0%	-12.0%

- Risk statistics based on 10 Year Monthly Historical Returns of Current Holdings
- Exposures as of June 30, 2022

Key Takeaways:

- Total Fund risk is slightly lower risk compared to policy benchmark in terms of volatility, VaR, and Max Drawdown.
- Direct Hedge Funds and Private Real Assets volatility have the largest differences in risk relative to their benchmarks.
- Asset Class contributions similar to policy allocations.
- All active risk due to selection effect. Public Equities allocation contributes most to active risk.
- Private Equities active risk reduced from prior periods due to benchmark change. Currently contributed 22% compared to 62% last quarter.

Note: VaR (Value at Risk) is a statistically-based measure of possible loss in market value of a portfolio within a given time span and at a given confidence level. VaR provides the answer, in dollars or portfolio percentage, to the question, “How much could I lose in a really bad month?” The -2.9% VaR for the Total Fund at a 95% confidence level above could be stated as: “We expect to lose at least 2.5% in a month 5% of the time or about 1 in every 20 months”.

MOSERS Quarterly Risk Report

Public Markets Active Risk

	Portfolio Volatility	Benchmark Volatility	Contribution to Portfolio Risk	Contribution to Benchmark Risk	Active Risk to Component Benchmark	Contribution to Total Fund Active Risk	Contribution to Total Fund AR - Allocation	Contribution to Total Fund AR - Selection
Total Fund	8.1%	8.2%	100.0%	100.0%	0.9%	100.0%	47.8%	52.2%
Global Public Equities	17.4%	18.0%	60.2%	57.0%	1.6%	66.0%	23.7%	42.3%
Long Treasuries	13.7%	13.8%	13.9%	16.8%	0.5%	25.0%	20.1%	4.9%
Core Bonds	4.4%	4.6%	3.6%	3.9%	0.4%	2.3%	0.9%	1.4%
Commodities	17.3%	18.1%	3.1%	3.2%	1.7%	5.0%	1.0%	4.0%
TIPS	3.7%	3.7%	8.7%	9.0%	0.3%	1.6%	1.9%	-0.4%
Public Real Assets	20.5%	20.5%	10.3%	10.1%	0.1%	0.2%	0.2%	0.0%

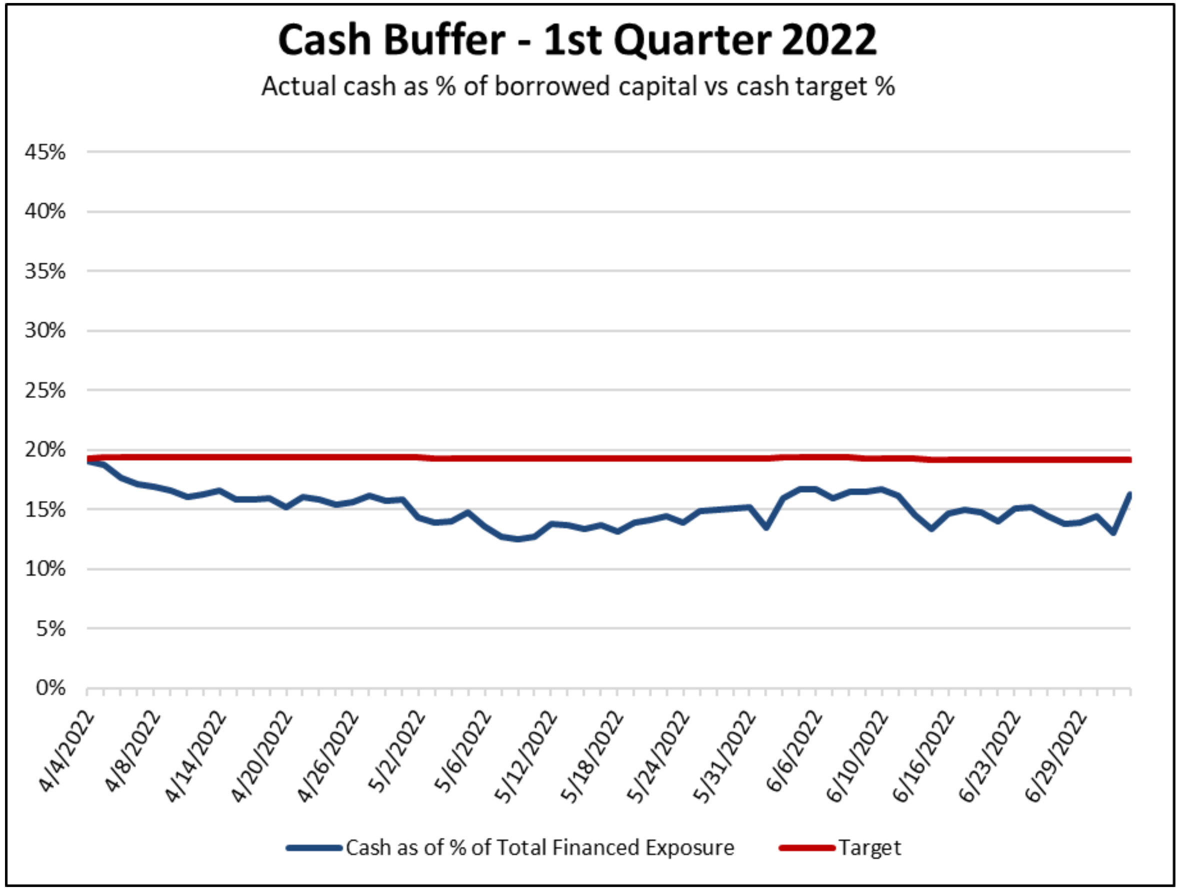
- Public market statistics based on 3-Year actual returns as of June 30, 2022

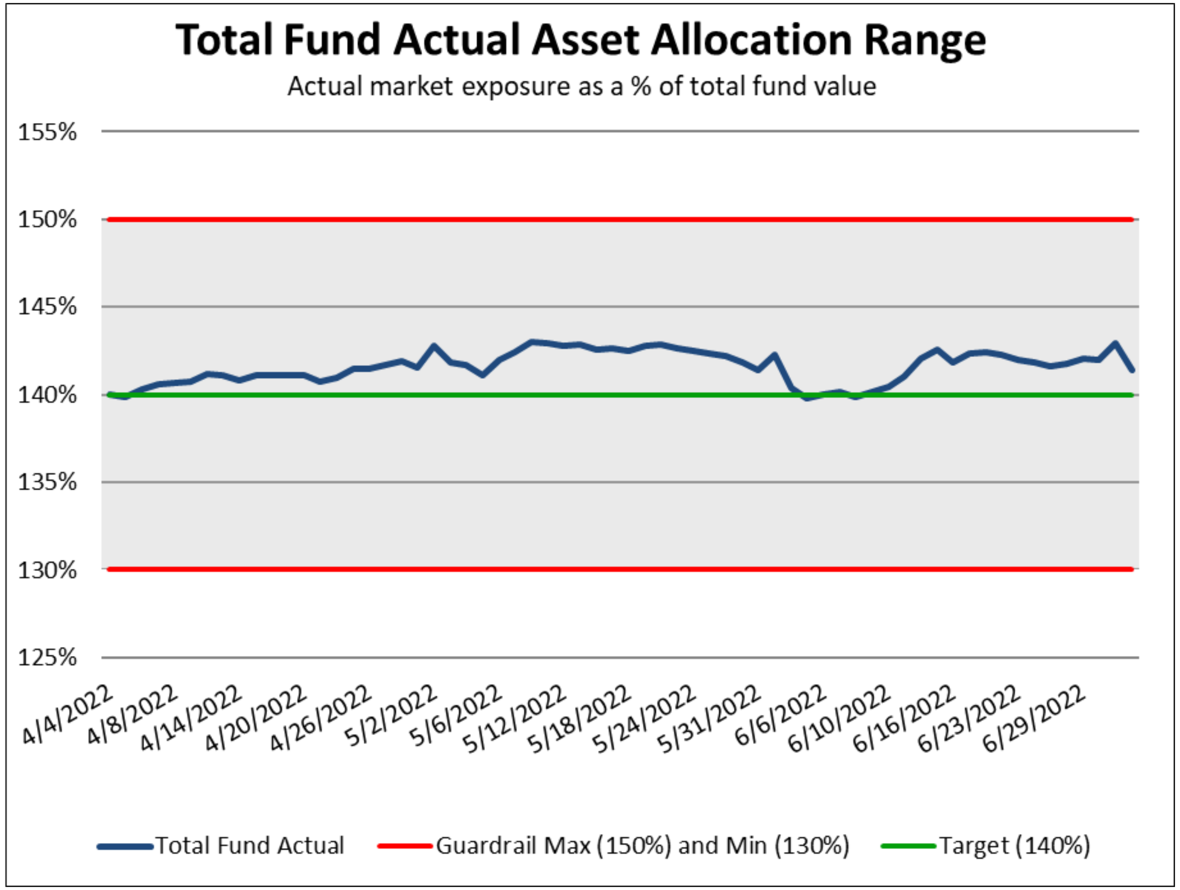
Key Takeaways:

- Public Market volatility slightly lower than benchmark. Public Equities and Commodities had largest difference in volatility compared to their respective benchmarks.
- Public Equities contributed more and Long Treasuries less due to LT underweight throughout the period.
- Public Market portfolio active risk (tracking error) was 0.9% which is within the IPS reasonableness range of 0.5% and 3.5%
- Public Equities contributed most of the active risk with 24% due to allocation effects (overweight during most of the period) and 42% from selection effects (manager and tactical implementation).
- The underweight to Long Treasuries during the period contributed approximately 20% of the active risk.

MOSERS Quarterly Risk Report

Total Fund Cash Buffer and Exposure Limit

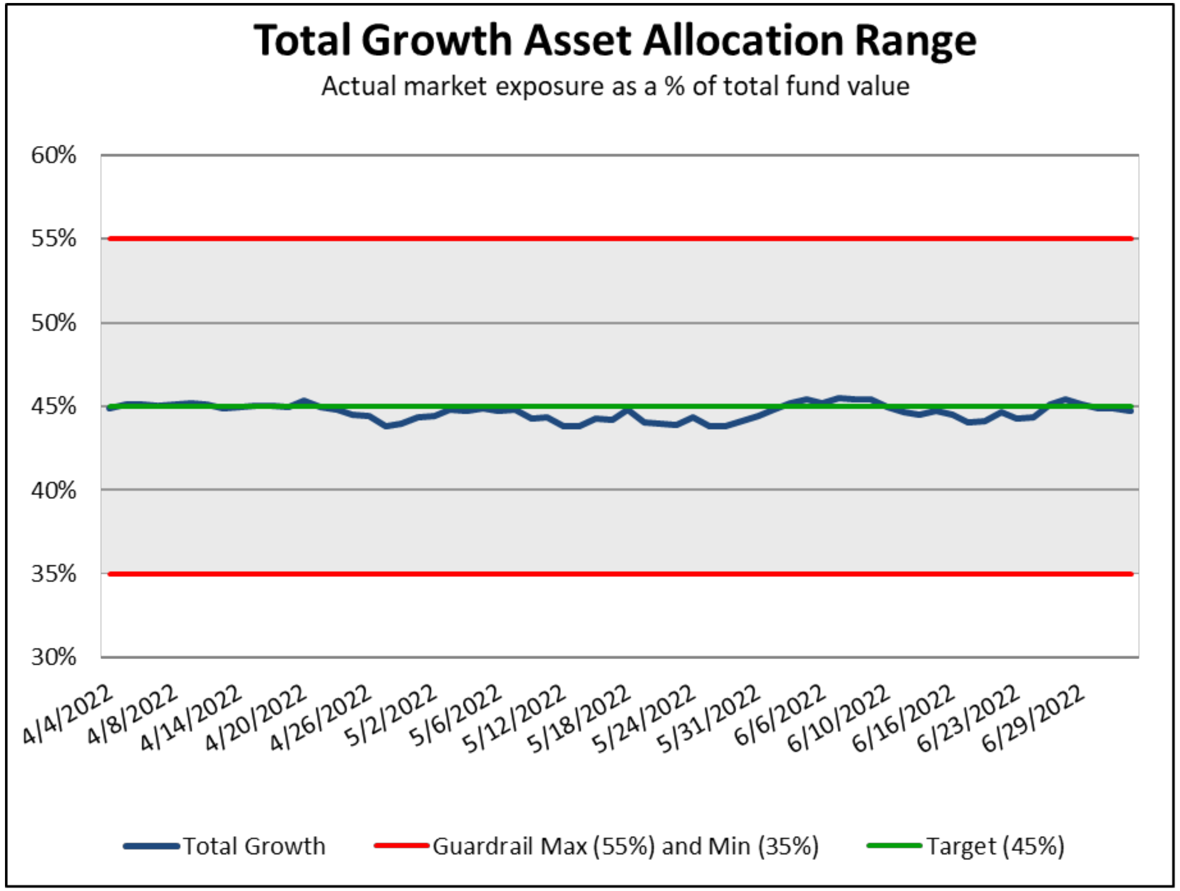


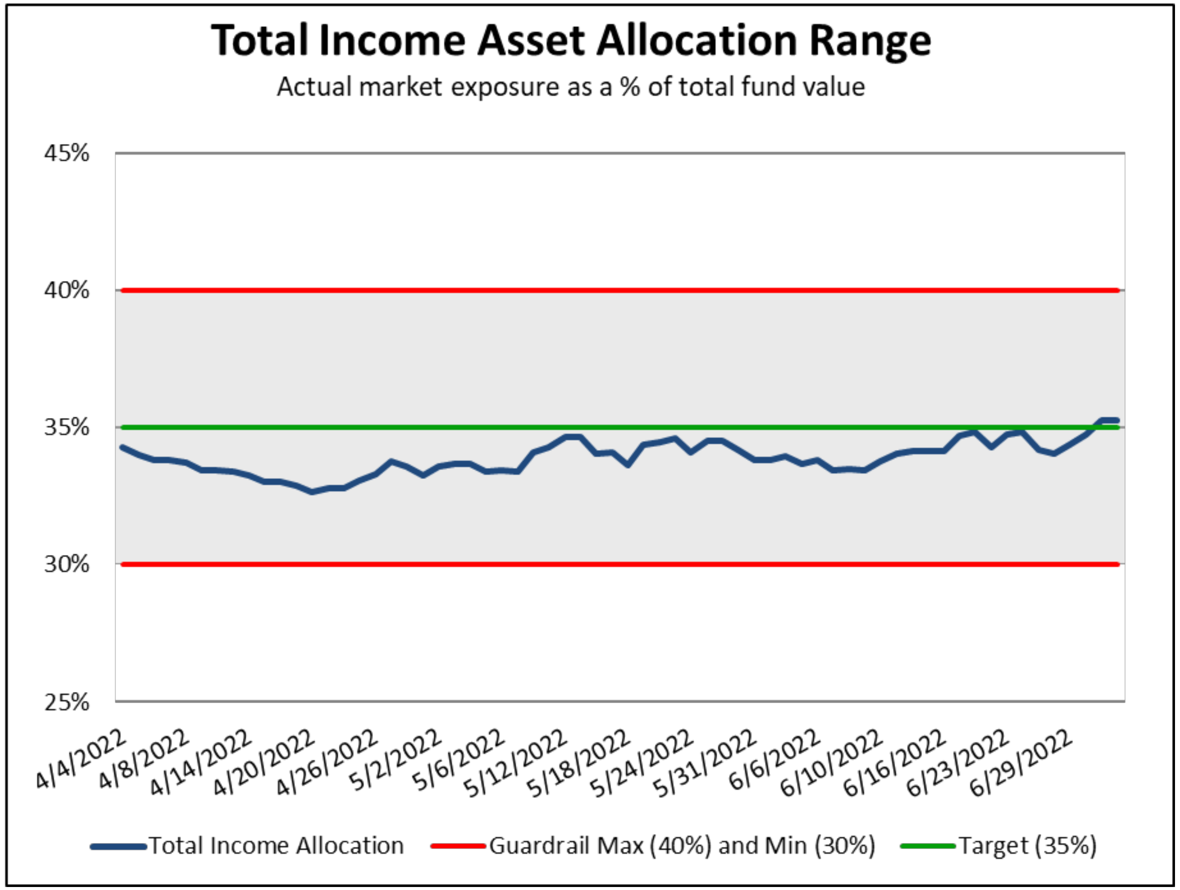


Comments: The cash buffer fluctuated but remained below the target throughout the quarter with the market volatility but approached target at the end as staff rebalanced the portfolio closer to policy allocations. Total Fund exposure was at or slightly higher than policy throughout the quarter due to market movement; however, staff decisions to rebalance the portfolio brought the exposure closer to target by the end of the quarter.

MOSERS Quarterly Risk Report

Asset Bucket Ranges

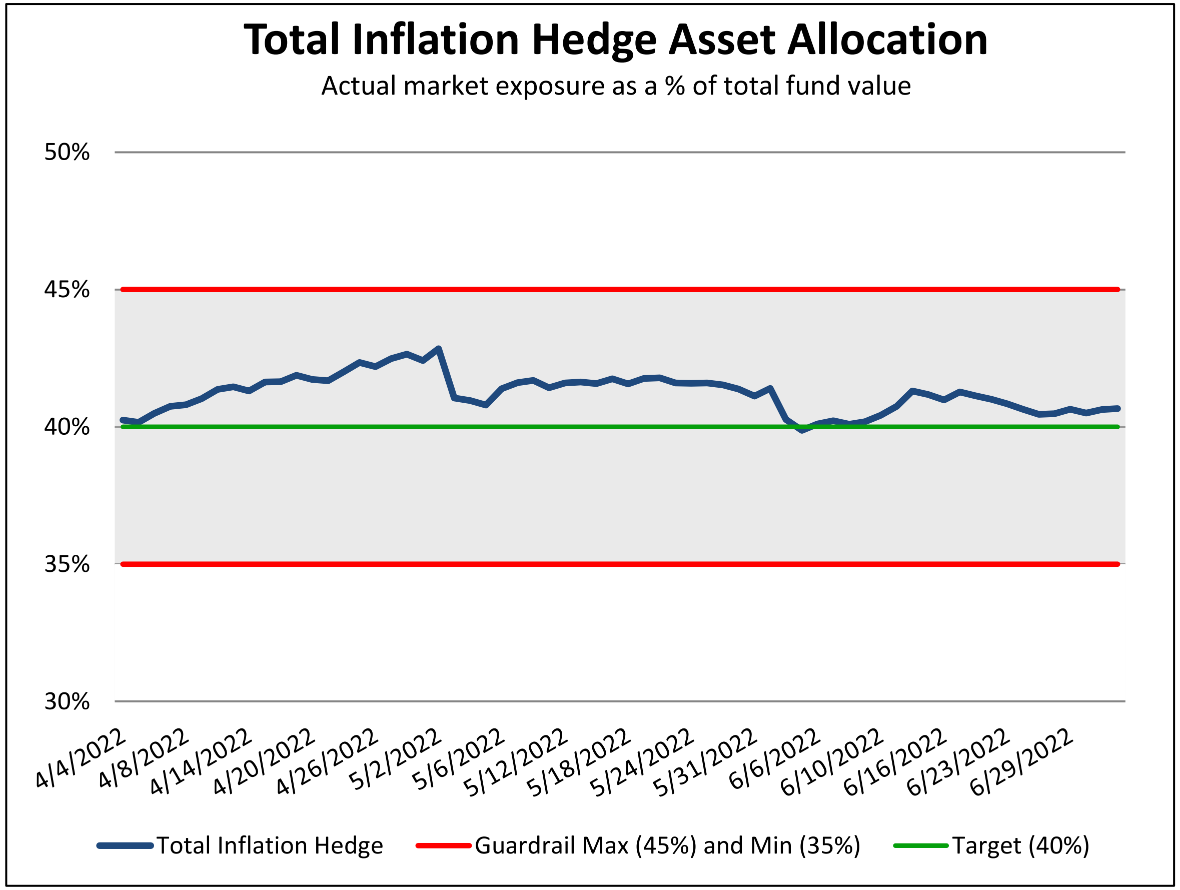


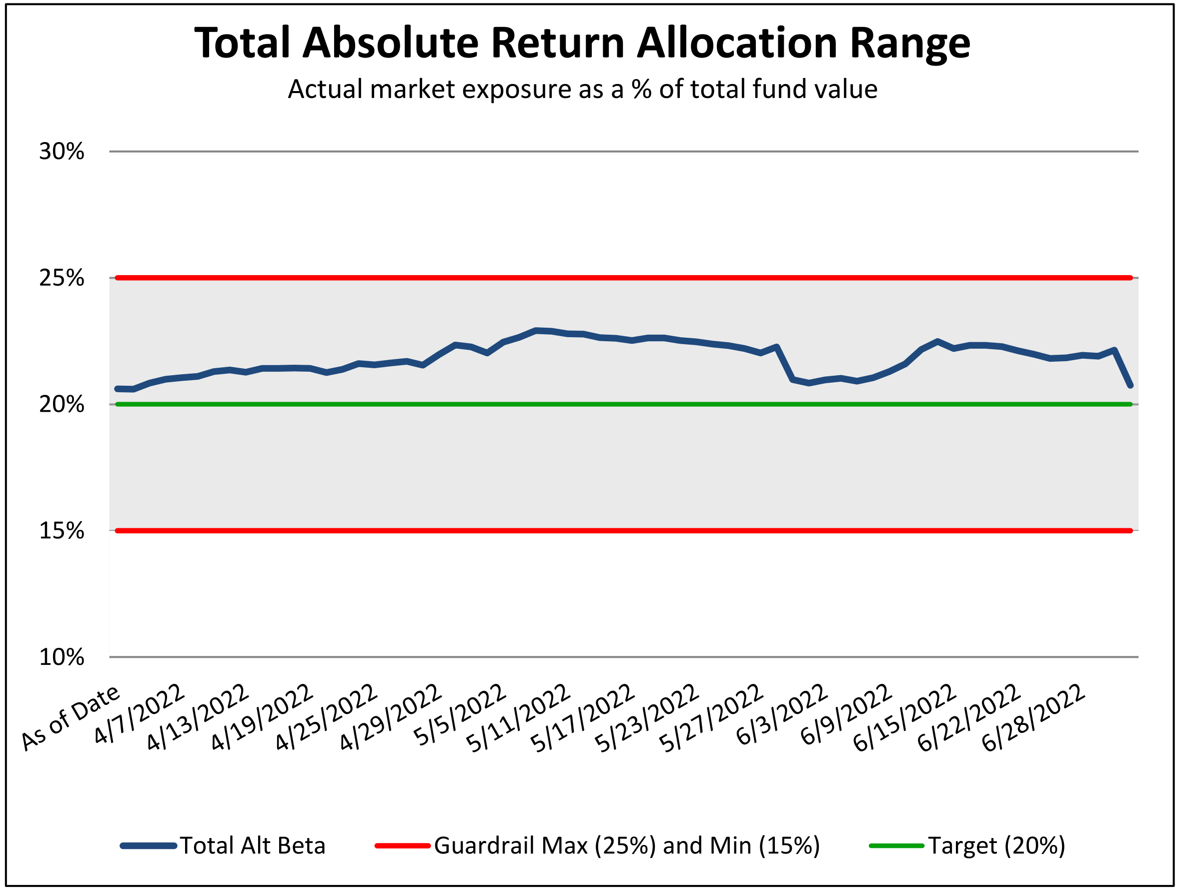


Comments: The Growth allocation remained close to target weight during the quarter. Within Total Income, the Staff decision to underweight Long Treasuries at the beginning of the quarter and the performance within the allocation resulted in the Income allocation to be below target for most the period. Staff rebalanced Treasuries at the end of the quarter to get closer to target.

MOSERS Quarterly Risk Report

Asset Bucket Ranges

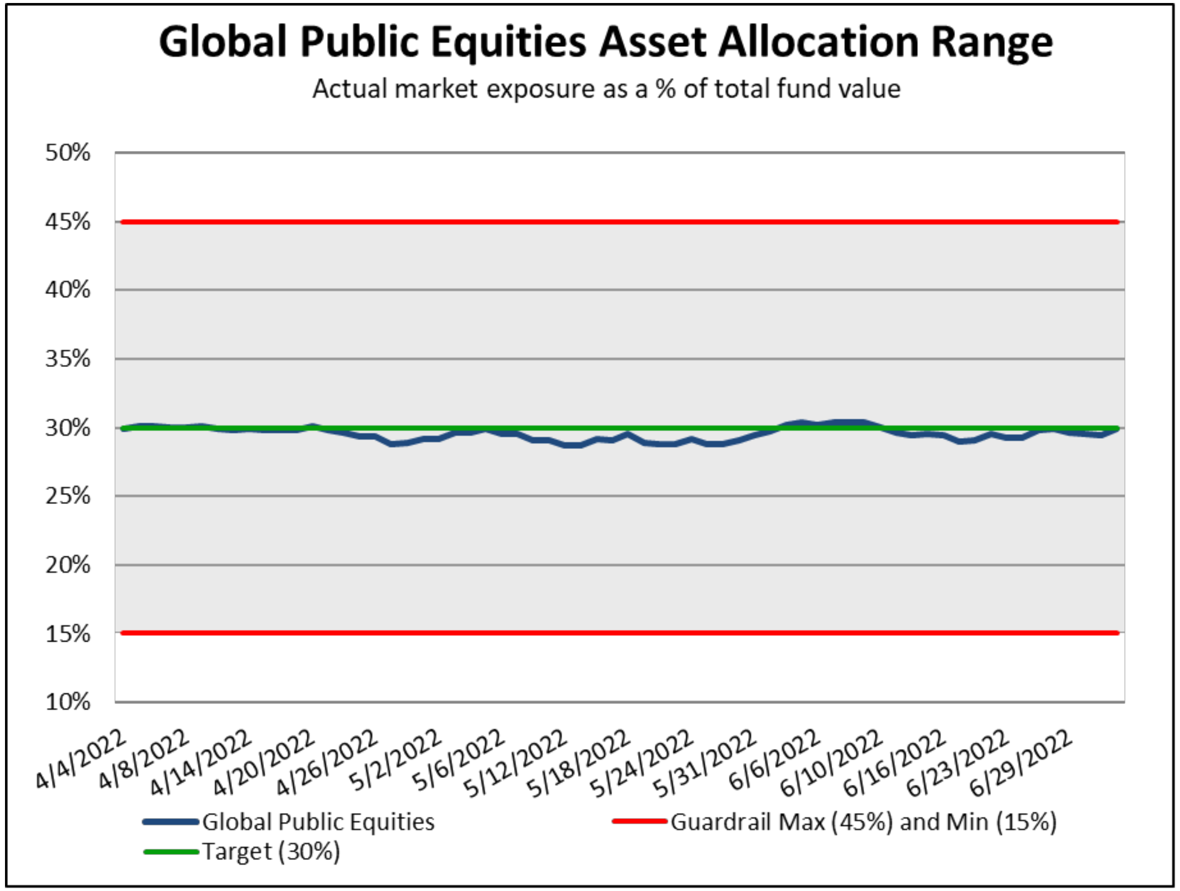


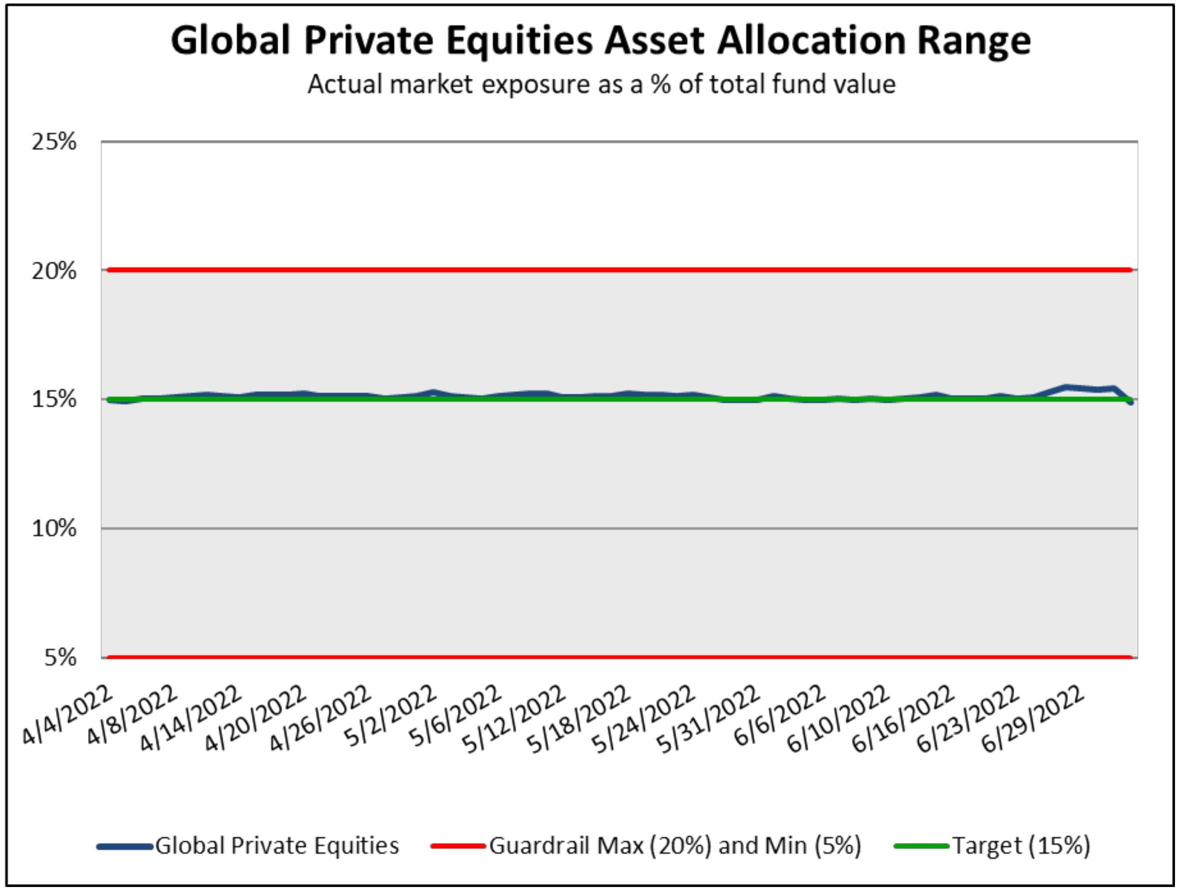


Comments: The Inflation Hedge allocation began the quarter at target but market movements, particularly in commodities and TIPS, moved the allocation above target during the quarter. Staff rebalancing brought the allocation closer to target at each month-end during the quarter. The Absolute Return allocation began the quarter close to the target but became overweight throughout the quarter due to positive performance. Total Inflation Hedge and Absolute Return weights increased in the portfolio as other areas of the portfolio had market sell-offs while these assets remained resilient.

MOSERS Quarterly Risk Report

Growth - Strategy Ranges

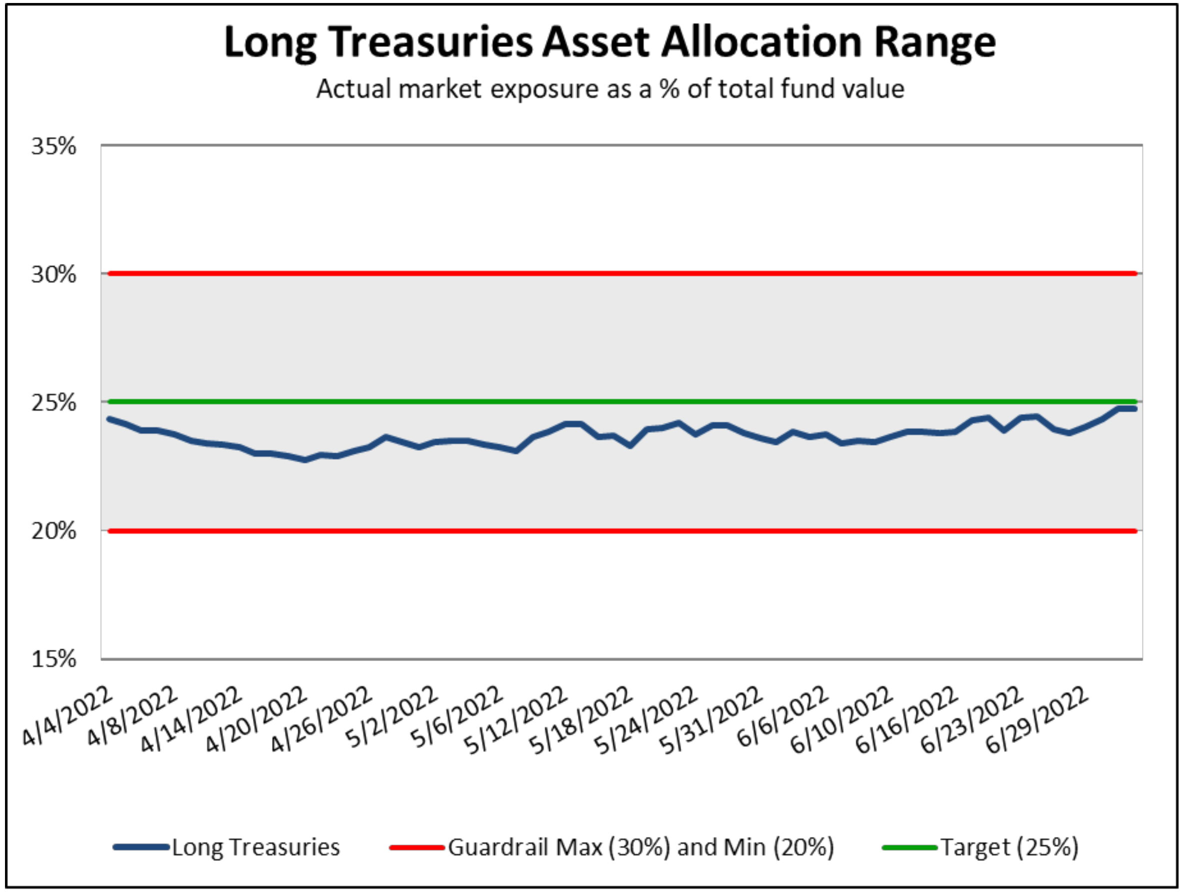


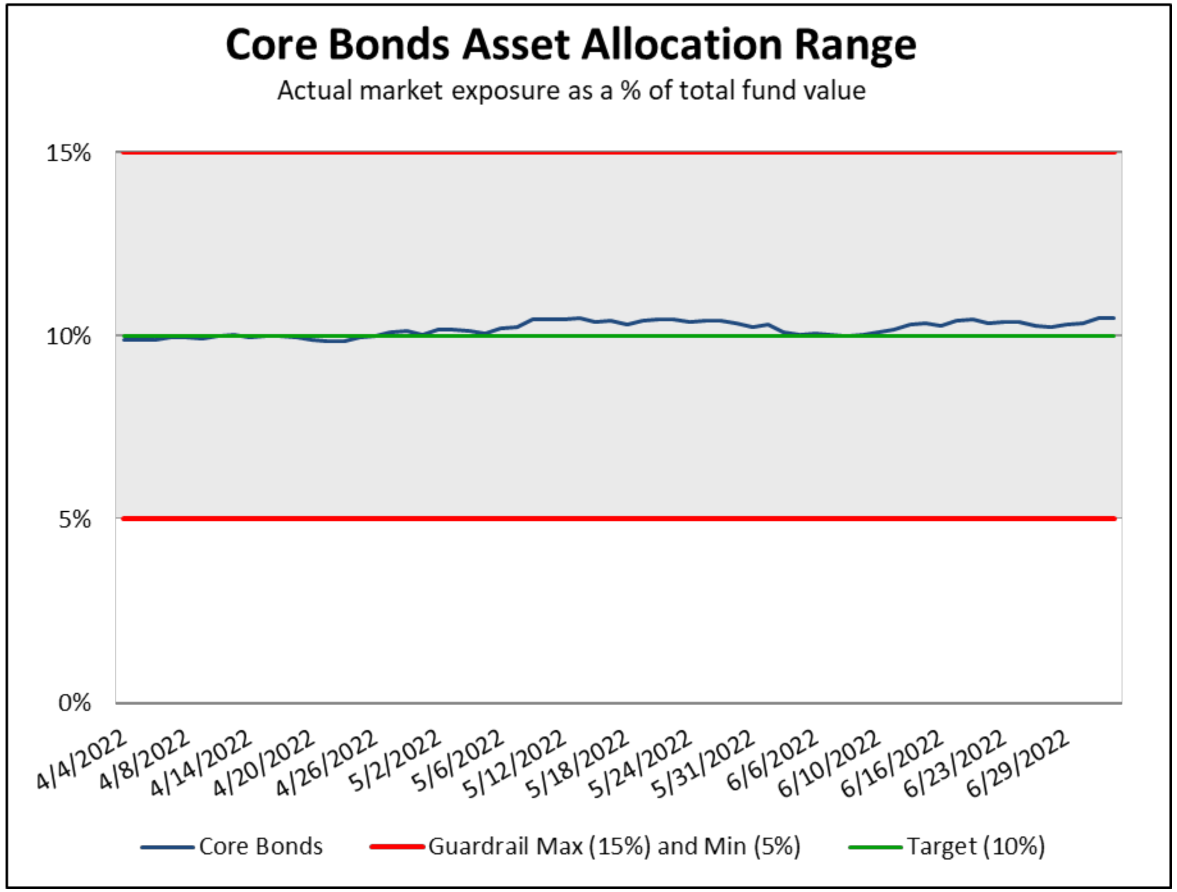


Comments: Allocations remained in line with policy targets throughout the quarter.

MOSERS Quarterly Risk Report

Income - Strategy Ranges

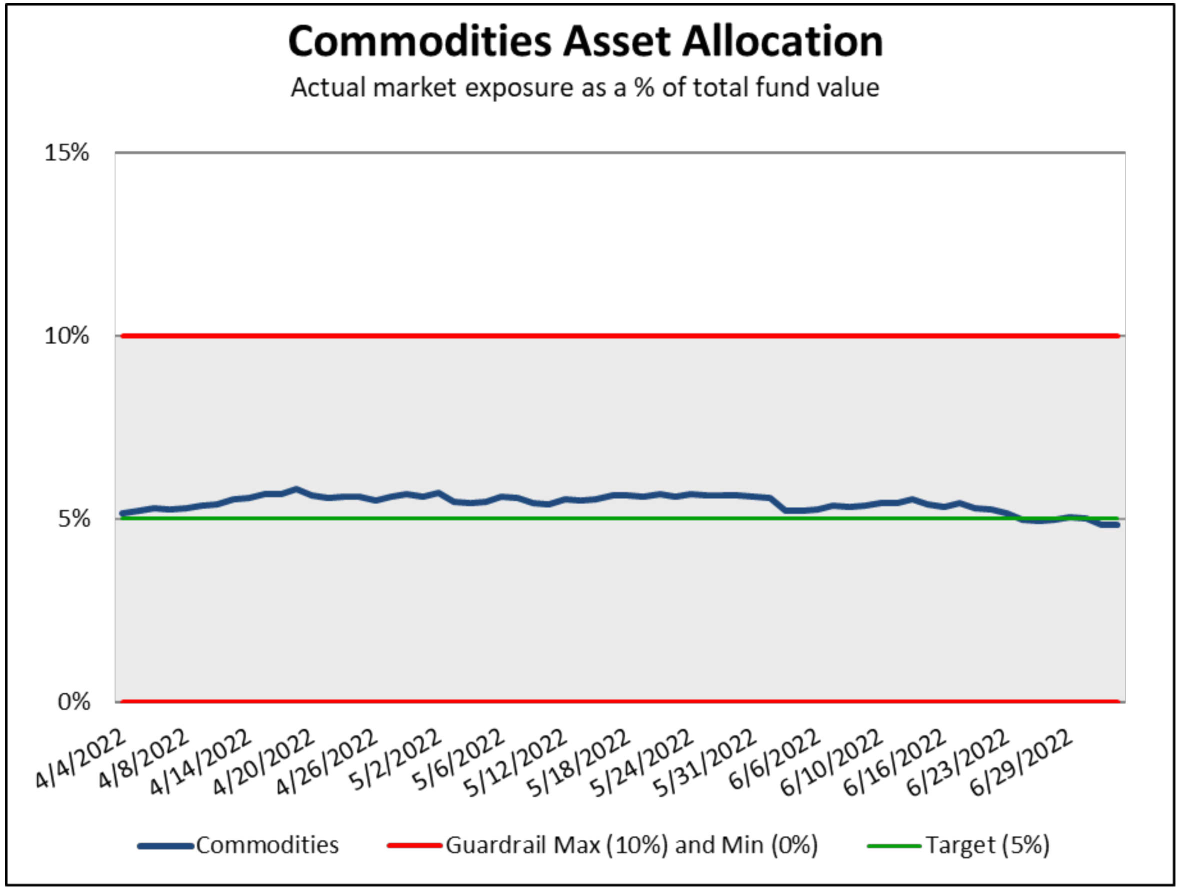


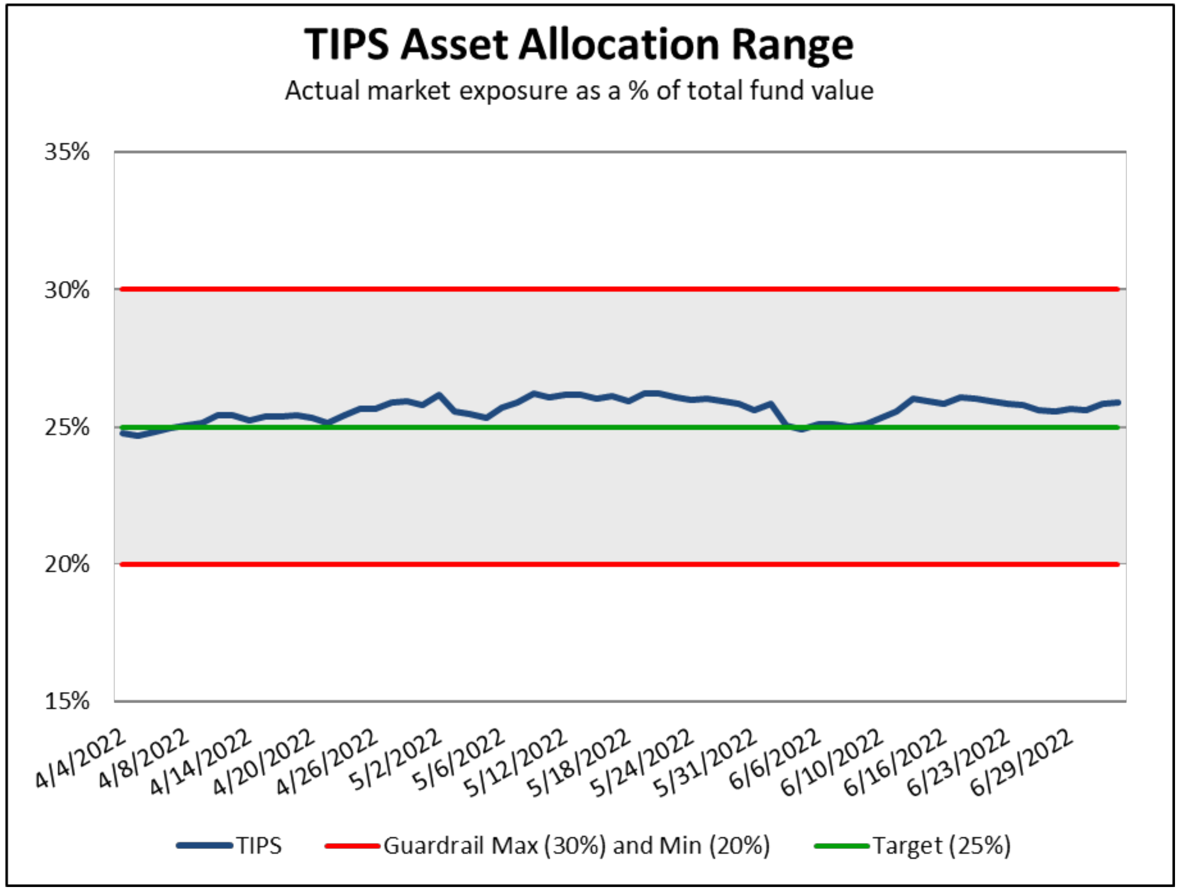


Comments: Long Treasuries has remained underweight throughout the quarter; however, the underweight was removed by the end of the quarter due to rebalancing trades to bring the allocation back to target. The Core Bond allocation remained close to policy throughout the quarter.

MOSERS Quarterly Risk Report

Inflation Hedge - Strategy Ranges

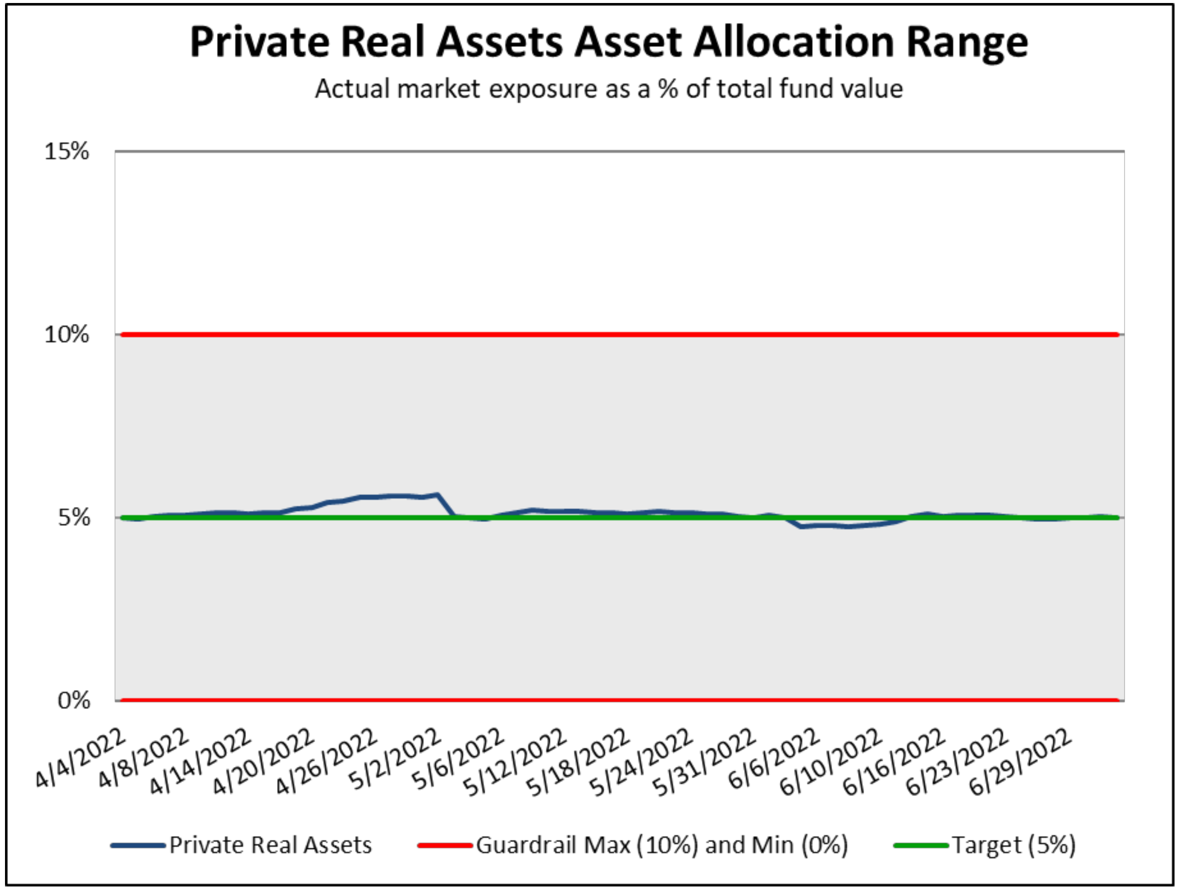


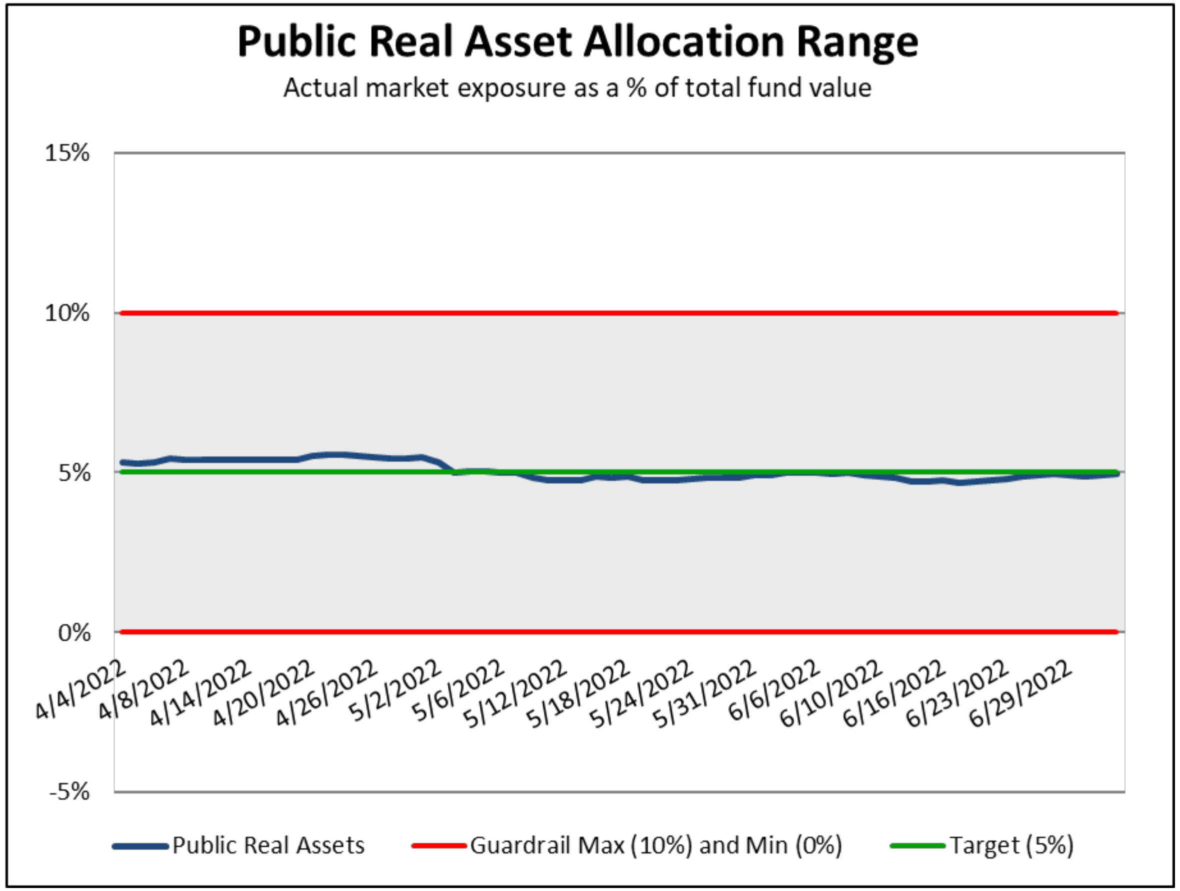


Comments: Commodities had a slight overweight for most of the quarter due to market performance; however, staff rebalanced the allocation back closer to target by the end of the quarter. TIPS allocation moved above target with positive performance but was brought back close to target through rebalancing.

MOSERS Quarterly Risk Report

Inflation Hedge - Strategy Ranges

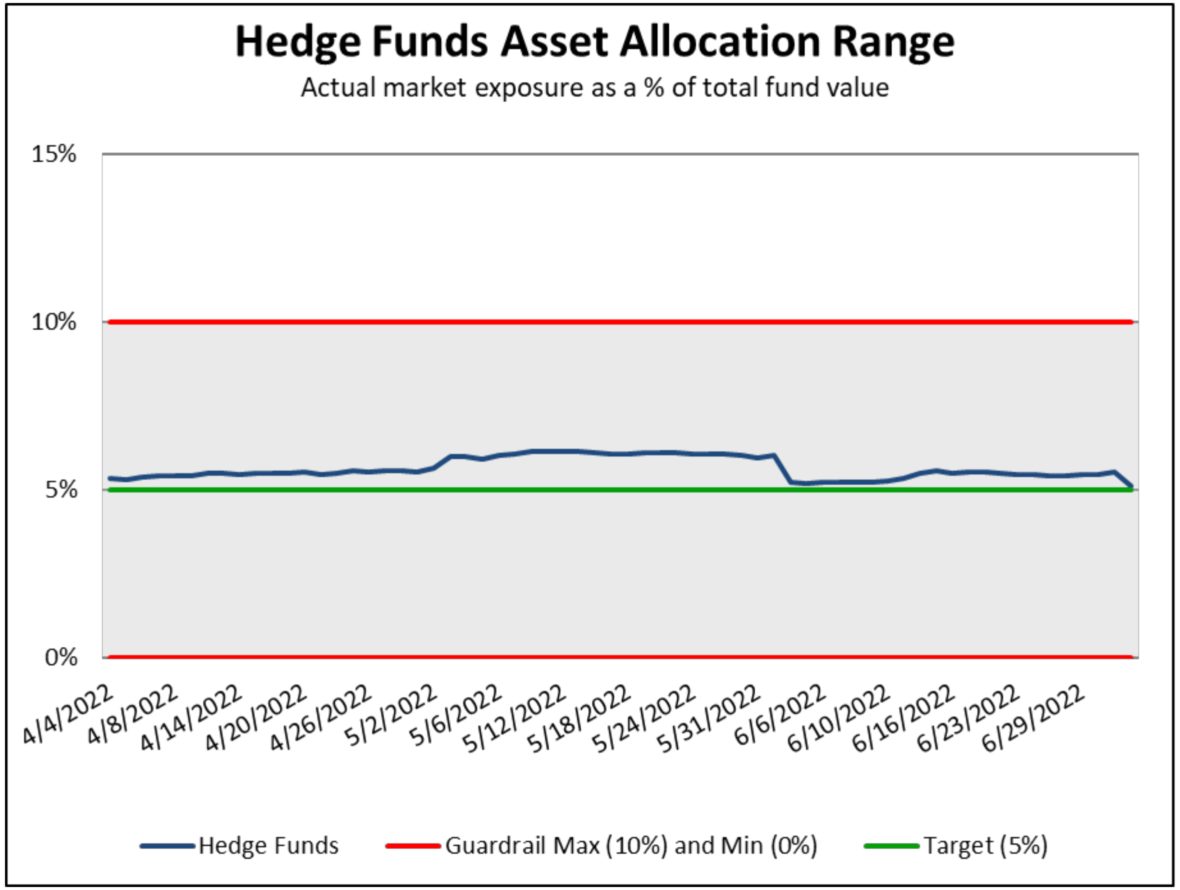


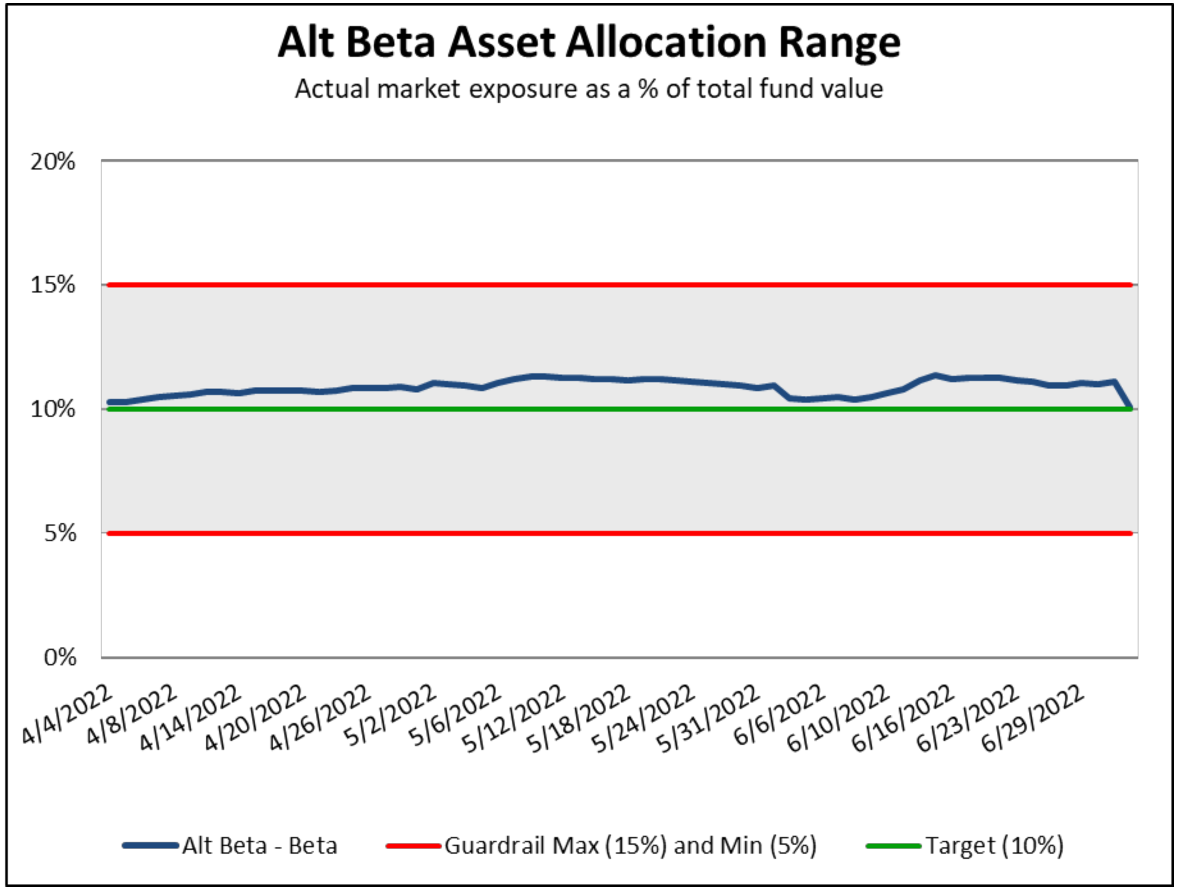


Comments: Private and Public Real Assets allocation remained close to policy target weight during the quarter with rebalancing at April month-end.

MOSERS Quarterly Risk Report

Absolute Return - Strategy Ranges

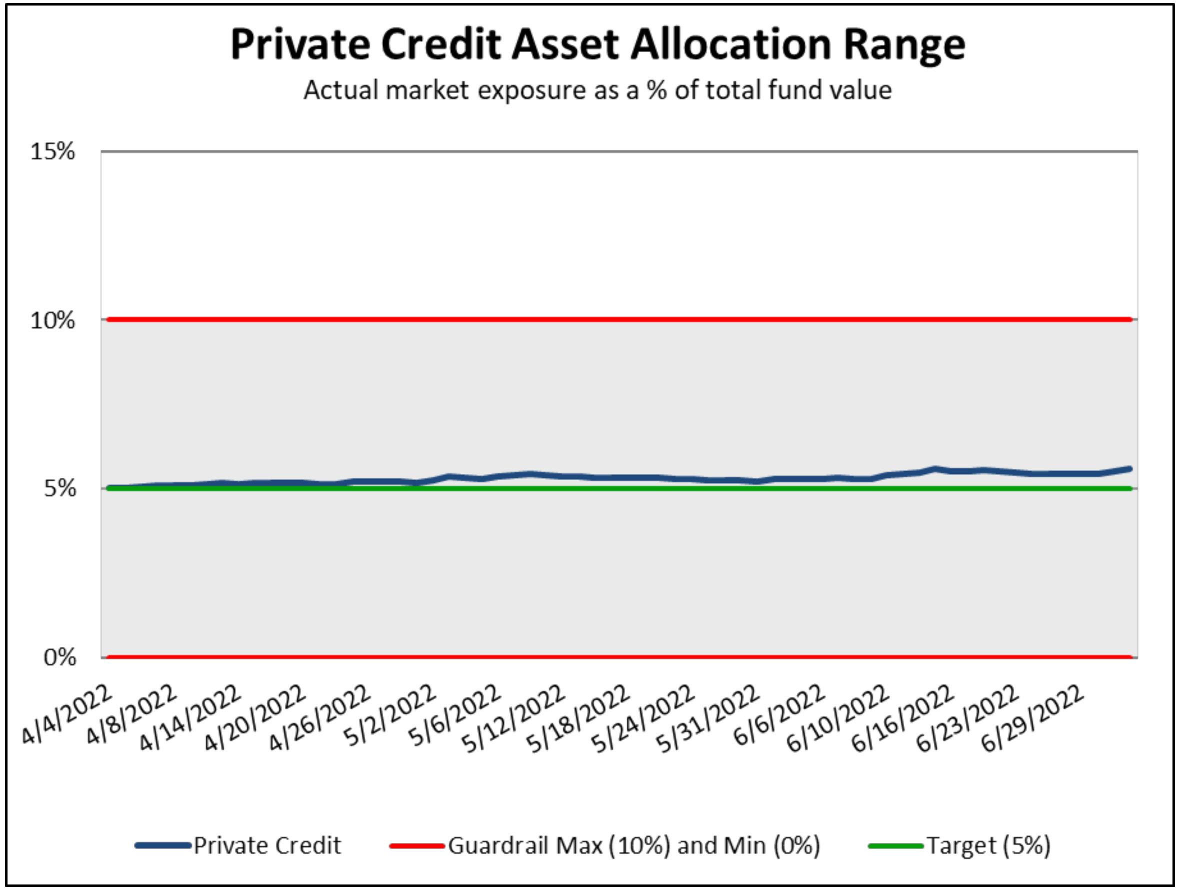




Comments: The Hedge Fund and Alt Beta has remained resilient during this volatile quarter when other areas of the portfolio sold off. This has led to overweights in both asset classes relative to target allocations. Rebalancing efforts during the quarter and at the end of the quarter brought the allocations closer to target weights.

MOSERS Quarterly Risk Report

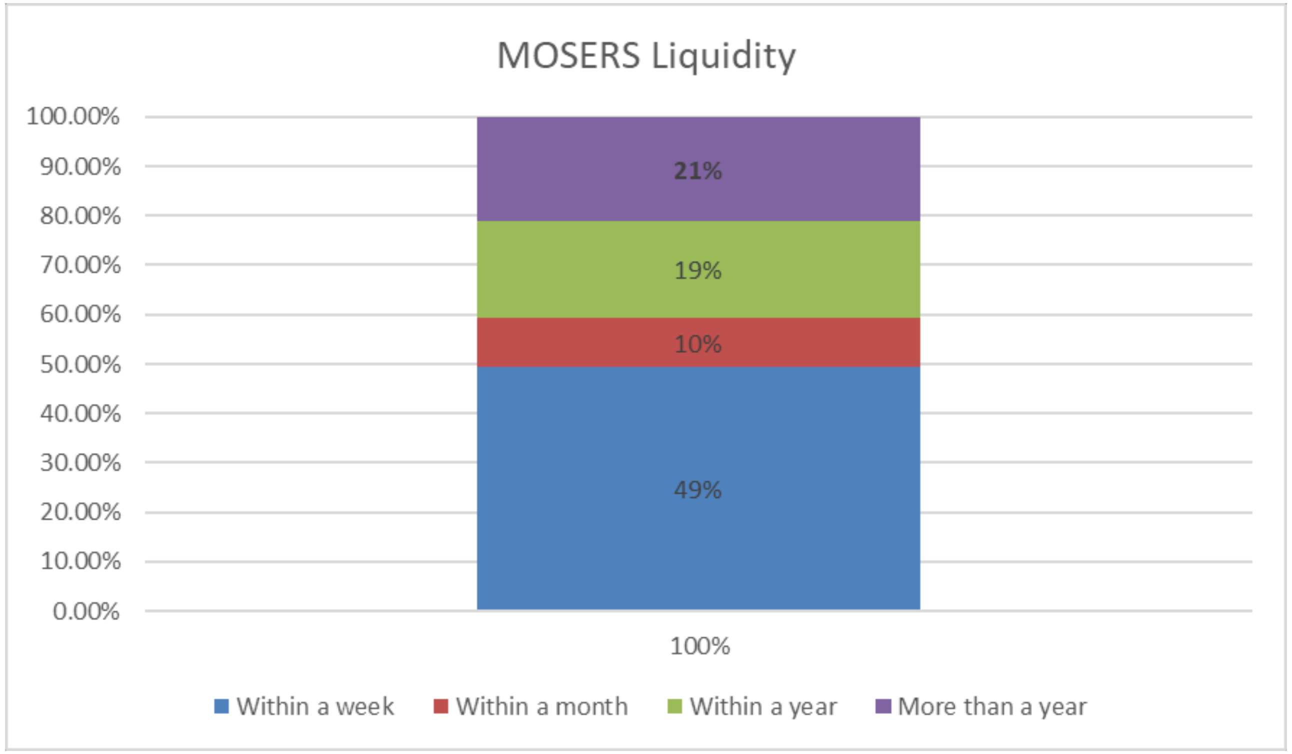
Absolute Return - Strategy Ranges



Comments: Private Credit investments remained close to target throughout the quarter. Private credit increased slightly relative to the target weight due to better performance than other assets classes.

MOSERS Quarterly Risk Report

Liquidity



Comments: Based on the liquidity profile of the underlying investments, approximately 59% of the portfolio could theoretically be converted to cash within one month. This metric indicates a high level of liquidity compared with MOSERS' monthly cash needs.

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Legislative Program Report for 2022

September 22, 2022

Item Type: **Informational**

Executive Summary

As in the last 3 legislative sessions, MOSERS, along with MPERS, will pursue a clean-up bill.

<u>Important Dates:</u>

December 1, 2022	Prefiling of 2023 Legislative Proposals
January 4, 2023	First day of 2023 Legislative Session
May 12, 2023	Last Day of Session

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Information Only

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As of: July 31, 2022

Prepared by: *Cindy Rehmeier, Manager of Defined Contribution Plans*

mo deferred comp

State of Missouri Deferred Compensation Plan

Plan Data:

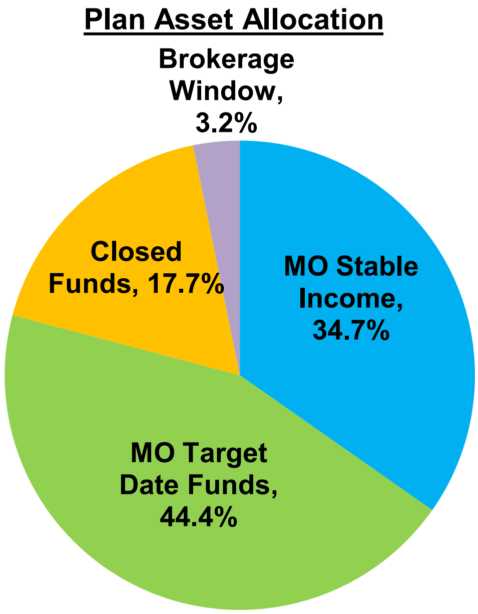
	7/31/2022	12/31/2021	12/31/2019	12/31/2017	12/31/2015
Total Plan Assets	$2,607,555,815	$2,857,366,375	$2,333,963,526	$2,142,192,162	$1,822,927,446
457 Assets	$1,978,844,273	$2,164,225,177	$1,663,837,384	$1,531,070,247	$1,318,230,285
401(a) Assets	$628,711,542	$693,141,198	$670,126,142	$611,121,915	$504,697,161
Roth 457 Assets	$77,188,301	$78,345,651	$40,152,134	$21,113,124	$9,169,069
Total Plan Participants	70,828	69,246	67,730	63,809	63,818
Active Participants	37,379	36,709	41,230	40,559	39,710
Separated/Retired Participants	33,449	32,536	26,500	23,250	24,108
Participants in Roth 457	9,080	8,160	6,393	4,284	2,932
Participation Rate-State Employees – excludes universities	80.1%	76.8%	75.3%	73.2%	71.0%
457 Average/Median Account Balance	$28,914/ $4,431	$32,414/ $5,256	$25,534/ $4,527	$24,860/ $5,239	$21,693/ $4,763
Average/Median Monthly Contribution	$165.00/ $56	$165.00/ $50	$140.16/ $50	$130.40/ $50	$127.13/ $50

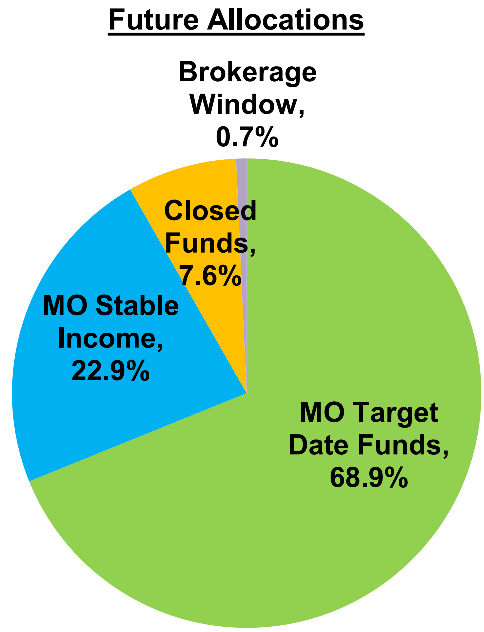
Plan Cost Data:

	Plan	Avg. Peer Data
Total Plan (avg. investment management fees)	0.22%	0.25%*
• MO Target Date Funds & Stable Income	0.14%	
• Frozen/Closed Funds	0.52%	
Total Recordkeeping/Internal Administration Cost	0.10%	0.13%*
MO Custom Target Date Funds (avg. investment mgmt. fee)	0.09%	0.34%**

*NAGDCA 2019 Plan Survey – National Association of Government Defined Contribution Administrators, Inc.& Plansponsor DC Industry Report 2021
**Morningstar - Avg. Retail Target Date Fund, 2021

Plan Assets:





Performance:

Investment Options	1 year	3 year	5 year	10 Year	Since Inception
ING Stable Income[1]	1.85%	2.32%	2.33%	2.30%	2.77%
Missouri Retirement Allocation Fund[2]	-4.74%	3.83%	3.78%	3.45%	5.14%
Missouri 2010 Fund[2]	-4.96%	4.88%	4.67%	5.14%	7.52%
Missouri 2015 Fund[2]	-5.34%	5.90%	5.47%	6.07%	8.34%
Missouri 2020 Fund[2]	-6.04%	6.59%	6.04%	6.80%	8.97%
Missouri 2025 Fund[2]	-6.78%	6.91%	6.31%	7.34%	9.42%
Missouri 2030 Fund[2]	-7.62%	7.03%	6.48%	7.80%	9.67%
Missouri 2035 Fund[2]	-8.62%	7.01%	6.56%	8.02%	9.72%
Missouri 2040 Fund[2]	-9.29%	7.27%	6.73%	8.21%	9.83%
Missouri 2045 Fund[2]	-9.93%	7.52%	6.87%	8.32%	9.91%
Missouri 2050 Fund[2]	-10.23%	7.41%	6.81%	8.28%	9.88%
Missouri 2055 Fund[3]	-10.31%	7.41%	6.82%	8.28%	8.02%
Missouri 2060 Fund[4]	-10.32%	7.40%	6.80%	N/A	6.66%
Missouri 2065 Fund[5]	-10.23%	N/A	N/A	N/A	5.03%

[1] Inception Date of June 6, 2006
[2] Inception Date of April 9, 2009
[3] Inception Date of January 26, 2010
[4] Inception Date of December 22, 2014
[5] Inception Date of January 21, 2020

Calendar Year-to-Date 2022

Fund Transfer Activity:

	Balance	Transfers In	Transfers Out	Net Transfers
Target Date Funds	$1,157,287,703	$21,161,148	($46,536,049)	($25,374,901)
Stable Income	$905,947,185	$41,949,101	($10,849,612)	$31,099,489
Brokerage	$83,202,025	$3,335,185	($2,846,763)	$488,422
Closed Funds	$461,118,901	$0	($6,213,010)	($6,213,010)
TOTAL	**$2,607,555,901**	**$66,445,433**	**($66,445,433)**	

Plan Contribution Activity:

Contribution Type	Amount
Employee Contributions – Pre-Tax	$32,819,412
Employee Contributions - Roth	$10,134,359
Employer Contributions	$615,251
Rollovers in	$46,534,701
TOTAL	**$90,103,723**

Plan Distribution Activity:

Distribution Type	Amount
Installment Payments	-$7,680,710
Lump Sum Withdrawal	-$34,341,245
Required Minimum Distribution	-$1,032,260
De Minimis Payment	-$391,205
Unforeseen Emergency Withdrawal	-$464,501
Automatic Enrollment Refund	-$2,462
Rollover	-$39,636,520
Service Credit Purchase	-$1,614,499
TOTAL	**-$85,163,404**

Participant Contribution Transactions (excludes auto-enroll activity):

Increased Contribution	16,309
Decreased Contribution	1,390
Stopped Contribution	2,660

Automatic Enrollment/Voluntary Automatic Increase Data:

Inception* – Current (still actively employed)

# of Automatically enrolled employees	20,009
# Opted out of automatic enrollment	1,534
# Automatically Enrolled & Increased Contribution	8,557
Net automatically enrolled	18,475
Opt-out rate	7.7%
Automatic enroll success rate	92.3%
Automatic increase enrollments (opt-ins)	3,565
Total Auto-Enrolled Assets	$81,464,672
Average Contribution (per pay period)	$58.03
Automatic Enrollment Success in CY2021	95.6%

*Inception dates are July 1, 2012 for automatic enrollment and March 1, 2013 for automatic increase

Communications/Engagement Statistics:

Call Center

	Total # of Calls Received	# of Calls Received at Local Office	% of Calls Received by Local Office	# of Calls Received by VRU
Month/CYTD	3,134/15,919	2,942/15,010	94%/94%	2,823/21,557

Meetings & Consultations

	Local Office Walk-ins	# of Live Seminars	Live Seminar Attendance	# of Webinars	Webinar Attendance	In-Person Consultations	Virtual Consultations
Month/CYTD	90/608	27/159	1,206/3,638	24/198	213/1,709	359/1,997	525/2,384

Video

	Views	Estimated Minutes Watched	Average View Duration	Retention
Month	3,051	3,503	1:23	77%
All-Time – 222 Videos	**167,926**	**265,242**	**1:34**	**69%**

Website (modeferredcomp.org) & Account Access – Monthly Statistics

Website Visits	50,995
Website Unique Users	41,113
Account Access Logins	55,859

Social Media Following

Facebook	1,263
Instagram	142
Twitter	230
YouTube	224
LinkedIn	151

Email Marketing (Seminars, Surveys, Active/Term Outreach)– Monthly Statistics

Emails Sent	Unique Opens	Avg. Open Rate	Click Through Rate
122,831	45,014	36.6%	4.0%

Participants on E-Delivery

Active	37,005	99% of population
Separated	28,766	86% of population

Colleges & Universities Retirement Plan

Plan Data:

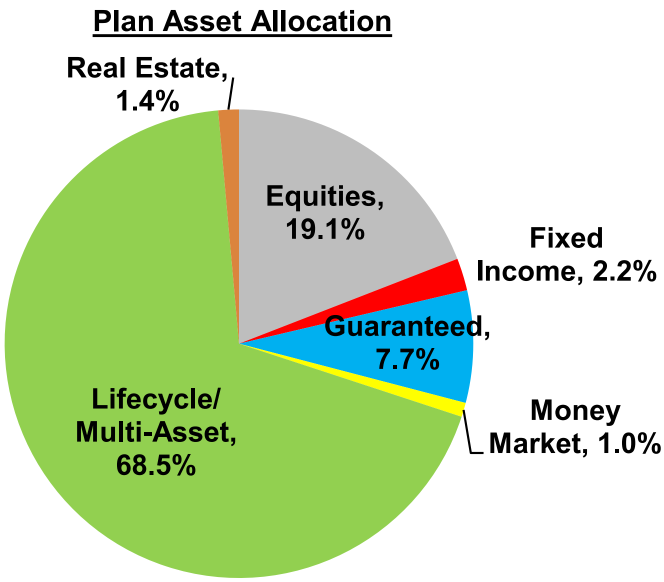
	07/31/2022	12/31/2021	12/31/2019	12/31/2017	12/31/2015
Total Plan Assets	$137,102,734	$153,007,516	$112,314,984	$89,194,140	$64,194,357
Total Plan Participants	3,364	3,395	3,327	3,076	2,564
Active Participants	2,050	2,392	2,563	2,348	1,931
Separated/Retired Participants	1,314	1,003	764	728	723
Participants receiving Employer Contribution	1,432	1,613	1,720	1,686	1,582
Participants contributing mandatory 2%	547	641	407	N/A	N/A
Participants eligible to transfer to a MOSERS DB Plan	691	762	728	1,077	N/A
Transfers to a MOSERS DB Plan to date	515	497	365	281	171
Average Account Balance	$38,642	$45,068	$33,759	$28,997	$24,188
Median Active Balance	$26,149	$27,233	$18,316	$17,124	$12,380
Average balance for actives w/10+ years in CURP	$80,811	$89,761	$67,026	$73,240	$64,920

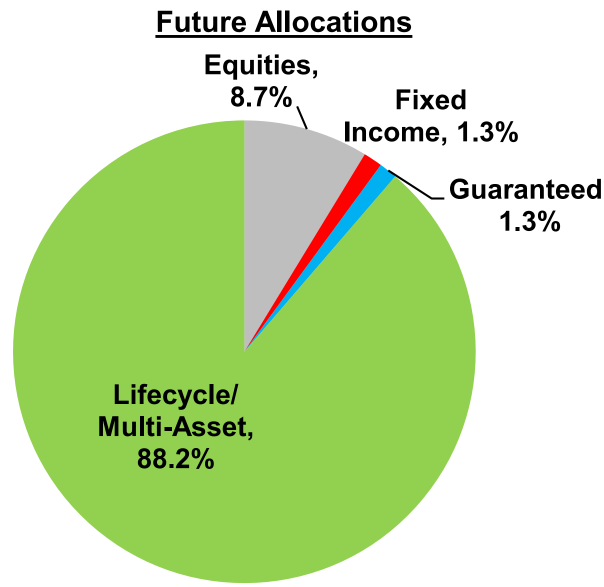
Plan Cost Data:

	CURP	Peers – Plans under $200mm*
TOTAL Plan Cost	0.32%	0.41%
Administrative Cost	0.21%	0.27%
Average Investment Management Cost	0.11%	0.14%

*NAGDCA 2019 Plan Survey – National Association of Government Defined Contribution Administrators, Inc.

Plan Assets:





Performance:

Investment Options	1 year	3 year	5 year	10 year
Lifecycle Index 2010 Fund (TLTRX)	-8.18%	4.11%	4.58%	5.49%
Lifecycle Index 2015 Fund (TLGRX)	-8.46%	4.52%	4.95%	6.04%
Lifecycle Index 2020 Fund (TLWRX)	-8.85%	4.88%	5.32%	6.66%
Lifecycle Index 2025 Fund (TLQRX)	-9.17%	5.53%	5.88%	7.40%
Lifecycle Index 2030 Fund (TLHRX)	-9.57%	6.17%	6.43%	8.13%
Lifecycle Index 2035 Fund (TLYRX)	-9.97%	6.78%	6.96%	8.84%
Lifecycle Index 2040 Fund (TLZRX)	-10.15%	7.48%	7.52%	9.41%
Lifecycle Index 2045 Fund (TLMRX)	-10.27%	8.20%	8.02%	9.73%
Lifecycle Index 2050 Fund (TLLRX)	-10.38%	8.34%	8.13%	9.82%
Lifecycle Index 2055 Fund (TTIRX)	-10.39%	8.43%	8.21%	9.90%
Lifecycle Index 2060 Fund (TVITX)	-10.41%	8.56%	8.30%	N/A
Lifecycle Index Ret. Income Fund (TRCIX)	-8.28%	4.14%	4.58%	5.14%
TIAA-CREF Intl. Equity Index (TCIEX)	-13.75%	3.77%	2.84%	6.05%
Vanguard Total Stock Market Index (VTSAX)	-7.77%	12.42%	12.11%	13.41%
Vanguard REIT Index (VGSLX)	-4.35%	7.14%	7.21%	8.17%
Vanguard Total Bond Market Index (VBTLX)	-8.65%	0.36%	1.17%	1.68%
Vanguard Inflation Protected Securities (VAIPX)	-3.53%	4.32%	3.84%	1.88%
CREF Social Choice Account	-9.21%	6.11%	6.38%	7.50%
TIAA TRADITIONAL Account	3.80%	3.85%	3.94%	4.15%

Calendar Year-to-Date 2022

Fund Transfer Activity:

	Balance	Transfers In	Transfers Out	Net Transfers
Equities	$26,187,540	$433,588	($178,172)	$255,416
Fixed Income	$3,057,630	$219,281	($98,681)	$120,600
Guaranteed	$10,605,809	$136,285	($41,221)	95,063
Money Market	$1,349,113	$29,723	$0	$29,723
Multi-Asset/Target Date	$93,960,257	$223,100	($723,902)	($500,802)
Real Estate	$1,942,385	$0	$0	$0
TOTAL	**$137,102,734**	**$564,321**	**($1,041,976)**	

Plan Contribution Activity:

Contribution Type	Amount
Employee Contributions	$510,268
Employer Contributions	$4,140,892
Rollovers in	$4,109
TOTAL	**$4,655,269**

Plan Distribution Activity:

Distribution Type	Amount
Annuity Settlement Options	-$485,404
Death Benefits	-$409,998
Installment Payments	-$167,250
Lump Sum Withdrawal	-$2,574,539
TOTAL	**-$3,637,191**

Communications/Engagement Statistics *(rolling 12 months ended June 30, 2022):*

Secure Web Log Ins	738
Unique Participant Inbound Calls	85
Online Self-Service Advice Sessions	83
Online Assisted Advice Sessions	36
Field Counseling Sessions	45
Core Campaign Education Contacts	1,563
Beneficiary Update	127

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Operations

ACTIVITY REPORT

September 2022

Member Population

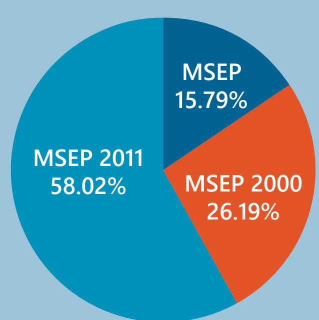
As of Aug 30, 2022

Active	42,519
Disabled	573
On leave	110
Inactive vested	17,464
MSEP 2011 inactive not vested	29,169
Retired	48,597
Ex-spouse	318
Survivor	4,723
Total	143,473

Source: YNEWCT008302022

Active Members by Plan

As of Aug 30, 2022



MOSERS will strive to:

1. Ensure members and their beneficiaries receive high quality services from MOSERS staff;
2. Provide members and their beneficiaries with access to information about the benefits administered by MOSERS in a cost-effective and timely manner;
3. Ensure members and their beneficiaries receive updates that are individualized regarding plan changes and distributed effectively and efficiently;
4. Ensure benefit recipients receive their payments in a cost-effective and timely manner; and,
5. Ensure the security and accuracy of member records.

Update on the New Pension Administration System

For more than 30 years, the MOSERS Integrated Benefits System (MIBS) has aided MOSERS staff in providing very high levels of service to stakeholders, but it is nearing the end of its life expectancy. Ensuring that MOSERS can continue to meet or exceed expectations for years to come involves replacing MIBS with a modern system. This is no small feat and involves effort and input from nearly all staff members along with the support of all participating employers.

In 2016, MOSERS created a Project Management Office with the mission of successfully replacing MIBS with a new pension administration system (PAS). By the end of 2017, we had executed multiple contracts with pension industry experts to address conditioning and governance of MOSERS data, creation of a pension industry standard RFP, procurement support, and project management oversight. By the end of 2018, we had assembled all the tools and staffing needed to implement the new PAS, which we dubbed Phoenix. Since then, MOSERS staff, along with our vendors, have diligently worked on documenting, designing, developing, and testing Phoenix's workflows and processes with a focus on data integrity and efficiency.

As of Fall 2022, Phoenix's tested functionality is approximately 90% complete. We have entered the final design iteration of the project plan in addition to beginning preparation for training staff, employers, and other end users. This represents Phase 4 of 5 for the project and focuses on validating all the work that has happened over the past few years so that Phoenix can be deployed and immediately leveraged to the benefit of everyone who interacts with MOSERS, whether it be the CFO from a university, ensuring that payroll data is submitted successfully, or the beneficiary of a deceased member still receiving benefit payments.

As of Fall 2022, Phoenix's tested functionality is approximately 90% complete.

The coming 6-18 months will hold many critical milestones for MOSERS and for the implementation of Phoenix. Documentation and training materials will be finalized. Staff and key stakeholders will participate in the final rounds of user acceptance testing, regression testing, parallel testing, security testing and configuration. Staff will define "Go/No-Go" criteria, which they will continually assess leading up to our projected deployment in the spring of 2023. Post-deployment support will begin immediately upon deployment and will formally kick off a new era of MOSERS, to the benefit of our members.

We are excited and cautiously optimistic to begin reaping the benefits of the resources and years of hard work and sacrifice that have been put into this effort!

Remember to visit the Dashboard on the Board Website to view the latest data on MOSERS members and service levels.

Preparing Phoenix Training for Staff and Employer Reps

We are working with Carole Jarvis, a training specialist with Linea Solutions, to assess, design, develop, implement, and evaluate Phoenix training for employer reps and MOSERS staff.

Candy Smith in the Communications & Education section is serving as the MOSERS point person for Carole. Several other staff members are heavily involved as well, especially Jamie Mullen and Shelley Lehmann in the Employer Services Section, and Amber Arnold, Education Supervisor.

To-date, we have already produced a training needs assessment. We are also working on:

- A training strategy document,
- An employer training plan, and a
- MOSERS staff training plan.

Sr. Communications Analyst, Tracy Upschulte, has worked with staff from Employer Services to develop two process maps for future users: **Capturing Leave Events in Phoenix** and **Reporting Termination Dates**, and we have started work on course outlines, quick reference guides, and handouts.

Heather Dulle with the PMO has set up several different environments to use for testing and training purposes.

Angie Voss, Sheila Hock, and Paul Salarano in IT are configuring our existing Seminar Enrollment Program so we can use it for Phoenix Training. They have made significant progress to allow us to use our existing resources to schedule, enroll, and track Phoenix training for both MOSERS staff and employer reps.

Employer Reps

- The draft employer plan includes four courses specifically for employer reps.
- We anticipate developing videos and quick reference guides for topics that relate to a small number of members, occur infrequently, or are seasonal.
- We will send out a survey to employer reps in mid-September to gather more information needed for employer training.
- We will host an employer webinar in October to provide a live sneak peek into Phoenix with emphasis on several advantages for employer reps in Phoenix such as no more transfer and termination forms and how the Phoenix process will result in a higher degree of accuracy related to member salary and service data!

MOSERS Staff

- The draft training plan for MOSERS staff includes courses specifically for MOSERS staff. Some staff may also want to take courses for employer reps to better understand their interactions with Phoenix.
- Training will include quick reference guides, manuals, and various handy job aids – both hard copy and online.
- We will begin the Phoenix Sandbox Challenge in September. It will provide a fun introductory way for staff to start digging in the sandbox (*secure test environment*) and discovering where to find member data and how to process typical tasks in the new system.

Assuming a Phoenix go-live launch in March 2023, we plan to start posting training opportunities in December and will begin conducting formal training in January/February.

PHOENIX
MOSERS

Benefits of Phoenix

Employers

- Easier to use and more intuitive
- More transparency and access to information

MOSERS Staff

- More nimble through a single integrated solution
- Improved security

Employers & MOSERS Staff

- Sustained and improved customer service
- More efficient and increased automation
- Improved accuracy and controls

Missouri State Employees' Retirement System
Investment Committee Meeting
MOSERS Office, 907 Wildwood Drive, Jefferson City, MO
www.gotomeeting.com, Meeting ID 606-572-645
August 24, 2022– 8:30 a.m.

AGENDA

Open Session

- Approval of Report from July 25, 2022 Investment Committee Meeting (Action)
- Proxy Voting Policy discussion
- Director's Comments

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
INVESTMENT COMMITTEE REPORT
REGULAR SESSION
MOSERS OFFICE, 907 WILDWOOD DRIVE, JEFFERSON CITY, MO
WITH OPTIONAL CONFERENCE CALL
JULY 25, 2022

Treasurer Scott Fitzpatrick attended the meeting in person. Mr. Joe Keifer, Rep. Rusty Black, Mr. Gary Metzger, and Ms. Stacy Neal, designee of the Commissioner, attended the meeting via telephone. Mr. Bruce Ring, and Mr. Mike Price, designees of the Treasurer, attended the meeting via telephone as guests. Mr. Gary Findlay attended the meeting in person as a guest.

Attending from MOSERS: Ronda Stegmann, Executive Director; Abby Spieler, Deputy Executive Director/General Counsel; TJ Carlson, Chief Investment Officer; Tyson Rehfeld, Deputy Chief Investment Officer; Scott Hankins, Managing Director – Investment Risk & Operations; Cindy Rehmeier, Manager of Defined Contribution Plans; Candy Smith, Communications Manager and Public Information Officer; and Melissa Johnson, Board Administrator. Patrick Morgan, Investment Legal & Compliance Counsel; Nicki Russell, Chief Auditor; Shelby Murdock-Kempf, Associate Counsel; Lisa Verslues, Human Resources Officer; Lindsey Evers, Internal Auditor; and Pettina Duenckel, Executive Project Coordinator attended via telephone.

Tom Litz, Thompson Coburn, and Eileen Neill, Verus Investments, attended via telephone.

Attendance roll call was taken.

Mr. Metzger moved to approve the regular session report from the June 2, 2022 Investment Committee meeting. Mr. Ring seconded. Motion carried.

Mr. Carlson provided a brief overview of the current proxy voting process. Ms. Neill provided comparisons of other plan sponsors in reference to proxy voting. Several different proxy voting alternatives were discussed with the committee.

Ms. Spieler discussed policy implementation parameters and provided an update on the board-adopted policy regarding Russian-related investments.

Treasurer Fitzpatrick moved to adjourn the meeting. Mr. Keifer seconded. Motion carried.

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Joe Keifer, Committee Chair

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Proxy Voting Policy Discussion

MOSERS Investment Committee
August 24, 2022

Review and Update

- The Board took action on June 16th:
  - *"The Board moved to instruct BlackRock, and NISA as it applies to our REITS portfolio, to stop voting our proxies, send us our proxies, and instructed staff to abstain from voting those proxies while the proxy voting policy is being considered and adopted by the Board through the Investment Committee."*
  - NISA agreed to stop voting proxies for our SMA.
  - BlackRock requires a Proxy Policy and the hiring of a proxy vendor.
  - To operationalize the Board's direction, Staff moved to begin redeeming from BlackRock and implementing all indexed global public equity investments using a derivatives-based strategy.

Proxy Policy Discussion

Proxy Voting Policy Development

- Select an “off the shelf” proxy voting policy to recommend to the full Board of Trustees and hire a proxy voting service to implement the policy.
  - This would currently impact approximately $1.12b of assets
    - All passive funds ($620m), will be gone in 3-5 years
    - REIT separately managed account ($500m)
  - Estimated annual cost to implement, ($10 - $15k for Egan Jones)
- If desired, retain a Proxy Advisory Service to develop and implement a custom Proxy Voting Policy for MOSERS
  - Will require a significant time commitment from Committee & Board to review hundreds of proxy issues & determine how to vote in the best interest of MOSERS and its members ($15 - $45k)

Overarching Thoughts

- Most proxy voting providers use a model of "we look at this on a "case by case" basis, but our base case is to vote for/against….".

- Policies guide, don't dictate.

- All policies include a statement saying they vote "in the interest of long-term shareholder value".

- Potential headline risks to any policy.

Proxy Policy Implementation

- Staff will continue to evaluate the best way to meet the Board's investment policy objectives including the tradeoff between risk, return, and implementation costs, when building the portfolio.
- If derivatives continue to be the most appropriate implementation for public equities, the proxy voting policy would only be utilized for the NISA account, at this time.
- In the future, when any manager is considered, the Board-approved proxy voting policy, if applicable, would be incorporated into the hiring due diligence process for determination of manager selection.

Overview of "Off the Shelf" Options

- Leading Vendor Options Available

Egan Jones	Glass Lewis	ISS
Standard Policy	Standard Policy	Benchmark Policy
Conservative Policy	Climate Policy	Sustainability Policy
G/SRI Policy	ESG Policy	SRI Policy
Catholic Policy	Catholic Policy	Climate Policy
Taft-Hartley Policy	Public Pension Policy	Catholic Policy
	Taft-Hartley Policy	Public Fund Policy
		Taft Hartley Policy
		Board Aligned Policy

- Staff and Verus reviewed three "off the shelf" proxy policies
  - Egan Jones – Conservative Investor (31 pages)
  - Glass Lewis – Standard Policy (83 pages)
  - ISS – Board Aligned Policy (8 pages)

- The complete version of all three policies are available for your review.

Key Positions

Topic/Focus	Egan Jones	Glass Lewis	ISS
Policy Focus Summary	Management is accountable to Directors, Director are independent and accountable to shareholders, shareholders are treated fairly and equitably, i.e., one share/one vote. Against most ESG and DEI reporting requirements.	Directors serve shareholders. Transparency, shareholder rights, ESG and DEI (Diversity, Equity and Inclusion) topics are important factors in analysis.	The Board Aligned policy would vote with company management unless that position is not consistent with widely accepted governance and compensation practices while protecting shareholder rights and long-term value creation for shareholders.
Board Independence	Wants 2/3rds independent	Wants 2/3rds Independent	Wants at least 1/2 Independent
Support Board Election	Annually	Annually	Annually
Board Diversity	No DEI Testing/Reporting	DEI Targets and minimums	DEI Targets and minimums
Bylaw amendments	Simple Majority	Simple Majority	Simple Majority
Favor Simple-majority or Super-majority	Simple Majority	Simple Majority	Simple Majority
Auditor	For management recommendation	For management recommendation	For management recommendation
Capital structure/business combinations	Case-by-case	Case-by-case	Case-by-case

Other Typical Items

Typical Items	Egan Jones - Conservative	Glass Lewis	ISS - Board Aligned
Poison Pills	For shareholder proposals asking to submit for shareholder ratification	Typically, no	For management recommendation, in most cases
Special Meeting Requirement	10% of Shareholders	10-15% of Shareholders	For management recommendation, in most cases
Vote on Executive Compensation	Annual Advisory vote	For Advisory Vote	For management recommendation, in most cases
Compensation of Officers	Mostly Stock (No ESG metrics)	Mostly Stock (Tie to ESG metrics)	For management recommendation, in most cases
Proposals Enhancing Shareholder Rights	Yes	Yes	For management recommendation, in most cases
Shareholder Proposals for ESG/DEI Reporting Requirements	No	Yes	For management recommendation, in most cases
Support Reasonable Access to Proxy Materials	Yes	Yes	For management recommendation, in most cases

Environmental and Social Items

Typical Items	Egan Jones - Conservative	Glass Lewis	ISS - Board Aligned
Shareholder proposals on Environmental and Social Issues	Against shareholder proposals for reporting requirements and most changes in business practices related to ESG issues	For ESG oversight and reporting requirements	For management recommendation, in most cases
Lobbying/Climate Lobbying Report	Against	Generally, for	For management recommendation, in most cases
Shareholder Requests to follow CERES Principles (Coalition for Environmentally Responsible Economies)	Against	Generally, for	For management recommendation, in most cases
Sustainability Reports	Against	Generally, for	For management recommendation, in most cases
Nomination an Environmental Expert to the Board	Against	Generally, for	For management recommendation, in most cases
Establishment of a Climate Change Committee on the Board	Against	Generally, for	For management recommendation, in most cases
Establishment of a Human Rights Committee or Human Trafficking Reporting	Against	Generally, for	For management recommendation, in most cases
Use of Corporate Assets to Create Reports on: Electronic Waste; renewable Energy Adoption;Climate Change; Drug Pricing; Stranded Assets	Against	Generally, for	For management recommendation, in most cases

Recommendation

- The Investment Committee recommend the Egan Jones – Conservative "off the shelf" proxy voting policy to the full Board for approval.
  - The Egan Jones – Conservative policy appears to be the policy most consistent with recent Committee and Board discussions. It highlights the principle of maximizing shareholder value and votes against ESG proposals that do not support shareholder value.
  - Estimated annual cost to implement, ($10 – $15k).

Questions and Discussion

Appendix

Estimated Cost Progression

	Activity	Annual $ Cost Estimate	Running Total	Staffing Estimate (Cumulative)
1	Maintain Current proxy voting delegation practice	$ -	$ -	None
2	Hire a proxy advisor to develop a proxy voting policy	$ 15,000	$ 15,000	None
3	Utilize new proxy policy to vote where can without costs	$ -	$ 15,000	None
4	Move US assets to a separately managed account	$ 290,000	$ 305,000	1
5	Move Non-US assets to separetely managed accounts	$ 1,114,000	$ 1,419,000	2
	Additional compliance costs	$ 130,000	$ 1,549,000	2-3
	Totals		$ 1,549,000	2-3

Which Asset Classes Are Impacted

		Policy Allocation - Capital
Growth	Global Public Equities	30%
Growth	Global Private Equities	15%
Income	Long Treasuries	25%
Income	Core Bonds	10%
Inflation	Commodities	5%
Inflation	TIPS	25%
Inflation	Private Real Assets	5%
Inflation	Public Real Assets	5%
Absolute Return	Hedge Funds	5%
Absolute Return	Alternative Beta	10%
Absolute Return	Private Credit	5%
Total Portfolio - Exposure		140%

The portfolio assets highlighted in yellow are the assets that may be *partially* impacted by the outcome of this discussion.

The greyed-out assets will not be impacted.

Missouri State Employees' Retirement System
Investment Committee Meeting
MOSERS Office, 907 Wildwood Drive, Jefferson City, MO
www.gotomeeting.com , Meeting ID 259-662-829
September 1, 2022– 10:00 a.m.

AGENDA

Open Session

• Approval of Report from August 24, 2022 Investment Committee Meeting (Action)

• Proxy Voting Policy discussion (Potential Action)

• Performance Review – 2^{nd} Quarter ending June 30, 2022

• Annual Investment Policy Statement Review Timing

• Asset Study Discussion

• Director's Comments

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
INVESTMENT COMMITTEE REPORT
REGULAR SESSION
MOSERS OFFICE, 907 WILDWOOD DRIVE, JEFFERSON CITY, MO
WITH OPTIONAL CONFERENCE CALL
AUGUST 24, 2022

Treasurer Scott Fitzpatrick attended the meeting in person. Mr. Joe Keifer, Rep. Rusty Black, Mr. Gary Metzger, and Ms. Stacy Neal, designee of the Commissioner, attended the meeting via telephone. Mr. Bruce Ring, and Mr. Mike Price, designees of the Treasurer, and Ms. Crystal Wessing attended the meeting via telephone as guests. Mr. Gary Findlay attended the meeting in person as a guest.

Attending from MOSERS: Ronda Stegmann, Executive Director; Abby Spieler, Deputy Executive Director/General Counsel; TJ Carlson, Chief Investment Officer; Tyson Rehfeld, Deputy Chief Investment Officer; Scott Hankins, Managing Director – Investment Risk & Operations; Cindy Rehmeier, Manager of Defined Contribution Plans; Candy Smith, Chief Communications Officer; and Melissa Johnson, Board Administrator. Patrick Morgan, Investment Legal & Compliance Counsel; Nicki Russell, Chief Auditor; Shelby Murdock-Kempf, Associate Counsel; Lisa Verslues, Human Resources Officer; Lindsey Evers, Internal Auditor; and Pettina Duenckel, Executive Project Coordinator attended via telephone.

Eileen Neill, Verus Investments, attended via telephone.

Attendance roll call was taken.

Treasurer Fitzpatrick moved to approve the regular session report from the July 25, 2022 Investment Committee meeting. Mr. Metzger seconded. Motion carried.

Mr. Carlson and Ms. Neill provided detailed information on three proxy voting policies for the Committee's consideration. After Committee discussion, Mr. Keifer asked staff to provide the Committee with a copy of the Egan Jones Conservative Policy, to show what investments would be impacted by any potential policy, and to share potential new language that would be included in the Investment Policy Statement if a proxy voting policy is developed. The Committee plans to discuss this information at their next scheduled meeting.

Treasurer Fitzpatrick moved to adjourn the meeting. Ms. Neal seconded. Motion carried.

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Joe Keifer, Committee Chair

MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM

Proxy Voting Policy Discussion

MOSERS Investment Committee
September 1, 2022

Proxy Voting Implementation Map

	Public Equity Portfolio Exposure Summary	May 31, 2022 Dollar Exposure	August 12, 2022 Dollar Exposure	Historic Source	August 31, 2022 Implementation	New Proxy Policy Current Impact
Growth	Global Public Equity US Exposure	75,699,015	0	BlackRock Index Fund	Derivatives + Portable Alpha	No
Growth	Global Public Equity Non-US Exposure	1,055,588,879	1,043,988,015	5 Actively Managed Funds	5 Actively Managed Funds	No
Growth	Private Equity P4P US Exposure	373,290,897	369,573,933	BlackRock Index Fund	Derivatives + Portable Alpha	No
Growth	Private Equity P4P Non-US Exposure	243,509,223	222,403,548	5 Actively Managed Funds	5 Actively Managed Funds	No
Inflation	US Public REIT Portfolio – Separately Managed Account	444,161,703	500,483,820	SMA	SMA	Yes
Absolute Return	ACWI US Exposure - Passive Fund	27,144,440	29,900,000	BlackRock Index Fund	Derivatives	No
Absolute Return	ACWI Non-US Exposure - Passive Fund	17,354,642	20,000,000	BlackRock Index Fund	Derivatives	No
	Total Public Equity Portfolio Exposure	**2,236,748,799**	**2,186,349,316**			

US Equities
Non-US Equities
REITs

Recent Derivative Process

- The movement to derivatives from the passive U.S. exposure is scheduled to be completed on Wednesday, August 31st

- This movement was conducted in 3 phases beginning August 23rd and ending August 31st

- Staff will continue to evaluate the most prudent implementation of these assets over time

Timeline of Proxy Voting Policy

- If the Investment Committee recommends approval to full Board, Staff will:
  - Begin negotiations with Egan Jones
  - Work with NISA on designing the implementation of the Board's potential new policy
  - Both processes should be complete and ready to sign/implement by the Board meeting

- If the policy is approved by the full Board, Staff will:
  - Sign a contract with Egan Jones
  - Implement the new policy at NISA

Timeline of Proxy Voting Policy

- There are no other opportunities, at this time within the current portfolio construction, to apply a Board-approved proxy policy

- MOSERS' actively managed non-U.S. fund exposure (5 managers) will continue the fiduciary standard practice of delegating the proxy voting to the investment manager in the best interest of the comingled fund

Proxy Voting Implementation Map

	Public Equity Portfolio Exposure Summary	May 31, 2022 Dollar Exposure	August 12, 2022 Dollar Exposure	Historic Source	August 31, 2022 Implementation	New Proxy Policy Current Impact
Growth	Global Public Equity US Exposure	75,699,015	0	BlackRock Index Fund	Derivatives + Portable Alpha	No
	Global Public Equity Non-US Exposure	1,055,588,879	1,043,988,015	5 Actively Managed Funds	5 Actively Managed Funds	No
	Private Equity P4P US Exposure	373,290,897	369,573,933	BlackRock Index Fund	Derivatives + Portable Alpha	No
	Private Equity P4P Non-US Exposure	243,509,223	222,403,548	5 Actively Managed Funds	5 Actively Managed Funds	No
Inflation	US Public REIT Portfolio – Separately Managed Account	444,161,703	500,483,820	SMA	SMA	Yes
Absolute Return	ACWI US Exposure - Passive Fund	27,144,440	29,900,000	BlackRock Index Fund	Derivatives	No
	ACWI Non-US Exposure - Passive Fund	17,354,642	20,000,000	BlackRock Index Fund	Derivatives	No
	Total Public Equity Portfolio Exposure	**2,236,748,799**	**2,186,349,316**			

US Equities
Non-US Equities
REITs

Moving Forward

- As always, Staff will evaluate the best avenue to meet the Board's cumulative investment policy objectives. Staff will continue to analyze investment opportunities, including:
  - the tradeoff between risk and return
  - the implementation cost differences between
    - internal and external management
    - active and passive management
    - SMA's versus commingled fund vehicles

- A Board-approved Proxy Voting Policy will be a component of consideration in the hiring process, with overall risk and net of fee return outweighing other considerations.

Proxy Policy Implementation

- Any new Board-approved Proxy Voting Policy will be implemented, and:
  - *will* apply to:
    - all passively managed separately managed accounts (SMA's)
    - any actively managed SMA where we have the option to apply the Board's new Proxy Policy
    - any commingled fund (CIT's, mutual fund etc.) where MOSERS has the option to apply the Board's new Proxy Policy
  - *will not* apply to:
    - any actively managed SMA's where the voting of proxies is important to the success of a manager's investment strategy
    - any commingled fund where we do not have the option to apply the Board's new Proxy Policy

Staff and Verus Recommend

- The Investment Committee recommends the Egan Jones – Conservative "off the shelf" proxy voting policy to the full Board for consideration.
  - The Egan Jones – Conservative policy appears to be the policy most consistent with recent Committee and Board discussions. It highlights the principle of maximizing shareholder value and votes against ESG proposals that do not support shareholder value.
  - Estimated annual cost to implement, ($10 – $15k)
- The Investment Committee recommends language regarding the Board's position be added to the Investment Policy Statement.

Potential ESG Language for the IPS

V. Roles and Responsibilities

D. External Providers

4. Proxy Voting Advisor

To assist the System in the continued execution of its fiduciary duties, in connection with exercising the voting rights of the investments directly held by the System, the System shall retain a proxy voting advisor and utilize *the Egan Jones – Conversative Investor Proxy Policy* (the Proxy Voting Policy) no later than January 1, 2023. In voting MOSERS' shares, the proxy voting advisor shall consider only those factors that relate to the economic value of the System's investments, such that MOSERS' votes are cast in the best economic interest of the System. For avoidance of doubt, voting of MOSERS' shares, including on proposals regarding social, governance or environmental proposals and on election of boards of directors, will be based solely on enhancing or protecting long-term economic value, and not on establishing or endorsing social policy.

In addition to investments directly held by MOSERS, MOSERS invests in securities indirectly through pooled investment funds where third party investment managers possess the voting rights with respect to investments of the fund and vote in the best interest of the pooled funds. In those circumstances, the System may request the third-party managers to exercise voting rights in accordance with the Proxy Voting Policy, but the third-party manager will not be required to do so.

Questions and Discussion

Appendix

Overview of “Off the Shelf” Options

- Leading Vendor Options Available

Egan Jones	Glass Lewis	ISS
Standard Policy	Standard Policy	Benchmark Policy
Conservative Policy	Climate Policy	Sustainability Policy
G/SRI Policy	ESG Policy	SRI Policy
Catholic Policy	Catholic Policy	Climate Policy
Taft-Hartley Policy	Public Pension Policy	Catholic Policy
	Taft-Hartley Policy	Public Fund Policy
		Taft Hartley Policy
		Board Aligned Policy

- Staff and Verus reviewed three “off the shelf” proxy policies
  - Egan Jones – Conservative Investor (31 pages)
  - Glass Lewis – Standard Policy (83 pages)
  - ISS – Board Aligned Policy (8 pages)

- The complete version of all three policies are available for your review.

Key Positions

Topic/Focus	Egan Jones	Glass Lewis	ISS
Policy Focus Summary	Management is accountable to Directors, Directors are independent and accountable to shareholders, shareholders are treated fairly and equitably, i.e., one share/one vote. Against most ESG and DEI reporting requirements.	Directors serve shareholders. Transparency, shareholder rights, ESG and DEI (Diversity, Equity and Inclusion) topics are important factors in analysis.	The Board Aligned policy would vote with company management unless that position is not consistent with widely accepted governance and compensation practices while protecting shareholder rights and long-term value creation for shareholders.
Board Independence	Wants 2/3rds independent	Wants 2/3rds Independent	Wants at least 1/2 Independent
Support Board Election	Annually	Annually	Annually
Board Diversity	No DEI Testing/Reporting	DEI Targets and minimums	DEI Targets and minimums
Bylaw amendments	Simple Majority	Simple Majority	Simple Majority
Favor Simple-majority or Super-majority	Simple Majority	Simple Majority	Simple Majority
Auditor	For management recommendation	For management recommendation	For management recommendation
Capital structure/business combinations	Case-by-case	Case-by-case	Case-by-case

Other Typical Items

Typical Items	Egan Jones - Conservative	Glass Lewis	ISS - Board Aligned
Poison Pills	For shareholder proposals asking to submit for shareholder ratification	Typically, no	For management recommendation, in most cases
Special Meeting Requirement	10% of Shareholders	10-15% of Shareholders	For management recommendation, in most cases
Vote on Executive Compensation	Annual Advisory vote	For Advisory Vote	For management recommendation, in most cases
Compensation of Officers	Mostly Stock (No ESG metrics)	Mostly Stock (Tie to ESG metrics)	For management recommendation, in most cases
Proposals Enhancing Shareholder Rights	Yes	Yes	For management recommendation, in most cases
Shareholder Proposals for ESG/DEI Reporting Requirements	No	Yes	For management recommendation, in most cases
Support Reasonable Access to Proxy Materials	Yes	Yes	For management recommendation, in most cases

Environmental and Social Items

Typical Items	Egan Jones - Conservative	Glass Lewis	ISS - Board Aligned
Shareholder proposals on Environmental and Social Issues	Against shareholder proposals for reporting requirements and most changes in business practices related to ESG issues	For ESG oversight and reporting requirements	For management recommendation, in most cases
Lobbying/Climate Lobbying Report	Against	Generally, for	For management recommendation, in most cases
Shareholder Requests to follow CERES Principles (Coalition for Environmentally Responsible Economies)	Against	Generally, for	For management recommendation, in most cases
Sustainability Reports	Against	Generally, for	For management recommendation, in most cases
Nomination an Environmental Expert to the Board	Against	Generally, for	For management recommendation, in most cases
Establishment of a Climate Change Committee on the Board	Against	Generally, for	For management recommendation, in most cases
Establishment of a Human Rights Committee or Human Trafficking Reporting	Against	Generally, for	For management recommendation, in most cases
Use of Corporate Assets to Create Reports on: Electronic Waste; renewable Energy Adoption; Climate Change; Drug Pricing; Stranded Assets	Against	Generally, for	For management recommendation, in most cases

Missouri State Employees' Retirement System

Board Report

Period Ending: June 30, 2022

VERUSINVESTMENTS.COM

SEATTLE 206-622-3700
LOS ANGELES 310-297-1777
SAN FRANCISCO 415-362-3484
PITTSBURGH 412-784-6678

U.S. economics summary

— U.S. real GDP fell -0.9% annualized during Q2 (+1.6% over the past full year). Most aspects of economic activity showed decline, including private investment (-2.7%), government spending (-0.3%), and imports (-0.5%). This stoked fears of recession, as two quarters of negative growth is a common definition of technical recession.

— The Federal Reserve's objective of a "soft landing" for the economy appears to have failed. An increasingly aggressive stance during the first half of the year contributed to a broad market selloff. The negative wealth effect of the market selloff, paired with a slowdown in big ticket purchases, has slowed the economy.

— U.S. core CPI, which excludes food & energy prices, slowed to 5.9% year-over-year in June. However, headline inflation which includes food and energy prices, came in surprisingly hot at 9.1% year-over-year, exceeding expectations. Higher energy prices were a major driver of the inflation print, with energy commodities and gasoline moving more than 10% higher just from May to June.

— Unemployment was unchanged at 3.6% during Q2. The broader U-6 unemployment rate tightened from 6.9% to 6.7%. A strong job market likely emboldens the Federal Reserve in its fight against high inflation, as the Fed holds a dual mandate to maximize employment and keep prices stable.

— Consumer sentiment collapsed to the lowest reading on record, according to the University of Michigan survey, which moved from 59.4 to 50.0. Survey respondents across all income, age, education, region, and political affiliation groups displayed deterioration in their outlook for the economy. Nearly half of respondents feel that inflation is damaging living standards.

	Most Recent	**12 Months Prior**
Real GDP *(YoY)*	1.6% *6/30/22*	12.2% *6/30/21*
Inflation *(CPI YoY, Core)*	5.9% *6/30/22*	4.4% *6/30/21*
Expected Inflation *(5yr-5yr forward)*	2.1% *6/30/22*	2.2% *6/30/21*
Fed Funds Target Range	1.50% – 1.75% *6/30/22*	0.00% – 0.25% *6/30/21*
10-Year Rate	2.89% *6/30/22*	1.45% *6/30/21*
U-3 Unemployment	3.6% *6/30/22*	5.9% *6/30/21*
U-6 Unemployment	6.7% *6/30/22*	9.8% *6/30/21*

International economics summary

— Economic growth has moderated in most countries, moving toward average levels. Higher inflation continues to erode growth figures as GDP is typically quoted as *inflation-adjusted* growth.

— Inflation trends continue to be disparate around the world. Japan and China are experiencing very low inflation and muted price pressures, while Europe and the United States are coping with multidecade-high inflation. Countries with low inflation and countries with high inflation all appear to have experienced an uptick during the second quarter.

— Labor markets have been relatively stable in developed markets, with conditions in the Eurozone strengthening. Unemployment in emerging markets were mixed—Brazil and Russia experienced improvement, while India and China saw slight weakening.

— Russia's invasion of Ukraine continued in the second quarter, leading to heavy loss of life on both sides. Most fighting has taken place in the east, as Russia generally gradually pushing forward. Concerns around food shortages in nearby countries that depend on Ukrainian agriculture persist, though many commodity prices that had shot higher in March and April have eased, falling closer to pre-invasion costs.

— During the first week of July, millions of Chinese citizens were put back into lockdown, and subjected to mass testing, as small outbreaks have led to renewed restrictions. China continues to stick to a "zero COVID" approach, which is increasingly at odds with the recognition by most nations that civilization will have to live *with* the virus for the long-term, while moving back to normal life.

Area	GDP (Real, YoY)	Inflation (CPI, YoY)	Unemployment
United States	1.6% 6/30/22	9.1% 6/30/22	3.6% 6/30/22
Eurozone	5.4% 3/31/22	8.6% 6/30/22	6.6% 5/31/22
Japan	0.4% 3/31/22	2.3% 6/30/22	2.6% 5/31/22
BRICS Nations	4.4% 3/31/22	4.6% 6/30/22	5.2% 12/31/21
Brazil	1.7% 3/31/22	11.9% 6/30/22	9.8% 5/31/22
Russia	3.5% 3/31/22	15.9% 6/30/22	3.9% 5/31/22
India	4.1% 3/31/22	7.0% 6/30/22	7.8% 6/30/22
China	4.8% 3/31/22	2.5% 6/30/22	5.9% 5/31/22

NOTE: India lacks reliable government unemployment data. Unemployment rate shown above is estimated from the Centre for Monitoring Indian Economy. The Chinese unemployment rate represents the monthly surveyed urban unemployment rate in China.

Equity environment

— U.S. equities suffered large losses during the second quarter (S&P 500 -16.1%), as many highly priced growth stocks took an exceptionally large hit due to interest rate rises and risk-off sentiment. International developed equities (MSCI EAFE -14.5%) experienced similar losses, while emerging market equities (MSCI Emerging Markets -11.4%) outperformed materially, on an unhedged currency basis.

— As mentioned during Q2 earnings calls, a rising number of S&P 500 companies were concerned about material & commodity costs, COVID costs, and oil & gas prices. A decreasing number of companies were concerned about labor costs & shortages, supply chain disruptions, transport & freight costs, and Russia/Ukraine.

— Currency movement generated large losses for investors who do not hedge their foreign currency exposure. Investors in international developed markets would have seen a loss of approximately -7.3% with a currency hedging program, rather than the -14.5% loss of unhedged investors. Over the past full year, losses from currency movement were -12.4%.

— Value stocks outperformed Growth stocks by a wide margin again in Q2 (Russell 1000 Value -12.2% vs Russell 1000 Growth -20.9%) as many Growth stocks with lofty valuations suffered due to rising interest rates and broader risk-off sentiment. Large capitalization stocks outperformed small cap stocks slightly (Russell 1000 -16.7%, Russell 2000 -17.2%).

— The Cboe VIX Index rose during the quarter from 20.6% to 28.7%, as risk assets sold-off and investors began focusing on potential recession. Investors remain acutely focused on the path of inflation, and market volatility may ease if inflation does in fact begin to moderate in future months.

	QTD TOTAL RETURN		1 YEAR TOTAL RETURN	
	(unhedged)	(hedged)	(unhedged)	(hedged)
U.S. Large Cap (S&P 500)	(16.1%)		(10.6%)	
U.S. Small Cap (Russell 2000)	(17.1%)		(25.2%)	
U.S. Equity (Russell 3000)	(16.7%)		(13.9%)	
U.S. Large Value (Russell 1000 Value)	(12.2%)		(6.8%)	
US Large Growth (Russell 1000 Growth)	(20.9%)		(18.8%)	
Global Equity (MSCI ACWI)	(15.7%)	(13.5%)	(15.8%)	(12.1%)
International Large (MSCI EAFE)	(14.5%)	(7.3%)	(17.8%)	(5.4%)
Eurozone (Euro Stoxx 50)	(15.3%)	(9.2%)	(23.1%)	(11.3%)
U.K. (FTSE 100)	(11.2%)	(3.6%)	(7.1%)	6.2%
Japan (NIKKEI 225)	(14.8%)	(4.2%)	(23.8%)	(6.0%)
Emerging Markets (MSCI Emerging Markets)	(11.4%)	(8.2%)	(25.3%)	(21.5%)

Source: Russell Investments, MSCI, STOXX, FTSE, Nikkei, as of 6/30/22

Fixed income environment

— The 10-year U.S. Treasury yield jumped during Q2 from 2.34% to nearly 3.50%, ending the quarter at 2.89%. Yields have fallen from their highs as recession fears mount. The Federal Reserve has a history of cutting interest rates during recession. This implies a higher chance of rate cuts as it appears the U.S. may currently be in recession.

— Credit markets sold off during Q2, impacted by concerns of a slowing economy and recession as the Fed signaled a willingness to raise rates until inflation slows. Bank loans performed the best at -4.4% and outperformed longer duration bonds such as investment grade and high yield (-7.3% and -9.8%, respectively).

— Credit spreads jumped considerably alongside the broader market selloff. U.S. high yield spreads increased from 3.4% to 5.6% and U.S. investment grade spreads headed from 1.2% to 1.6%. In contrast to the recent low yield environment, fixed income now offers investors more robust yields.

— The U.S. yield curve remained fairly flat during the second quarter. The 10-year minus 2-year yield spread fluctuated between -0.05% and 0.4%. Markets continue to price a flat or inverted yield curve, which is generally recognized as a sign of incoming recession.

— In June, the U.S. Federal Reserve began to unwind its $9 trillion balance sheet. Initially this action involved *not purchasing new bonds* and letting existing bonds mature and roll off. The Fed signaled plans to allow $30 billion of U.S. Treasuries and $17.5 billion of mortgage-backed securities to fall off the balance sheet by end of month. Leadership has admitted that this size of divestment program is essentially the first of its kind and that the committee will be moving with caution.

	QTD Total Return	1 Year Total Return
Core Fixed Income (Bloomberg U.S. Aggregate)	(4.7%)	(10.3%)
Core Plus Fixed Income (Bloomberg U.S. Universal)	(5.1%)	(10.9%)
U.S. Treasuries (Bloomberg U.S. Treasury)	(3.8%)	(8.9%)
U.S. High Yield (Bloomberg U.S. Corporate HY)	(9.8%)	(12.8%)
Bank Loans (S&P/LSTA Leveraged Loan)	(4.4%)	(2.7%)
Emerging Market Debt Local (JPM GBI-EM Global Diversified)	(8.6%)	(19.3%)
Emerging Market Debt Hard (JPM EMBI Global Diversified)	(11.4%)	(21.1%)
Mortgage-Backed Securities (Bloomberg MBS)	(4.0%)	(9.0%)

Source: Bloomberg, as of 6/30/22

Public real assets environment

— REITs - REITs declined 16.8% during the 2nd quarter, reflecting increased global economic risk, the possibility of a recession on the horizon, and central banks globally pursuing higher rates in an effort to tame extremely high inflation. Investment activity, has declined due to the the impact of higher interest rates and increased construction costs.

— Listed Infrastructure – Although infrastructure returned 5.6% YOY, performance has rolled over with QTD returns of -5.7%, reflecting an increasingly risk-off appetite even for an ostensibly stable asset class with the ability to pass on inflationary pressures. Increasing rates, and the probability of a recession have weighed on pricing and returns, however of the 4 categories of publicly traded real assets tracked here, Infrastructure fared the least poorly.

— Commodities – Despite a material YOY gain of 24.3%, commodities fell 5.7% in Q2, 2022, reflecting a stalled, yet volatile, market for raw materials. Tin, lumber, aluminum, and nickel led markets lower, as risk of recession, rising rates, and a stronger US dollar weighed on sentiment.

— TIPS - The Bloomberg U.S. TIPS index returned -6.1% in the most recent quarter and is down 5.1% year-over-year. This is unsurprising given not only the Federal Reserve's dramatic rate increases, but their continued messaging that they will continue to fight inflation with the tools at their disposal, and that, with a robust labor market, their key focus is the second part of their mandate, price stability.

	QTD Total Return	1 Year Total Return
REITs (FTSE EPRA/NAREIT Global)	(16.8%)	(13.5%)
Listed Infrastructure (S&P Global Infrastructure)	(7.4%)	5.6%
Commodities (Bloomberg Commodity Index)	(5.7%)	24.3%
TIPS (Bloomberg US TIPS)	(6.1%)	(5.1%)

Detailed index returns

DOMESTIC EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Core Index							
S&P 500	(8.3)	(16.1)	(20.0)	(10.6)	10.6	11.3	13.0
S&P 500 Equal Weighted	(9.4)	(14.4)	(16.7)	(9.4)	9.7	9.9	12.7
DJ Industrial Average	(6.6)	(10.8)	(14.4)	(9.1)	7.2	10.0	11.7
Russell Top 200	(7.8)	(16.6)	(20.7)	(11.5)	11.5	12.2	13.4
Russell 1000	(8.4)	(16.7)	(20.9)	(13.0)	10.2	11.0	12.8
Russell 2000	(8.2)	(17.2)	(23.4)	(25.2)	4.2	5.2	9.4
Russell 3000	(8.4)	(16.7)	(21.1)	(13.9)	9.8	10.6	12.6
Russell Mid Cap	(10.0)	(16.8)	(21.6)	(17.3)	6.6	8.0	11.3
Style Index							
Russell 1000 Growth	(7.9)	(20.9)	(28.1)	(18.8)	12.6	14.3	14.8
Russell 1000 Value	(8.7)	(12.2)	(12.9)	(6.8)	6.9	7.2	10.5
Russell 2000 Growth	(6.2)	(19.3)	(29.5)	(33.4)	1.4	4.8	9.3
Russell 2000 Value	(9.9)	(15.3)	(17.3)	(16.3)	6.2	4.9	9.1

INTERNATIONAL EQUITY

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
MSCI ACWI	(8.4)	(15.7)	(20.2)	(15.8)	6.2	7.0	8.8
MSCI ACWI ex US	(8.6)	(13.7)	(18.4)	(19.4)	1.4	2.5	4.8
MSCI EAFE	(9.3)	(14.5)	(19.6)	(17.8)	1.1	2.2	5.4
MSCI EM	(6.6)	(11.4)	(17.6)	(25.3)	0.6	2.2	3.1
MSCI EAFE Small Cap	(11.0)	(17.7)	(24.7)	(24.0)	1.1	1.7	7.2
Style Index							
MSCI EAFE Growth	(8.6)	(16.9)	(26.8)	(23.8)	1.3	3.5	6.3
MSCI EAFE Value	(10.0)	(12.4)	(12.1)	(11.9)	0.2	0.5	4.2
Regional Index							
MSCI UK	(8.6)	(10.5)	(8.8)	(4.0)	1.2	2.2	3.7
MSCI Japan	(7.9)	(14.6)	(20.3)	(19.9)	1.0	1.8	5.6
MSCI Euro	(11.3)	(15.8)	(25.2)	(23.8)	(1.1)	0.4	5.3
MSCI EM Asia	(4.8)	(9.3)	(17.2)	(25.9)	3.1	3.4	5.5
MSCI EM Latin American	(17.0)	(21.9)	(0.6)	(16.1)	(6.3)	(0.6)	(2.2)

FIXED INCOME

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Broad Index							
Bloomberg US TIPS	(3.2)	(6.1)	(8.9)	(5.1)	3.0	3.2	1.7
Bloomberg US Treasury Bills	(0.0)	0.1	0.0	0.0	0.6	1.1	0.6
Bloomberg US Agg Bond	(1.6)	(4.7)	(10.3)	(10.3)	(0.9)	0.9	1.5
Bloomberg US Universal	(2.0)	(5.1)	(10.9)	(10.9)	(0.9)	0.9	1.8
Duration							
Bloomberg US Treasury 1-3 Yr	(0.6)	(0.5)	(3.0)	(3.5)	0.2	0.9	0.8
Bloomberg US Treasury Long	(1.5)	(11.9)	(21.3)	(18.5)	(2.9)	0.5	1.6
Bloomberg US Treasury	(0.9)	(3.8)	(9.1)	(8.9)	(0.9)	0.7	1.0
Issuer							
Bloomberg US MBS	(1.6)	(4.0)	(8.8)	(9.0)	(1.4)	0.4	1.2
Bloomberg US Corp. High Yield	(6.7)	(9.8)	(14.2)	(12.8)	0.2	2.1	4.5
Bloomberg US Agency Interm	(0.6)	(1.3)	(5.0)	(5.6)	(0.3)	0.8	0.9
Bloomberg US Credit	(2.6)	(6.9)	(13.8)	(13.6)	(1.0)	1.2	2.5

OTHER

	Month	QTD	YTD	1 Year	3 Year	5 Year	10 Year
Index							
Bloomberg Commodity	(10.8)	(5.7)	18.4	24.3	14.3	8.4	(0.8)
Wilshire US REIT	(7.3)	(5.4)	(14.9)	4.4	7.4	7.5	8.8
CS Leveraged Loans	(2.1)	(4.4)	(4.4)	(2.7)	2.0	3.0	3.9
S&P Global Infrastructure	(7.7)	(7.4)	(0.5)	5.6	3.5	4.8	7.2
Alerian MLP	(14.0)	(7.4)	10.1	4.1	(1.2)	(1.2)	0.8
Regional Index							
JPM EMBI Global Div	(6.2)	(11.4)	(20.3)	(21.2)	(5.2)	(1.2)	2.2
JPM GBI-EM Global Div	(4.5)	(8.6)	(14.5)	(19.3)	(5.8)	(2.3)	(1.5)
Hedge Funds							
HFRI Composite	(3.1)	(4.9)	(5.9)	(5.8)	6.1	5.0	5.0
HFRI FOF Composite	(0.9)	(3.6)	(6.3)	(5.2)	4.1	3.7	3.8
Currency (Spot)							
Euro	(2.4)	(6.0)	(8.1)	(11.8)	(2.8)	(1.7)	(1.9)
Pound Sterling	(3.6)	(7.8)	(10.3)	(12.1)	(1.5)	(1.3)	(2.5)
Yen	(5.3)	(10.7)	(15.2)	(18.3)	(7.4)	(3.7)	(5.2)

Source: Morningstar, HFRI, as of 6/30/22.

	Current Balance	Current Allocation	Policy	Target Ranges
Growth	$3,765,332,234	45%	45%	35-55%
Income	$2,976,331,010	35%	35%	30-40%
Inflation Hedge	$3,432,709,907	41%	40%	35-45%
Absolute Return	$1,756,000,738	21%	20%	15-25%
Cash		0%	0%	0-2%
Total	$11,930,373,889	142%	140%	

Global Public Equities	$2,503,487,643	30%	30%	15-45%
Global Private Equities	$1,261,844,591	15%	15%	5-20%
Long Treasuries	$2,082,713,493	25%	25%	20-30%
Core Bonds	$893,617,517	11%	10%	5-15%
Commodities	$407,014,082	5%	5%	0-10%
TIPS	$2,174,474,326	26%	25%	20-30%
Private Real Assets	$438,594,765	5%	5%	0-10%
Public Real Assets	$412,626,735	5%	5%	0-10%
Direct Hedge Funds	$426,969,620	5%	5%	0-10%
Alternative Beta	$856,299,581	10%	10%	5-15%
Private Credit	$472,731,537	6%	5%	0-10%
Total	$11,930,373,889	142%	140%	

Performance Attribution
Quarter Ending June 30, 2022

	Last 3 Mo.
Wtd. Actual Return	-10.6
Wtd. Index Return	-11.1
Excess Return	**0.5**
Selection Effect	0.5
Allocation Effect	0.0
Interaction Effect	0.0

*Calculated from benchmark returns and weightings of each component.

Attribution Summary
Quarter Ending June 30, 2022

	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
Total Global Public Equities	-14.9	-15.6	0.7	0.2	0.0	0.0	0.2
Total Global Private Equities	-7.4	-7.9	0.5	0.1	0.0	0.0	0.1
Total Long Treasuries - New	-11.9	-12.1	0.2	0.0	0.1	0.0	0.1
Total Core Bonds	-4.3	-4.7	0.4	0.0	0.0	0.0	0.0
Total Commodities - New	-6.0	-5.9	0.0	0.0	0.0	0.0	0.0
Total TIPS - New	-3.8	-3.6	-0.2	-0.1	0.0	0.0	-0.1
Total Private Real Assets	3.8	3.1	0.7	0.0	0.0	0.0	0.0
Total Public Real Assets	-14.9	-14.9	0.0	0.0	0.0	0.0	0.0
Total Hedge Funds	-0.4	-1.5	1.1	0.1	0.0	0.0	0.1
Total Alternative Beta - Beta	3.1	2.4	0.7	0.1	0.0	0.0	0.1
Total Private Credit	-3.9	-3.9	0.0	0.0	0.0	0.0	0.0
Total	**-10.6**	**-11.1**	**0.5**	**0.5**	**0.0**	**0.0**	**0.5**

Weighted returns shown in attribution analysis may differ from actual returns. due to underlying cash flows. Total sums may not add due to rounding. Selection, allocation, and interaction effect line items reflect total fund impact.

MOSERS fund attribution – 2Q 2022

— Total Fund outperformed Policy by 50 basis points (-10.6% vs. -11.1%)

— All major asset classes outperformed their respective policy benchmarks except for very modest underperformance of Inflation Hedge assets

—Outperformance was driven by Selection Effect primarily from Global Public Equities; however, Hedge Funds produced best benchmark relative performance

Weighted returns shown in attribution analysis may differ from actual returns. due to underlying cash flows. Total sums may not add due to rounding. Selection, allocation, and interaction effect line items reflect total fund impact.

	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	Inception	Inception Date
Missouri State Employees' Retirement System										
Total Fund - Capital - Combined	**8,412,240,177**	**-10.6**	**-9.0**	**-9.0**	**6.6**	**6.3**	**6.1**	**7.1**	**9.3**	**Apr-81**
Policy Index		*-11.1*	*-10.0*	*-10.0*	*4.7*	*4.3*	*5.3*	*6.1*	*8.8*	*Apr-81*
Real Return Objective		*4.1*	*13.8*	*13.8*	*9.7*	*8.7*	*7.7*	*7.7*	*--*	*Apr-81*

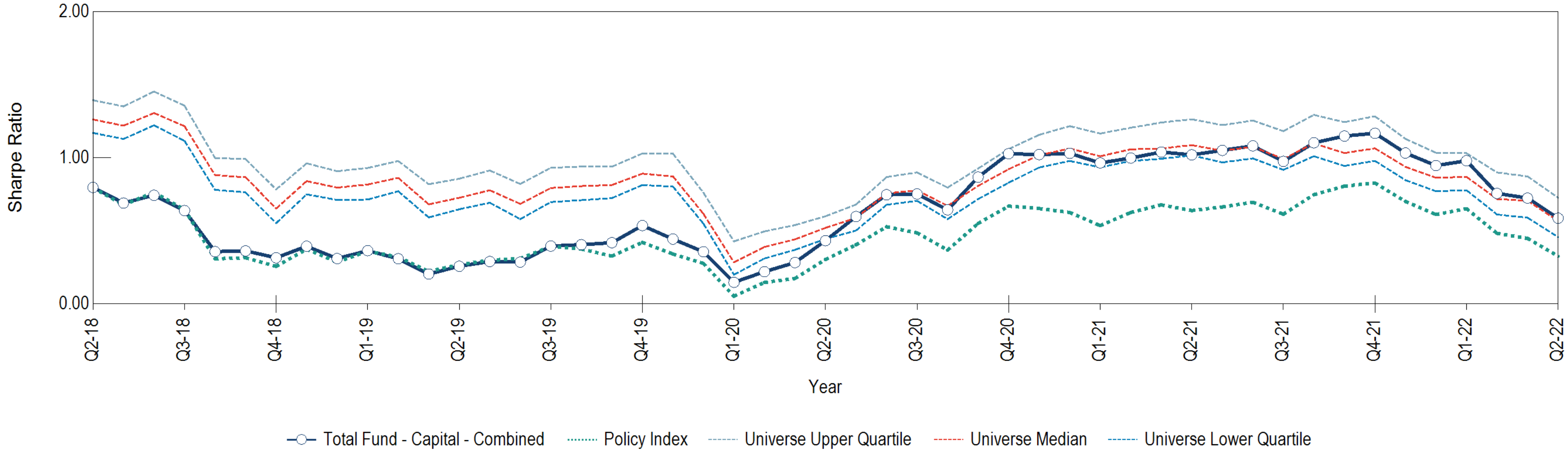
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	Inception	Inception Date
Missouri State Employees' Retirement System - New										
Total Fund New - Capital	**8,404,437,981**	**-10.6**	**-9.0**	**-9.0**	**6.4**	**--**	**--**	**--**	**7.8**	**Feb-19**
Total Fund NEW Policy		*-11.1*	*-10.0*	*-10.0*	*6.5*	*--*	*--*	*--*	*8.1*	*Feb-19*
Total Growth	**3,765,332,234**	**-12.4**	**-12.8**	**-12.8**	**7.2**	**--**	**--**	**--**	**8.2**	**Feb-19**
Total Growth Policy		*-13.1*	*-11.6*	*-11.6*	*9.4*	*--*	*--*	*--*	*10.1*	*Feb-19*
Total Global Public Equities	2,503,487,643	-14.9	-14.8	-14.8	6.1	--	--	--	7.6	Feb-19
Global Public Equities Policy		*-15.6*	*-15.6*	*-15.6*	*6.4*	*--*	*--*	*--*	*7.9*	*Feb-19*
Total Global Private Equities	1,261,844,591	-7.4	-8.8	-8.8	10.8	--	--	--	11.2	Feb-19
Global Private Equities Policy		*-7.9*	*-6.2*	*-6.2*	*15.0*	*--*	*--*	*--*	*15.7*	*Feb-19*
Total Income	**2,976,331,010**	**-9.8**	**-15.7**	**-15.7**	**-2.4**	**--**	**--**	**--**	**0.1**	**Feb-19**
Total Income Policy		*-10.0*	*-16.3*	*-16.3*	*-2.7*	*--*	*--*	*--*	*-0.1*	*Feb-19*
Total Long Treasuries - New	2,082,713,493	-11.9	-18.4	-18.4	-3.4	--	--	--	-0.4	Feb-19
Long Treasuries Policy		*-12.1*	*-18.7*	*-18.7*	*-3.5*	*--*	*--*	*--*	*-0.6*	*Feb-19*
Total Core Bonds	893,617,517	-4.3	-8.7	-8.7	-0.1	--	--	--	1.3	Feb-19
Core Bonds Policy		*-4.7*	*-10.3*	*-10.3*	*-0.9*	*--*	*--*	*--*	*0.6*	*Feb-19*
Total Inflation Hedge	**3,432,709,907**	**-4.6**	**4.2**	**4.2**	**6.0**	**--**	**--**	**--**	**6.2**	**Feb-19**
Total Inflation Policy		*-4.5*	*3.5*	*3.5*	*5.5*	*--*	*--*	*--*	*5.7*	*Feb-19*
Total Commodities - New	407,014,082	-6.0	23.7	23.7	14.8	--	--	--	12.2	Feb-19
Commodities Policy		*-5.9*	*23.8*	*23.8*	*13.6*	*--*	*--*	*--*	*11.4*	*Feb-19*
Total TIPS - New	2,174,474,326	-3.8	-2.2	-2.2	2.6	--	--	--	3.1	Feb-19
TIPS Policy		*-3.6*	*-2.3*	*-2.3*	*2.6*	*--*	*--*	*--*	*3.2*	*Feb-19*

Total Fund market values include Cash Reserve $101,782, Residual Accounts $7,689,208, and Cash Reserve - Illiquids, $11,207.

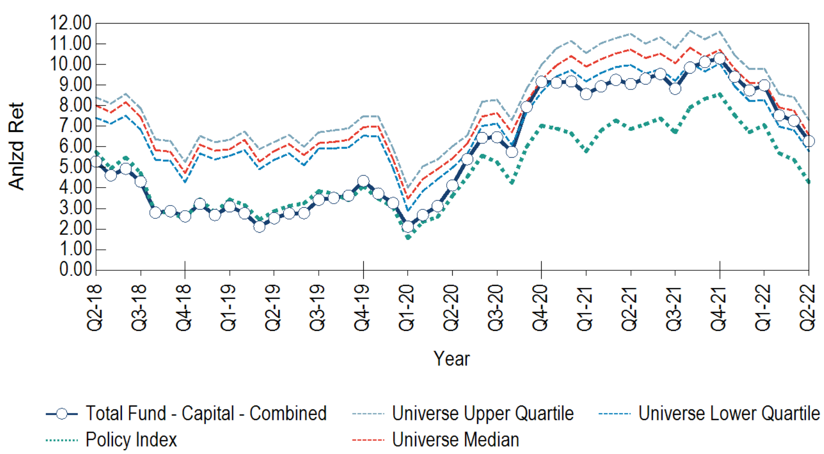
	Market Value	3 Mo	Fiscal YTD	1 Yr	3 Yrs	5 Yrs	10 Yrs	20 Yrs	Inception	Inception Date
Total Private Real Assets	438,594,765	3.8	30.3	30.3	12.2	--	--	--	11.9	Feb-19
Private Real Assets Policy		*3.1*	*23.1*	*23.1*	*10.1*	--	--	--	*9.5*	*Feb-19*
Total Public Real Assets	412,626,735	-14.9	-6.9	-6.9	4.5	--	--	--	5.9	Feb-19
Public Real Assets Policy		*-14.9*	*-6.9*	*-6.9*	*4.6*	--	--	--	*6.0*	*Feb-19*
Total Absolute Return	**1,756,000,738**	**0.4**	**4.1**	**4.1**	**4.6**	**--**	**--**	**--**	**4.3**	**Feb-19**
Total Absolute Return Policy		*-0.2*	*0.5*	*0.5*	*4.7*	--	--	--	*5.4*	*Feb-19*
Total Hedge Funds	426,969,620	-0.4	5.4	5.4	7.8	--	--	--	7.3	Feb-19
Hedge Funds Policy		*-1.5*	*0.8*	*0.8*	*8.5*	--	--	--	*8.5*	*Feb-19*
Total Alternative Beta - Beta	856,299,581	3.1	5.1	5.1	2.8	--	--	--	2.4	Feb-19
Alt Beta - Beta Policy		*2.4*	*0.8*	*0.8*	*3.0*	--	--	--	*4.0*	*Feb-19*
Total Private Credit	472,731,537	-3.9	1.0	1.0	5.3	--	--	--	5.5	Feb-19
Private Credit Policy		*-3.9*	*-0.8*	*-0.8*	*4.1*	--	--	--	*4.8*	*Feb-19*

Total Fund market values include Cash Reserve $101,782, Residual Accounts $7,689,208, and Cash Reserve - Illiquids, $11,207.

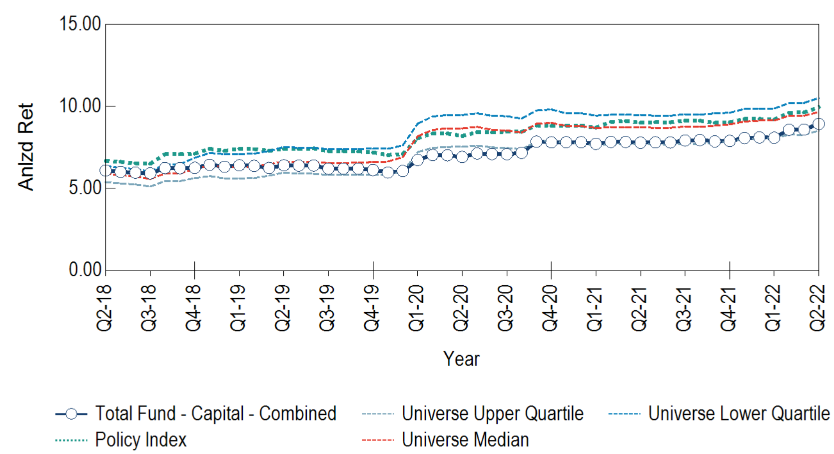
Rolling 5 Year Sharpe Ratio

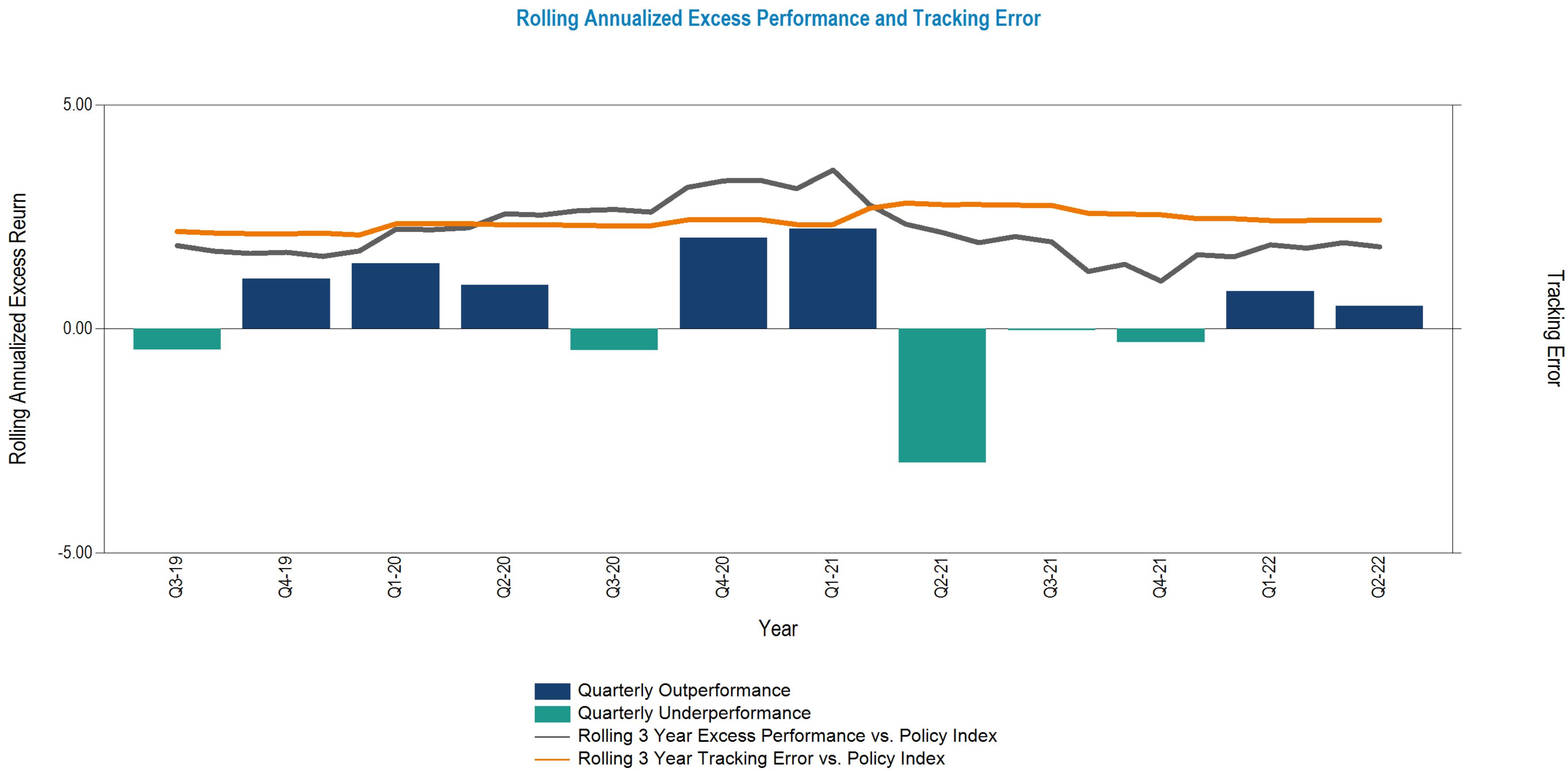


Rolling 5 Year Annualized Return (%)



Rolling 5 Year Annualized Standard Deviation

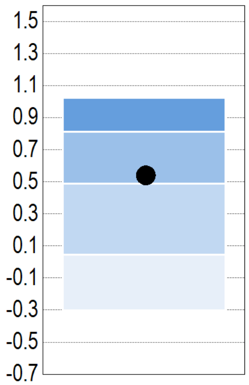



Rolling Annualized Excess Performance and Tracking Error
5.00
0.00
-5.00
Rolling Annualized Excess Reurn
Tracking Error
Q3-19
Q4-19
Q1-20
Q2-20
Q3-20
Q4-20
Q1-21
Q2-21
Q3-21
Q4-21
Q1-22
Q2-22
Year
Quarterly Outperformance
Quarterly Underperformance
Rolling 3 Year Excess Performance vs. Policy Index
Rolling 3 Year Tracking Error vs. Policy Index

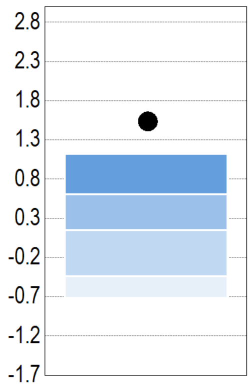
	Last Quarter	Year to Date	1 Year	3 Year	5 Year	10 Year
● Total Fund - Capital - Combined						
Value	-10.6	-13.7	-9.0	6.6	6.3	6.1
Rank	83	77	64	43	57	99
Universe						
5th %tile	-4.8	-5.7	0.2	8.7	8.4	8.9
25th %tile	-6.9	-8.9	-4.4	7.0	7.2	8.2
Median	-8.6	-11.9	-7.4	6.3	6.6	7.6
75th %tile	-9.8	-13.6	-10.5	5.2	5.8	7.1
95th %tile	-11.1	-15.6	-12.5	4.1	5.0	6.2
Observations	64	64	63	62	62	57

InvestorForce Public DB > $1B Net Universe used for comparative purposes.

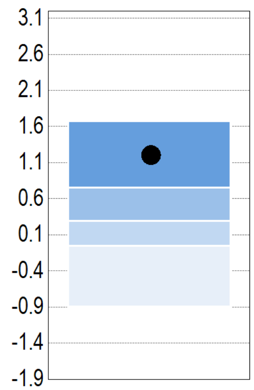
Last Quarter



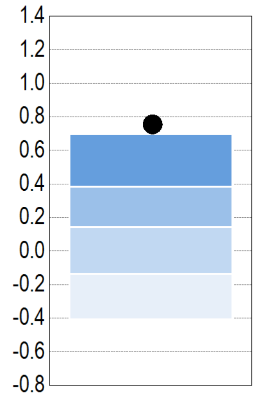
Year to Date



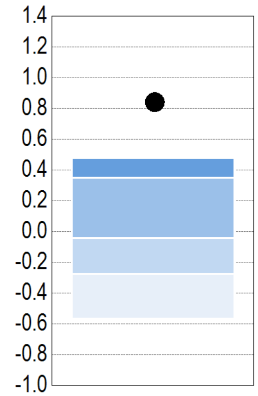
1 Year



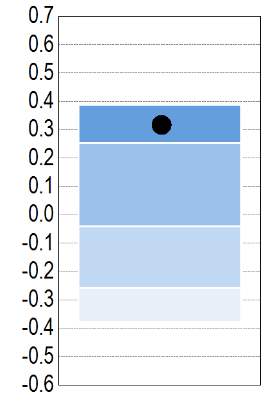
3 Year



5 Year

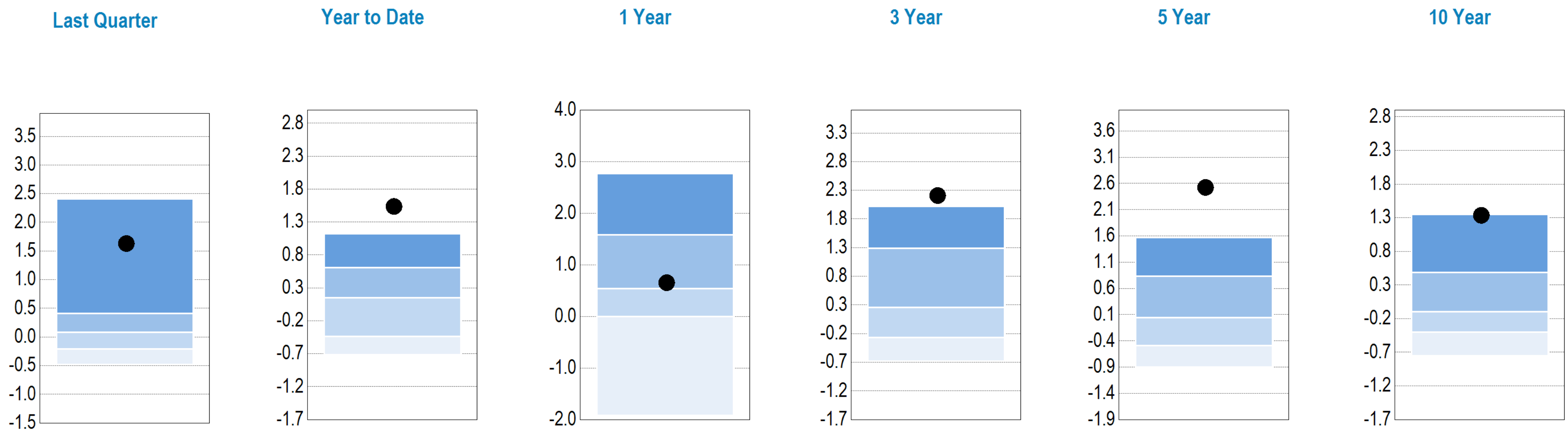


10 Year



● Total Fund - Capital - Combined	Last Quarter	Year to Date	1 Year	3 Year	5 Year	10 Year
Value	0.5	1.5	1.2	0.8	0.8	0.3
Rank	41	3	15	5	2	18
Universe						
5th %tile	1.0	1.1	1.7	0.7	0.5	0.4
25th %tile	0.8	0.6	0.8	0.4	0.4	0.3
Median	0.5	0.2	0.3	0.1	0.0	0.0
75th %tile	0.0	-0.4	0.0	-0.1	-0.3	-0.3
95th %tile	-0.3	-0.7	-0.9	-0.4	-0.6	-0.4
Observations	22	22	22	22	22	22

InvestorForce Public DB > $1B Net Universe used for comparative purposes.



	Last Quarter	Year to Date	1 Year	3 Year	5 Year	10 Year
●	Total Fund New - Capital	Total Fund - Capital - Combined	Total Fund - Capital - Combined	Total Fund - Capital - Combined	Total Fund - Capital - Combined	Total Fund - Capital - Combined
Value	1.6	1.5	0.7	2.2	2.5	1.3
Rank	8	3	49	5	3	6
Universe						
5th %tile	2.4	1.1	2.8	2.0	1.6	1.4
25th %tile	0.4	0.6	1.6	1.3	0.8	0.5
Median	0.1	0.2	0.5	0.3	0.1	-0.1
75th %tile	-0.2	-0.4	0.0	-0.3	-0.5	-0.4
95th %tile	-0.5	-0.7	-1.9	-0.7	-0.9	-0.7
Observations	22	22	22	22	22	22

InvestorForce Public DB > $1B Net Universe used for comparative purposes.

Total Fund: 45% Growth + 35% Income + 40% Inflation Hedge + 20% Absolute Return

Total Growth Policy: 33% (Custom Blend of MSCI ACWI + SSPEI) + 67% MSCI ACWI

Global Public Equities Policy: MSCI ACWI

Global Private Equities Policy: Custom weighted blend of MSCI ACWI and SSPEI weighted by Vintage Year after 12/31/2018. Prior to 12/31/2018, legacy Private Equity portfolio is benchmarked to actual portfolio returns since it is in run-off mode.

Total Income Policy: 30% Bloomberg Aggregate + 70% BB Long Treasury

Long Treasuries Policy: Bloomberg Long Treasury Core Bonds

Policy: Bloomberg Aggregate Bond (BB Agg)

Total Inflation Policy: 12.5% BCOM + 62.5% BB 1-10 TIPS + 12.5% Custom weighted blend of NAREIT and NCREIF ODCE) + 12.5% NAREIT Index

Commodities Policy: Bloomberg Commodity Index (BCOM)

TIPS Policy: Bloomberg 1-10 yr TIPS

Private Real Assets Policy: Custom weighted blend of NCREIF ODCE and NAREIT Public Real Assets Policy: FFTSE NAREIT All REITS Total Return Index ("NAREIT")

Total Absolute Return Policy: 25% (HFRI FoF Cons. + 70 bps) + 50% HFRX Macro/CTA + 25% S&P/LTSA LL + 2%

Hedge Funds Policy: HFRI Fund of Funds: Conservative Index + 70 basis points

Alternative Beta – Beta Policy: HFRX Macro/CTA

Private Credit Policy: S&P/ LTSA U.S. Leveraged Loan Index + 2%

* Benchmark Changes approved at the June 2021 meeting and effective July 1st, 2021. Changes to Private Equity historical benchmark prior to 12/31/2018 approved at June 2022 meeting and applied retroactively from July 1st, 2021.

Glossary

Allocation Effect: An attribution effect that describes the amount attributable to the managers' asset allocation decisions, relative to the benchmark.

Alpha: The excess return of a portfolio after adjusting for market risk. This excess return is attributable to the selection skill of the portfolio manager. Alpha is calculated as: Portfolio Return - [Risk-free Rate + Portfolio Beta x (Market Return - Risk-free Rate)].

Benchmark R-squared: Measures how well the Benchmark return series fits the manager's return series. The higher the Benchmark R-squared, the more appropriate the benchmark is for the manager.

Beta: A measure of systematic, or market risk; the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Book-to-Market: The ratio of book value per share to market price per share. Growth managers typically have low book-to-market ratios while value managers typically have high book-to-market ratios.

Capture Ratio: A statistical measure of an investment manager's overall performance in up or down markets. The capture ratio is used to evaluate how well an investment manager performed relative to an index during periods when that index has risen (up market) or fallen (down market). The capture ratio is calculated by dividing the manager's returns by the returns of the index during the up/down market, and multiplying that factor by 100.

Correlation: A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help maximize the benefits of diversification when constructing an investment portfolio.

Excess Return: A measure of the difference in appreciation or depreciation in the price of an investment compared to its benchmark, over a given time period. This is usually expressed as a percentage and may be annualized over a number of years or represent a single period.

Information Ratio: A measure of a manager's ability to earn excess return without incurring additional risk. Information ratio is calculated as: excess return divided by tracking error.

Interaction Effect: An attribution effect that describes the portion of active management that is contributable to the cross interaction between the allocation and selection effect. This can also be explained as an effect that cannot be easily traced to a source.

Portfolio Turnover: The percentage of a portfolio that is sold and replaced (turned over) during a given time period. Low portfolio turnover is indicative of a buy and hold strategy while high portfolio turnover implies a more active form of management.

Price-to-Earnings Ratio (P/E): Also called the earnings multiplier, it is calculated by dividing the price of a company's stock into earnings per share. Growth managers typically hold stocks with high price-to-earnings ratios whereas value managers hold stocks with low price-to-earnings ratios.

R-Squared: Also called the coefficient of determination, it measures the amount of variation in one variable explained by variations in another, i.e., the goodness of fit to a benchmark. In the case of investments, the term is used to explain the amount of variation in a security or portfolio explained by movements in the market or the portfolio's benchmark.

Selection Effect: An attribution effect that describes the amount attributable to the managers' stock selection decisions, relative to the benchmark.

Sharpe Ratio: A measure of portfolio efficiency. The Sharpe Ratio indicates excess portfolio return for each unit of risk associated with achieving the excess return. The higher the Sharpe Ratio, the more efficient the portfolio. Sharpe ratio is calculated as: Portfolio Excess Return / Portfolio Standard Deviation.

Sortino Ratio: Measures the risk-adjusted return of an investment, portfolio, or strategy. It is a modification of the Sharpe Ratio, but penalizes only those returns falling below a specified benchmark. The Sortino Ratio uses downside deviation in the denominator rather than standard deviation, like the Sharpe Ratio.

Standard Deviation: A measure of volatility, or risk, inherent in a security or portfolio. The standard deviation of a series is a measure of the extent to which observations in the series differ from the arithmetic mean of the series. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Style Analysis: A return based analysis designed to identify combinations of passive investments to closely replicate the performance of funds

Style Map: A specialized form or scatter plot chart typically used to show where a Manager lies in relation to a set of style indices on a two-dimensional plane. This is simply a way of viewing the asset loadings in a different context. The coordinates are calculated by rescaling the asset loadings to range from -1 to 1 on each axis and are dependent on the Style Indices comprising the Map.

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Verus receives universe data from InvMetrics, eVestment Alliance, and Morningstar. We believe this data to be robust and appropriate for peer comparison. Nevertheless, these universes may not be comprehensive of all peer investors/managers but rather of the investors/managers that comprise that database. The resulting universe composition is not static and will change over time. Returns are annualized when they cover more than one year. Investment managers may revise their data after report distribution. Verus will make the appropriate correction to the client account but may or may not disclose the change to the client based on the materiality of the change.

MOSERS
Quarterly Investment Report

2nd Quarter of 2022

2nd Quarter of 2022 Portfolio Highlights

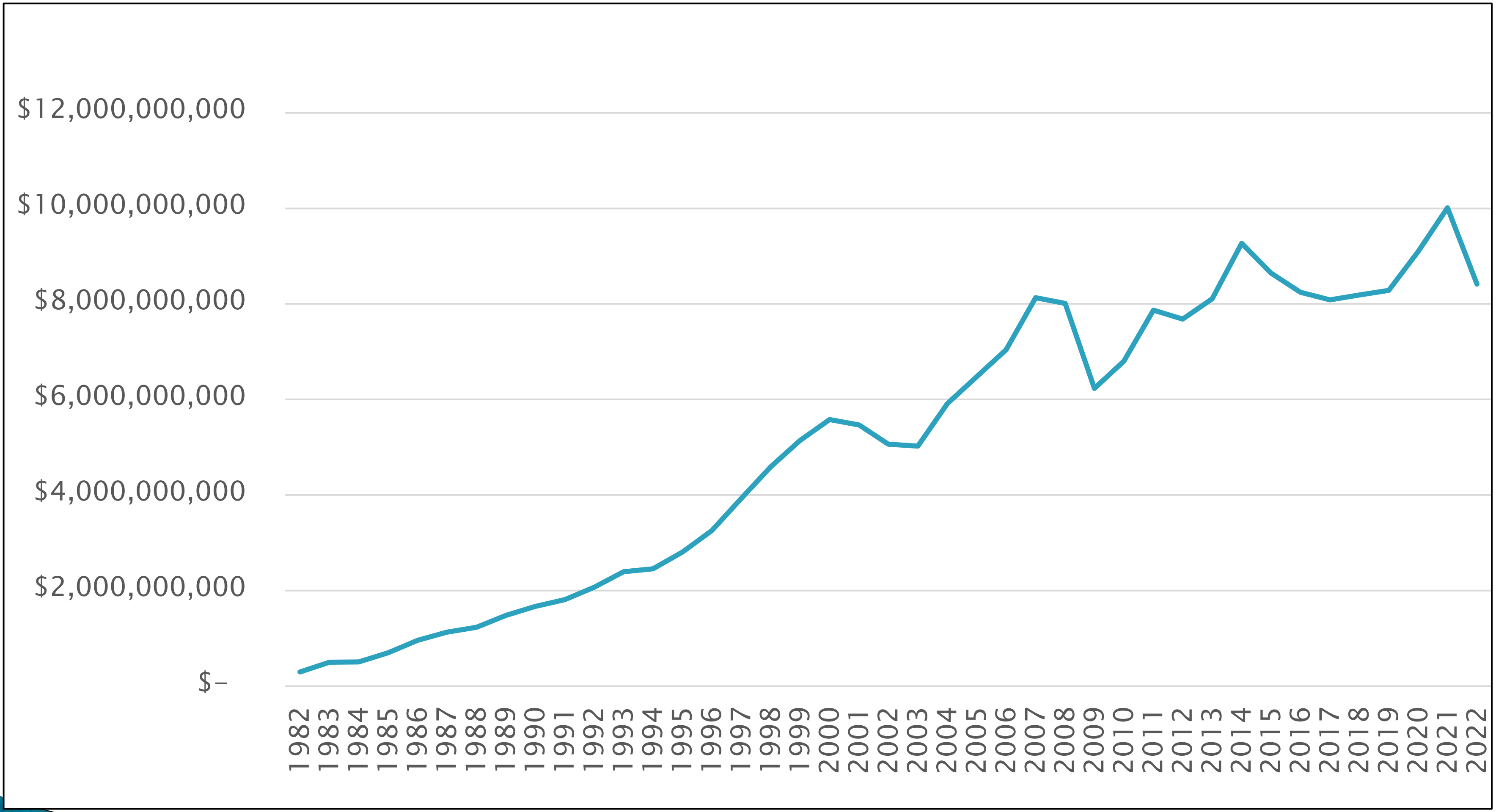
- *During the quarter, the portfolio returned -10.6% while the policy benchmark returned -11.1%. This results in a 0.5% outperformance for the quarter.*
  - The Absolute Return portfolio was the best performing asset class on both absolute and relative basis. It was also the only asset class with a positive return for the quarter returning 0.4% while the benchmark returned -0.2%.
  - Growth Assets were the worst performer as global equities sold off during the quarter. MOSERS' Growth allocation was down -12.4% for the quarter but exceeded the policy return of -13.1%.
  - The Income portfolio also struggled in a rising interest rate environment and delivered a -9.8% return. However, the asset class outperformed its policy benchmark by 0.2% with the help of portable alpha within the Core Bond allocation.
  - Inflation Hedge assets slightly underperformed policy by 0.1% with a quarterly return of -4.6% vs. the benchmark return of -4.5%.

Portfolio Returns vs Policy Over Time

Period Ending 6/30/2022				
	MOSERS Returns			
Period	**Total Fund Actual - Annualized Return**	**Total Fund Policy - Annualized Return**	**Value Added in %**	**Value Added in $**
1 Year	-9.0%	-10.0%	1.0%	$ 96,063,939
3 Year	6.6%	4.7%	1.8%	$ 468,496,832
5 Year	6.3%	4.3%	2.0%	$ 878,962,020
10 Year	6.1%	5.3%	0.7%	$ 609,419,767
15 Year	5.1%	4.2%	0.8%	$ 1,298,666,236
20 Year	7.1%	6.1%	0.9%	$ 2,025,053,212
25 Year	6.7%	5.6%	1.1%	$ 3,318,587,799

MOSERS Historical Fund Value

Ended 6-30-2022

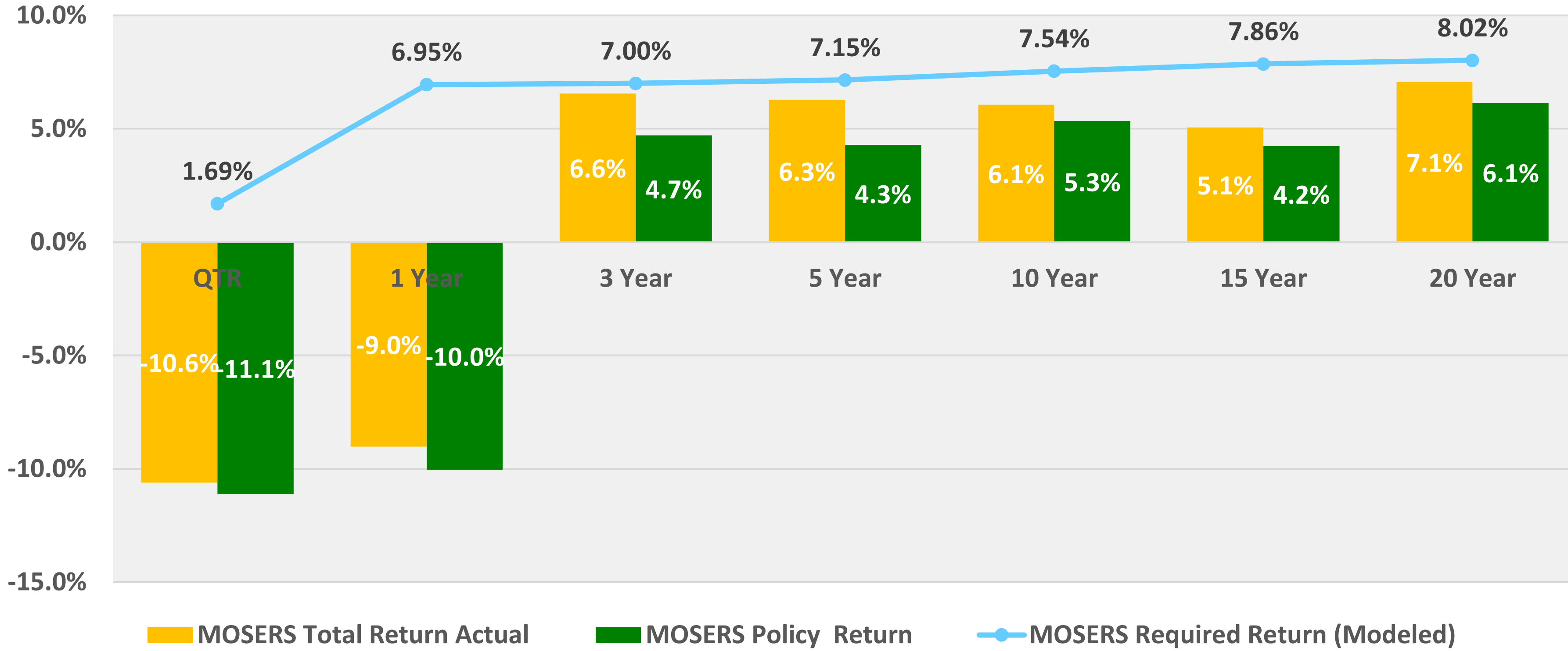


MOSERS Returns vs. Assumptions

HOW ARE WE DOING RELATIVE TO OUR ASSUMPTIONS?

Are we meeting our assumptions?

Ended 6-30-2022



Required Rate of Return (Modeled): This is the nominal rate of return the System has historically assumed necessary to achieve in order to fund the System's liabilities. It is the assumed real rate of return established by the actuarial assumption plus the assumed inflation for the period.

Portfolio Positioning

HOW ARE WE DIFFERENT FROM OUR BENCHMARKS?

Asset Class Weights

Portfolio at 6/30/2022				
	Policy Allocation	Policy Allocation Min and Max	Actual Allocation	Over/(Under) vs Policy Target
Total Growth	**45.0%**	**35% - 55%**	**44.8%**	**-0.2%**
Global Public Equities	30.0%	15% - 45%	29.8%	-0.2%
Global Private Equities	15.0%	5% - 20%	15.0%	0.0%
Total Income	**35.0%**	**30% - 40%**	**35.4%**	**0.4%**
Long Treasuries	25.0%	20% - 30%	24.8%	-0.2%
Core Bonds	10.0%	5% - 15%	10.6%	0.6%
Total Inflation Hedge	**40.0%**	**35% - 45%**	**40.8%**	**0.8%**
Commodities	5.0%	0% - 10%	4.8%	-0.2%
TIPS	25.0%	20% - 30%	25.9%	0.9%
Private Real Assets	5.0%	0% - 10%	5.2%	0.2%
Public Real Assets	5.0%	0% - 10%	4.9%	-0.1%
Total Absolute Return	**20.0%**	**15% - 25%**	**20.9%**	**0.9%**
Hedge Funds	5.0%	0% - 10%	5.1%	0.1%
Alt Beta	10.0%	5% - 15%	10.2%	0.2%
Private Credit	5.0%	0% - 10%	5.6%	0.6%
Total Portfolio - Capital	**140.0%**	**130% - 150%**	**142.0%**	**2.0%**

Portfolio Positioning – tactical active risk

How are we different from the benchmark in public markets?

- Active management in Global Public Equities
  - Targeted end result will be 100% active management in Global Public Equities (on hold pending new Staff):
    - Domestic Equity = 100% Portable Alpha
    - International Developed and Emerging Market Equity = 100% Active Managers (5 different funds utilized in order to diversify the active risk)
- Active management in Core Bonds
  - Portable Alpha on 42% of the total Core Bond exposure (100% Gov't)
- Active risk (tracking error) for public markets has been 0.9% over the past 3 years. IPS range is 0.5% to 3.5%

Portfolio Adjustments – 2nd Quarter 2022

List of Rebalancing Transactions

Date	Manager/Fund		Buy/(Sell)	Description
4/30/2022	NISA Real Assets	$	(78,000,000)	Reduced REITS exposure
4/30/2022	NISA Commodities	$	(25,000,000)	Reduced Commodities Index exposure
4/30/2022	NISA Long Treasuries	$	25,000,000	Increased Long Treasury Index exposure
4/30/2022	NISA TIPS	$	(45,000,000)	Reduced TIPS Index exposure
5/31/2022	NISA US Beta Portable Alpha	$	14,600,000	Increased US Equity exposure
5/31/2022	Artisan International Value Fund	$	4,200,000	Increased International active equity exposure
5/31/2022	NS Partners Emerging Markets	$	25,000,000	Increased International active equity exposure
5/31/2022	NISA Core Govt	$	(5,600,000)	Reduced core bond exposure
5/31/2022	NISA Core Credit	$	(9,500,000)	Reduced core bond exposure
5/31/2022	BlackRock Core Securitized	$	(4,900,000)	Reduced core bond exposure
5/31/2022	NISA Commodities	$	(38,000,000)	Reduced Commodities Index exposure
5/31/2022	NISA Long Treasuries	$	30,000,000	Increased Long Treasury Index exposure
5/31/2022	NISA TIPS	$	(70,000,000)	Reduced TIPS Index exposure
6/30/2022	NISA US Beta Portable Alpha	$	90,000,000	Increased US Equity beta exposure in portable alpha
6/30/2022	BlackRock US Equity	$	(90,000,000)	Reduced passive US Equity exposure
6/30/2022	Aberdeen HFRX Macro/CTA	$	(90,000,000)	Reduced Alt Beta index exposure

Fees

Breakdown of current fees

QE 6/30/2022	Management Fees	Incentive Fees	Fund Expenses	Admin Expenses*	Total Fees and Expenses
Dollars	$ 13,837,501	$ 18,905,241	$ 4,472,327	$ 1,303,577	$ 38,518,646
% of Fund based on capital	0.15%	0.21%	0.05%	0.01%	0.43%
% of Fund based on exposure	0.11%	0.15%	0.04%	0.01%	0.31%

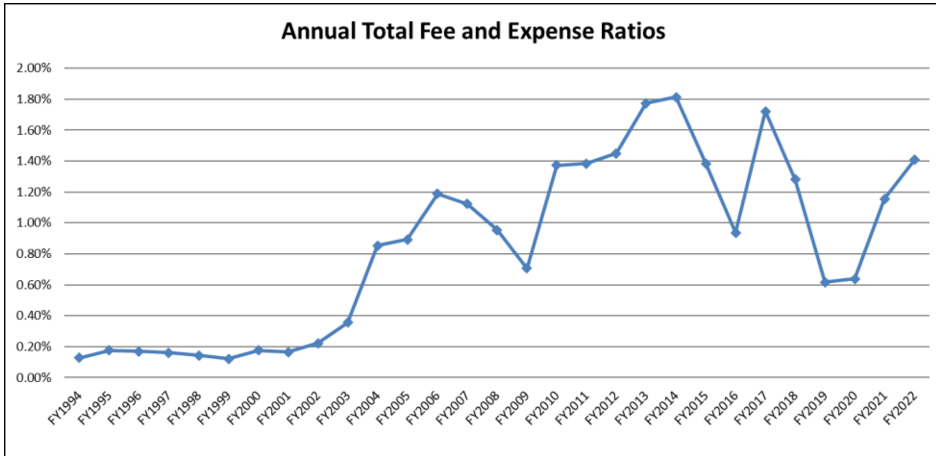
1 YE 6/30/2022	Management Fees	Incentive Fees	Fund Expenses	Admin Expenses*	Total Fees and Expenses
Dollars	$ 49,274,341	$ 54,192,864	$ 18,642,836	$ 5,020,305	$ 127,130,346
% of Fund based on capital	0.54%	0.60%	0.21%	0.06%	1.40%
% of Fund based on exposure	0.39%	0.43%	0.15%	0.04%	1.01%

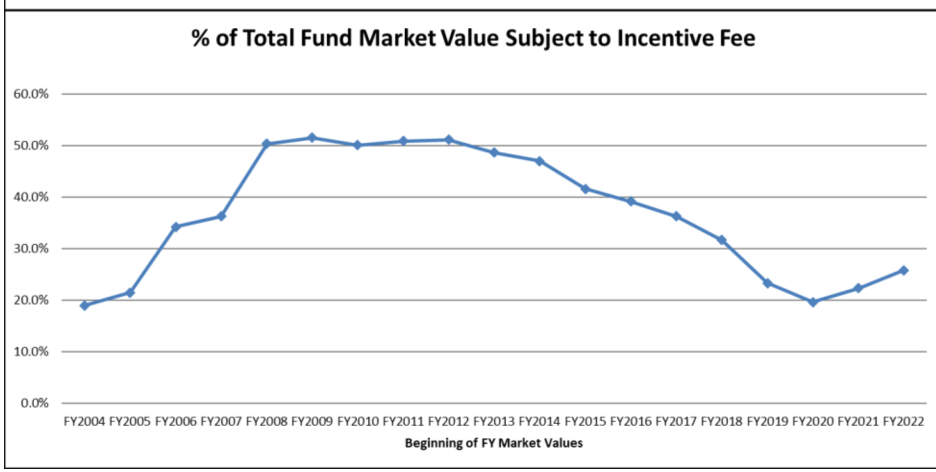
Peer Avg.
Per CEM**
0.72%

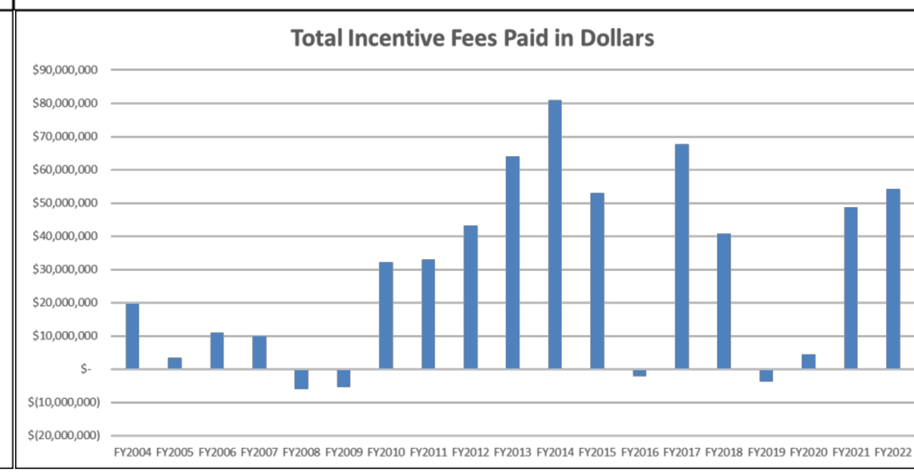
**CEM Report – 2020 Calendar Year

Fees have been increasing in the quarter and the year as we see the impact of hiring additional private market managers. We should expect fees to continue to increase as we build out the private asset classes and portable alpha.

Historical Fee Charts







Questions?

Appendix

Appendix: Supplemental Return Results

(As required by Section X of the IPS)

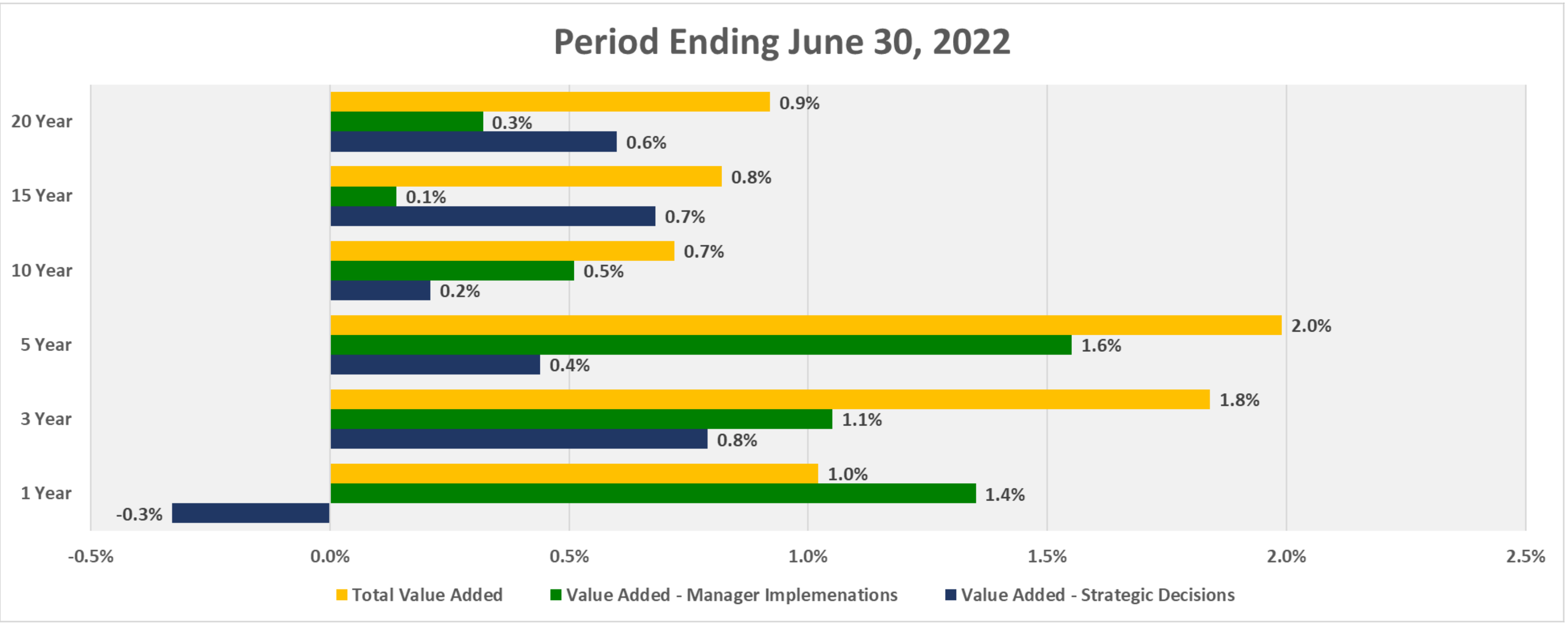
Period ended 6-30-2022

	Total Fund Policy - Annualized Return	Required Rate of Return (Actual)	Difference
1 Year	-10.0%	13.8%	-23.8%
3 Year	4.7%	9.7%	-5.0%
5 Year	4.3%	8.7%	-4.4%
10 Year	5.3%	7.7%	-2.4%
15 Year	4.2%	7.6%	-3.3%
20 Year	6.1%	7.7%	-1.5%

Required Rate of Return (Actual): This is the return the System has historically been required to generate in order to fund the System's liabilities. It is the (annualized) actuarially required return objective established by the Board, minus the inflation assumption used, plus the actual inflation rate during the period.

Appendix: Supplemental Return Results

(As required by Section X of the IPS)



Value Added – Manager Implementation (Green): Reflects the component of the value added which may be attributed to the (staff selected) manager decisions in implementing their respective mandates.

Value Added – Strategic Decisions (Blue): Reflects the component of the total value added which may be attributed to the strategic sub-class allocation decisions implemented by the CIO.

MOSERS

Missouri State Employees' Retirement System
Investment Committee Meeting
MOSERS Office, 907 Wildwood Drive, Jefferson City, MO
www.gotomeeting.com, Meeting ID 603-813-701
July 25, 2022– 10:00 a.m.

AGENDA

Open Session

- Approval of Report from June 2, 2022 Investment Committee Meeting (Action)
- Proxy Voting Policy discussion
- Policy Implementation discussion
- Director's Comments

Executive Session
Closed Session per RSMo 610.021 (1), (3), & (14)

- Policy Implementation discussion

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MISSOURI STATE EMPLOYEES' RETIREMENT SYSTEM
INVESTMENT COMMITTEE REPORT
REGULAR SESSION
MOSERS OFFICE, 907 WILDWOOD DRIVE, JEFFERSON CITY, MO
WITH OPTIONAL CONFERENCE CALL
JUNE 2, 2022

Mr. Joe Keifer, Mr. Bruce Ring, designee of the Treasurer, and Ms. Stacy Neal, designee of the Commissioner attended via telephone. Mr. Gary Findlay and Ms. Crystal Wessing, attending via telephone, attended the meeting as guests.

Attending from MOSERS: Ronda Stegmann, Executive Director; Abby Spieler, Deputy Executive Director/General Counsel; TJ Carlson, Chief Investment Officer; Tyson Rehfeld, Deputy Chief Investment Officer; Scott Hankins, Managing Director – Investment Risk & Operations; and Melissa Johnson, Board Administrator. Patrick Morgan, Investment Legal & Compliance Counsel; Cindy Rehmeier, Manager of Defined Contribution Plans; Nicki Russell, Chief Auditor; Shelby Murdock-Kempf, Associate Counsel; Lisa Verslues, Human Resources Officer; and Pettina Duenckel, Executive Project Coordinator attended via telephone.

Ms. Eileen Neill attended via telephone.

Attendance roll call was taken.

Mr. Ring moved to approve the regular session report from the February 3, 2022 Investment Committee meeting. Ms. Neal seconded. Motion carried.

Ms. Neill provided the 1st Quarter summary performance report.

Mr. Carlson provided MOSERS 1st Quarter summary performance report.

Mr. Carlson discussed MOSERS Private Equity benchmarks and proposed modifications to those benchmarks. After committee discussion, Mr. Keifer moved that the proposed Private Equity benchmark modifications be presented to the full Board for consideration at the June Board meeting. Mr. Ring seconded. Motion carried.

Mr. Ring moved to adjourn the committee meeting. Ms. Neal seconded. Motion carried.

____

Joe Keifer, Committee Chair

JULY 25, 2022

Proxy Voting Discussion

Missouri State Employees Retirement System

Pensions&Investments
2021 | LARGEST CONSULTANTS OF INSTITUTIONAL ASSETS
#11 RANKED
WORLDWIDE INSTITUTIONAL ASSETS UNDER ADVISEMENT
VERUS

Proxy Voting Review

- As an equity owner of a corporation (or shareholder), the owner has a right to vote on certain corporate matters, both financial and non-financial which include but are not limited to
  - Board and Director issues (terms, attendance, composition)
  - Mergers and acquisitions
  - Audit firm selection
  - Executive compensation
  - Shareholder proposals or protections (if allowed)
  - Environmental, Social or Governance issues (if on the ballot)

- “Proxy Voting” allows an owner of a corporation, who may not be able to attend a shareholder’s meeting in person, to vote on any issues on the ballot (see above)

- Voting proxies is generally considered an important part of a pension fiduciary’s duty.

- Due to the sheer volume of corporate proxies that need to be voted on every year, proxy voting services have been created and continue to expand their practices to address the evolving needs of their clients.

DOL - Current Rules

- Over the last few decades, regulators and administrations have issued guidance on ERISA's fiduciary standards. The guidance has changed over time and caused confusion.

- Current Rules – Financial Factors Rules - This final rule was issued in October 2020.

- It requires that plan fiduciaries consider only "pecuniary factors" in making investment decisions and does not mention the environmental, social, or governance considerations.

  - "Pecuniary factors" – "a factor that a fiduciary prudently determines is expected to have a material effect on the risk and/or return of an investment based on appropriate investment horizons consistent with the plan's investment objectives and the funding policy."

DOL - Current Rules (cont'd)

  - The final rule indicates that a plan fiduciary may consider non-pecuniary factors as a deciding factor in making an investment decision where the plan fiduciary is considering several investment opportunities and is unable to distinguish these alternatives solely on the basis of pecuniary factors.

- In sum, the final rules state that compliance with the exclusive benefit rule requirement in ERISA prohibits fiduciaries from subordinating the interests of participants to objectives other than the optimum risk/return calculus and bars plan fiduciaries from sacrificing investment return or taking on additional investment risk to promote non-pecuniary goals.

Missouri's Statutory Standard - Section 105.688

(excerpts below)

- The assets of a system may be invested, reinvested and managed by an investment fiduciary subject to the terms, conditions and limitations provided in sections 105.687 to 105.689.

- An investment fiduciary shall discharge his or her duties in the interest of the participants in the system and their beneficiaries and shall:

  - (1) Act with the same care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a similar capacity and familiar with those matters would use in the conduct of a similar enterprise with similar aims;…
  - (3) Make investments for the purposes of providing benefits to participants and participants' beneficiaries, and of defraying reasonable expenses of investing the assets of the system;…
  - (5) Give appropriate consideration to investments which would enhance the general welfare of this state and its citizens if those investments offer the safety and rate of return comparable to other investments available to the investment fiduciary at the time the investment decision is made.

MOSERS Current Proxy Voting Practice

- Under section V.C.18 of the Investment Policy Statement, the Board has required the CIO to "establish a proxy voting policy, if and when participating in proxy voting, which ensures that the interests of the System are adequately protected."

- The proxy policy only applies when (1) MOSERS has a separate account with a manager and (2) that account holds publicly traded securities

- The CIO has established this policy within the Investment Implementation Manual, which states as follows:
  - Pursuant to the Investment Policy Statement, the CIO will require all external money managers to:
    1. Coordinate with Investment staff in establishing a proxy voting program
    2. Vote proxies in the interests of MOSERS' members; and
    3. Keep a record of proxy votes and submit that record to staff upon request

- The manager must be a fiduciary

Which Asset Classes Are Impacted

		Policy Allocation - Capital
Growth	Global Public Equities	30%
Growth	Global Private Equities	15%
Income	Long Treasuries	25%
Income	Core Bonds	10%
Inflation	Commodities	5%
Inflation	TIPS	25%
Inflation	Private Real Assets	5%
Inflation	Public Real Assets	5%
Absolute Return	Hedge Funds	5%
Absolute Return	Alternative Beta	10%
Absolute Return	Private Credit	5%
Total Portfolio - Exposure		140%

The portfolio assets highlighted in yellow are the assets that may be *partially* impacted by the outcome of this discussion.

The greyed-out assets will not be impacted.

Portfolio Values Currently Being Voted

Unaudited as of July 19, 2022

	Public Equity Portfolio Exposure Summary	May 31, 2022 Dollar Exposure	July 19,2022 Dollar Exposure	% of Total Plan Exposure
Growth	Global Public Equity US Exposure - Passive Fund	75,699,015	0	0.0%
	Global Public Equity Non-US Exposure - 5 Actively Managed Funds	1,055,588,879	998,248,590	8.2%
	Private Equity P4P US Exposure - Passive Fund	373,290,897	324,925,178	2.6%
	Private Equity P4P Non-US Exposure - 5 Actively Managed Funds	243,509,223	211,783,377	1.7%
Inflation	US Public REIT Portfolio – Separately Managed Account	444,161,703	433,285,707	3.5%
Absolute Return	ACWI US Exposure - Passive Fund	27,144,440	24,668,753	0.2%
	ACWI Non-US Exposure - Passive Fund	17,354,642	16,445,835	0.1%
	Total Public Equity Portfolio Exposure	**2,236,748,799**	**2,009,357,440**	**16.3%**

US Equities
Non-US Equities
REITs

Proxy Voting Options Review

1. Continue current practice of delegation to account/fund manager fiduciary's

2. Develop a Board approved Proxy Voting Policy for MOSERS

3. Utilize the new Proxy voting policy where MOSERS can, without incurring additional costs. This would impact approximately $799m of assets
    - All passive funds ($366m), will be gone in 3-5 years
    - REIT separately managed account ($433m)

4. Move US equity assets into separately managed accounts and use new policy

5. Move all global public equities into separately managed accounts and use new policy
    - Some current managers may not offer separately managed accounts

Peer plan sponsor comparison

	CalPERS	ISBI(Illinois State Board of Investment)	MassPRIM	NY Common Retirement	Texas Teachers
Issues Voting On	Director Elections, Contested Elections, Compensation, Capital Structure, Auditor and Audit-Related Issues, Other issudes, Shareholder Proposals (Governance, Environmental, Social)	Corporate Governance, Election of Directors, Ratification of Auditors, Routine Proposals, Non-Routine Proposals, Shareholder Proposals	Governance, Environmental Issues, Social Issues	Governance, Environmental Issues, Social Issues	Casts votes according to guidelines published by third-party proxy advisor.
Sponsor AUM	$469 bn	$25 bn	$96 bn	$207 bn	$201 bn
Publishes Standalone Proxy Voting	Yes	Yes	Yes	Yes	Yes
How ESG Incorporated into Proxy Voting Policy	Incorporates ESG into their investment process as an early signatory to UNPRI where it is within their fiduciary duty.	Studies cited in proxy voting policy meant to demonstrate ESG factors as critical investment considerations incorporated into their voting process.	Supports increased ESG disclosure and adherence to sustainability and climate change norms, standatds, or codes of conduct as a way to mitigate financial and reputational risks	Encouraging companies and managers both to embrace ESG best practices in order to help protect the long-term value of investments	No mention of ESG in proxy voting policy
ESG Presented/Cited as	Yes	Yes	Yes	Yes	No
DE&I (Diversity, Equity, & Inclusion)	Explicity supports board diversity in terms of race and gender, and EEO reporting by issuers	Explicity supports board diversity in terms of race and gender, and EEO reporting by issuers	Explicity supports board diversity in terms of race and gender, and EEO reporting by issuers	Explicity supports board diversity in terms of race and gender, and EEO reporting by issuers	No mention of diversity in proxy voting policy
Third-Party Proxy Advisor	Not publicly disclosed	Glass Lewis	ISS	Not publicly disclosed	ISS

- Peer funds of similar size generally delegate proxy voting authority to their respective investment managers and do not implement custom proxy voting policies

Current debate: What fiduciary standard is being applied by proxy voting advisors?

- Traditional fiduciary standard of making investments decisions in best economic interests of pension plan beneficiaries is evolving given direction being provided by DOL
- One of main tools for shareholder engagement is proxy voting

Issue #1: **Pension funds not aware of extent to which proxy voting advisors and index fund managers may be engaged in shareholder activism**

Issue #2: **No way to gauge whether proxy votes cast are made in best economic interest of pension plan beneficiaries as proxy voting advisors are not fiduciaries**

- Momentum building for greater transparency and oversight of proxy advisory firms
  - — SEC preparing to enact standards for greater protection of individual shareholders
    - In 2017, the House passed H.R. 4015, the Corporate Governance Reform and Transparency Act, which amends the Securities Exchange Act of 1934 to require a proxy advisory firm to register with the SEC

Current debate: Who controls shareholder votes?

- Two firms control >90%[1] of proxy advisory market and over 35% of shareholder votes: Institutional Shareholder Services ("ISS") (70+%) and Glass-Lewis (≈30%)
- Institutional investors own 70% of public equities and 18% of global equities are in index funds, a market which is controlled by three firms: Blackrock, State Street and Northern Trust[2,3]
  - State Street also uses ISS, but has own proxy voting policy

Issue #3: **Proxy voting advisors are not registered with SEC – they are NOT fiduciaries**

- Most plan sponsors have delegated proxy voting authority to their investment managers. The managers, in turn, use one of these two firms to vote their proxies automatically

Issue #4: **Investment managers with delegated authority are "robovoting" in alignment with ISS and/or Glass Lewis roughly 95% of the time[4]. "Robovoting" may violate standards for execution of fiduciary duty[4]**

[1] "The Big Thumb on the Scale: An Overview of the Proxy Advisory Industry" David Larcker and Brian Tayan, Stanford Graduate School of Business and James Copland, Manhattan Institute, June 14, 2018
[2] Paul Rose, "Proxy Advisors and Market Power: A Review of Institutional Investor Robovoting", Harvard Law School Forum on Corporate Governance, May 27, 2021

[3] Fourth largest index provider, Vanguard, uses both ISS and Glass-Lewis to vote proxies for their equity mutual funds.
[4] Timothy M. Doyle, "The Realities of Robo-voting", American Council for Capital Formation, November 2018

Current debate: Who controls shareholder votes? (continued)

Issue #5: Proxy voting advisors have conflicts of interest

- ISS – provides services to corporations such as corporate governance consulting and corporate governance ratings
- Glass Lewis – was owned by two Canadian pension plan which engage in shareholder activism until 2021. Now owned by Peloton Capital Mgmt. and Stephen Smith, Canadian financial services entrepreneur
- Egan-Jones – provides services to corporations such as credit and private placement ratings as well as ESG scores

- Momentum building for greater transparency and oversight of proxy advisory firms
  - — SEC preparing to enact standards for greater protection of individual shareholders
    - In 2017, the House passed H.R. 4015, the Corporate Governance Reform and Transparency Act, which amends the Securities Exchange Act of 1934 to require a proxy advisory firm to register with the SEC

Comparison of proxy advisory firms

	Institutional Shareholder Services (ISS)	Glass Lewis & Co.	Egan-Jones Ratings Company
Year Founded	1985	2003	2002 (Proxy services; firm
Organizational Ownership	Majority owned by Deutsche Bourse Group, along with Genstar Capital and ISS management	Peloton Capital Management, a private equity firm, and Stephen Smith, a financial services entrepreneur	Egan-Jones Ratings Company is a privately held (100% by founder) ratings agency
Organizational Structure	Privately Owned	Privately Owned	Privately Owned
Market Share	> 60%	> 30%	< 10%
# of Staff	2600	380	< 50 in total (i.e., entire company)
# of Clients and Associated Assets	3400	1,300+	*{Firm does not disclose}*
Proxy Voting Service Scope	Provides proxy recommendations on 48,000 shareholder meetings in 115 markets	Provides proxy recommendations on 20,000 shareholder meetings in 100 countries	Covers all client equity holdings; recommendations are based on proxy voting guidelines alternative chosen by client
Potential Conflicts of Interest	Provides corporate governance ratings on issuers to institutional clients, while at same time offering consulting services to issuers looking to improve corporate governance ranking	Offers corporate governance consulting services to public companies	Offers credit ratings and ESG reporting for companies On June 21, 2022, SEC charged company and CEO with conflict of interest violations. Penalty is $1.7M in addition to disgorgement to settle charges
Pros	- Registered investment advisor with SEC - Privately held by Genstar Capital, a PE firm - Large, global research staff - Able to implement customized proxy voting policies - Claims to promote shareholder value creation	- Privately-held firm -Global employees with >50% engaged in research	- SEC registered company - Actively stresses proxies should be voted based upon shareholder value creation, protection or maximization
Cons	- Founder was Robert Monks, an ESG acitvist; thus culture of firm is oriented towards shareholder activism. Sides with acitivists shareholders majority of time - Largest division is Special Situations Research Goup, which focuses on activist-backed shareholder resolutions - Conflicted	- Not registered investment advisor with SEC - Similar to ISS, founders have activist history and firm culture -Conflicted	- Nature of firm's main business line is significant conflict - History of SEC charges including conflicts of interest, ratings violations, and supplying false submissions

Comparison of proxy advisory firms Services offered

Institutional Shareholder Services (ISS)	Glass Lewis & Co.	Egan-Jones Ratings Company
Governance - Proxy research, recommendations, and voting	**Proxy Research – Proxy Paper®** - Research reports feature case-by-case analysis of all proposals contained in tens of thousands of shareholder meetings per year across more than 100 markets	**Private Placement Ratings**
ESG - Monitors portfolio company practices through screening solutions, and provides climate data, analytics, and advisory services	**Proxy Voting Services– Viewpoint®** - Proxy voting software	**ESG Scores and Reporting**
Market Intelligence - Provides solutions for market sizing, competitor benchmarking, product strategy and opportunity identification across financial products including funds, annuities, insurance, mortgages, and other instruments	**Proxy Voting Policies** - Various customizable thematic voting policies including Glass Lewis (baseline offering), Climate, ESG, Catholic, Public Pension, and Taft-Hartley	**Credit Ratings and Research**
Transaction Cost Analysis - {European Market}	**Engagement Solution** - contacting and meeting with public companies to promote best practices and transparency on material ESG issues	**Proxy Services** - proxy research, vote recommendations, and voting services
Fund Services - German fund data disseminator and fund data distributor	**Controversy Alert** - ESG risk alerts highlight potential reputational risks at meetings	
Securities Class Action Services - Securities class-action claims management - research & claims filing coverage on all countries supporting securities class actions and antitrust cases	**ESG Climate Solutions** - Climate Action 100+ System Watch List, Shareholder Proposal Alert, ESG Controversy Alert (Product Add-On), Thematic Voting Policy – Climate, Vote Rationale Library	
Media - Publishes research through media platforms PLANADVISOR, PLANSPONSOR, and *Chief Investment Officer*	**Reporting & Voting Disclosure Services**	
Economic Value Added - Provides institutions with an established standard in measuring, analyzing, projecting, valuing, and discounting a firm's underlying economic profit	**Share Recall** - Enables sponsors to recall the necessary shares to fulfill voting obligations while ensuring compliance with key SEC regulations	
Corporate Solutions - Help companies design and manage their corporate governance, executive compensation, and sustainability programs to align with company goals, reduce risk, and manage the needs of a diverse shareholder base	**Class Action Recovery Service – Right Claim™** - solution to identify settlement opportunities and maximize recovery **Executive Compensation Models** - compensation analytics and peer comparison tools	

Comparison of key proxy issues

KEY PROXY VOTING ISSUES	STANDARD POLICY		
	Egan Jones	Glass Lewis	ISS
Board (independence, composition, accountability (i.e., takeover defences and governance structure), etc.)	- FOR independence - WITHHOLD votes from directors with conflicts, ignore shareholder proposls, serve as both Board Chair and CEO	- AGAINST inside directors when Board < 2/3 of Directors are not independent -AGAINST internal directors serving on key Board Comms. (i.e., Audit, Governance, Compensation) - AGAINST directors that vote to restrict shareholder rights or have poor records as members of prior corporation boards - AGAINST directors with conflicts of interest - AGAINST Chair of Nominating Comm. if < 30% women on board and follow state regulations related to board diversity	- AGAINST or WITHHOLD from non- independent directors - AGAINST/WITHHOLD from Chair of Nominating Comm. if no women on board or no apparent racial/ethinc diversity
Compensation of officers	- FOR compensation in stock (majority) and cash	- AGAINST "say on pay" proposals - Mostly case by case - FOR shareholder resolutions adopting advisory vote on executive compensation - FOR proposals to have majority of compensation in equity	- Generally, case by case basis -FOR shareholder proposals seeking disclosure regarding Board's use of compensation consultants and Director pay information, if relevant
Shareholder rights	- FOR shareholder proposals concerning Board independence - AGAINST Board term limits or stock ownership requirements - FOR shareholder proposals to remove Directors and to nominate Directors for vacancies	- supports 'one vote per share' and AGAINST mulit-class share structures - Generally FOR shareholder proposals that increase shareholder value or enhance shareholder rights - AGAINST companies excluding shareholder proposals	-AGAINST proposals to consider non-shareholder constituencies or non-financial effects regarding merger, etc. - AGAINST proposals requiring supermajority shareholder vote

Comparison of key proxy issues

	Egan Jones	Glass Lewis	ISS
Auditor ratification, rotation, etc.	- FOR mgmt proposal to ratify ind. auditor	- FOR mgmt proposals related to ind. auditor	- FOR mgmt. proposal to ratify ind. auditor
Proxy contests	- Mostly case by case -AGAINST mgmt. proposals to classify Board - FOR mgmt proposals to eliminate cumulative voting -AGAINST proposals for unequal voting rights	-AGAINST mgmt. proposals to classify Board - Case by case or FOR proposals to eliminate cumulative voting unless majoriy shareholders are insiders or affiliates	- Mostly case by case - AGAINST proposals to stagger Board - FOR disclosure of CEO succession planning - AGAINST mgmt proposals to eliminate cumulative voting
Capital structure (stock distributions, splits, debt restructurings, share repurchase, etc.)	- AGAINST management proposals increasing number of authorized shares for class of stock w/superior voting rights - Mostly case by case	- AGAINST proposals such as authorization of additional shares that are viewed as dilutive to shareholder value - FOR recapitalization proposals to eliminate dual-class share structures, but AGAINST proposals to adopt new common stock classes	- Mostly case by case, otherwise, generally votes FOR mgmt. proposals
Business combinations/corporate	- Mostly case by case	- Mostly case by case	- Mostly case by case
Shareholder proposals on ESG	- AGAINST shareholder proposals for reporting requirements and changes in business practices related to ESG issues except when company receives one of two lowest ESG ratings or scores, when applicable	- FOR ESG oversight and reporting requirements	- Generally, case by case but AGAINST shareholder proposals seeking to require changes in business practices related to ESG issues, but FOR reporting requirements and disclosure of ESG practices

Comparison of proxy advisory firms

	Egan-Jones	Glass Lewis	ISS
Proxy policy service alternatives	Standard policy Conservative policy ESG/SRI policy Catholic policy Taft-Hartley policy	Standard policy Climate policy ESG policy Catholic policy Public pension policy Taft-Hartley policy	Benchmark policy (i.e., standard) Sustainability policy SRI (Socially Responsible Investing) policy Climate Policy Catholic policy Public fund policy Taft-Hartley policy
Corporate governance coverage	▪ 6,000+ companies	▪ $20,000+ meetings ▪ 100 markets ▪ Developed and emerging economies	▪ 39,000+ meetings ▪ 115 markets ▪ Developed and emerging economies
Pricing factors	▪ # of securities ▪ # of ballots annually ▪ # of meetings tracked ▪ Account activity (turnover)	▪ # of securities ▪ # of ballots annually ▪ # of meetings tracked ▪ Account activity (turnover)	▪ # of securities ▪ # of ballots annually ▪ # of meetings tracked ▪ Account activity (turnover)
Minimum annual fee[5]	$5,000 (includes average $15 per report and $2 per ballot)	$10,000: Custom Policy implementation fee	$10,000 - $15,000, includes: ▪ U.S. meetings analyzed ($18/meeting) ▪ Ex. U.S. meetings analyzed ($32/meeting) ▪ U.S. & ADR ballots ($1.75/ballot)
Add-on fee details[6]	▪ +$1,000 – Third-party access to platform ▪ + $3,000 – Custom or non-Standard policy	▪ $3/ballot ▪ $50 – per account account set-up ▪ $5 – Custom policy implementation fee, per meeting ▪ $30 – (per U.S. meeting) Proxy research and recommendations ▪ $60 – (per U.S. meeting) Proxy research and recommendations ▪ $10,000 – Web-hosted vote disclosure, per site	▪ +$5,000 – Custom or non-Standard policy

[5] Standard policy implementation

[6] Egan-Jones and ISS, based upon specific Verus client; highly customized and would vary by MOSERS needs. Glass Lewis provided updated general fee for a large fund. Actual fee would vary

Options for Discussion

- Continue the current practice, take no additional actions

- Articulate the current practice into the IPS:

  The MOSERS Board of Trustees, staff and investment managers are fiduciaries and must perform their duties for the exclusive benefit and in the best economic interest of the System's members and beneficiaries. MOSERS will not systematically include or exclude any investments in companies, industries, countries, or geographic areas unless specifically addressed through Board action or legislative action.

- Take a stronger position for/against investment mandates such as:

  The MOSERS Board of Trustees opposes any state or federal legislation that limits the Board's ability to effectively seek the most prudent risk-adjusted investment returns and believes such limits or mandates conflict with the Board's fiduciary duty.

- Review and assess off the shelf offerings from the three proxy voting service providers

- Hire and work with a proxy voting service to implement MOSERS' preferred proxy voting policy

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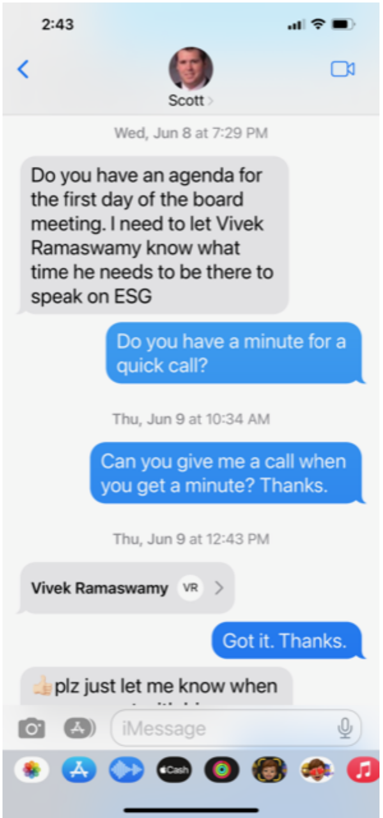
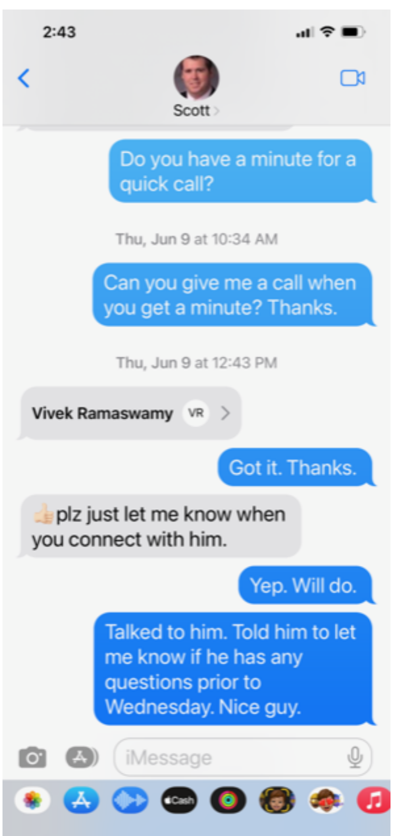
Board-Adopted Policy – March 3, 2022

Russia-Related Investments

Effective March 3, 2022, the system shall not (1) invest directly in securities issued by the Russian government, Russian-government affiliated entities, or Russian domiciled entities; or (2) engage investment managers who have discretion to direct the system's assets into investments in the Russian government, Russian-government affiliated entities, or Russian domiciled entities. Existing investments subject to this provision, shall be divested at the earliest prudent opportunity.


2:43
Scott
Wed, Jun 8 at 7:29 PM
Do you have an agenda for the first day of the board meeting. I need to let Vivek Ramaswamy know what time he needs to be there to speak on ESG
Do you have a minute for a quick call?
Thu, Jun 9 at 10:34 AM
Can you give me a call when you get a minute? Thanks.
Thu, Jun 9 at 12:43 PM
Vivek Ramaswamy VR
Got it. Thanks.
plz just let me know when
iMessage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Can you give me a call when you get a minute? Thanks.
Thu, Jun 9 at 12:43 PM
Vivek Ramaswamy VR
Got it. Thanks.
plz just let me know when you connect with him.
Yep. Will do.
Talked to him. Told him to let me know if he has any questions prior to Wednesday. Nice guy.
iMessage

From: **Sierra Yoho** sierra@strivefunds.com
Subject: Re: Visit Today
Date: June 15, 2022 at 9:28 AM
To: Ronda Stegmann rondas@mosers.org

SY

This email originated from outside of MOSERS

Hey Ronda-

Just realized I don't have my ID with me and we're already on the plane. Hopefully it's just the metal detector!

On Wed, Jun 15, 2022 at 9:03 AM Ronda Stegmann <rondas@mosers.org> wrote:

> Sounds good. Thanks.
>
> > On Jun 15, 2022, at 7:02 AM, Sierra Yoho <sierra@strivefunds.com> wrote:
> >
> > ## This email originated from outside of MOSERS
> >
> > Thanks so much for your reply!
> >
> > Should be good to go but have your cell just in case!
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> > > Good morning Sierra – I am assuming you saw the email I sent last week (below).
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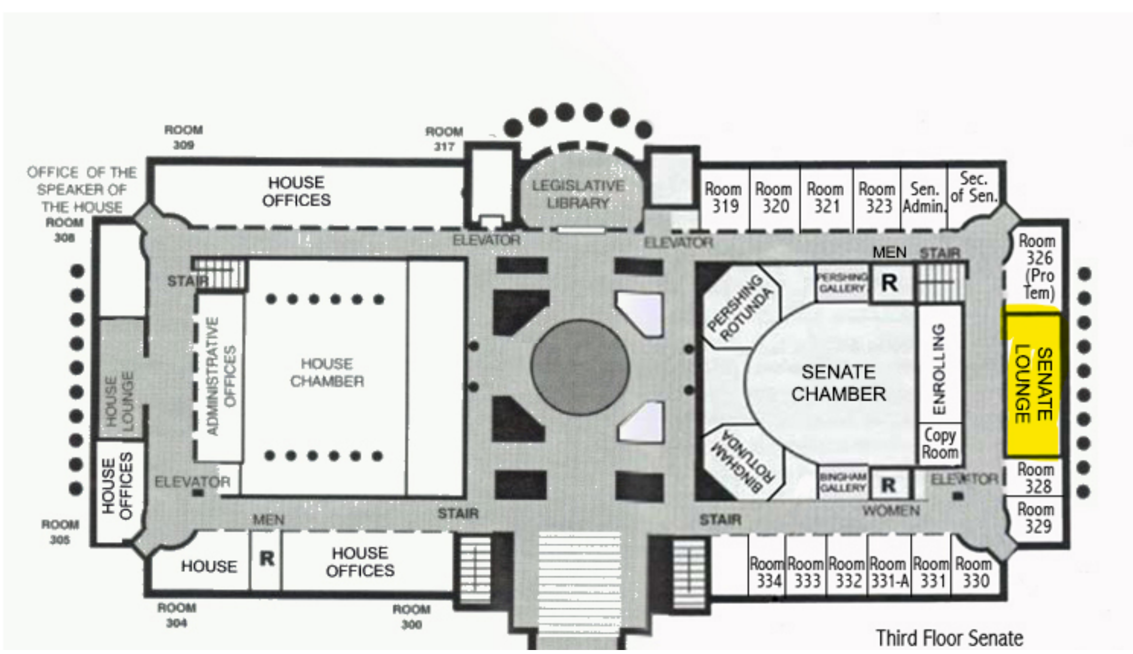
> > > The lunch is in the basement of the Capitol Building on the West side. Really can't miss it. It's the only cafeteria in the building.
> > >
> > > The security process is going through a metal detector at the entrance under the carriage tunnel on the south side of the building (across the street from the Supreme Court building.
> > >
> > > You are welcome to call me on my cell at 573-230-1116 at any time. I may have to step out of the meeting but all good.
> > >
> > > Thanks very much,
> > >
> > > Ronda
> > >
> > > Next week, on Wednesday, June 15th, the Board will hold its annual educational conference. This meeting is designed to assist the Board in meeting the governance-required 6 hours of annual education. This meeting will be held in the State Capitol building in the Senate Lounge. The Senate Lounge is located on the 3rd floor on the east side of the building (map below). The physical address of the building is 201 W. Capitol Ave, Jefferson City, MO.

Missouri State Senate

Map of the Third Floor of the State Capitol



We will have a full day of education beginning at 9:00 a.m. with presentations from Cavanaugh Macdonald, Verus, Vivek Ramaswamy with Strive Asset Management, and staff. We expect the day to end around 5:00 p.m.

Some things you need to know for **Wednesday, June 15th**:

- We have received 10 parking spaces in the Senate garage in **spaces 3 through 16** (you are welcome to use any of those spaces). These spaces are for Board members and consultants. Staff will work to consolidate in a few vehicles to ensure parking for all. The Senate garage is the circular garage on the Missouri River side of the Capitol building.
- It is important to note that if you do not have an ID badge that allows for access into the Capitol building, *you will need to go through the Security process* which is located at that entrance to the building, under the carriage tunnel on the Supreme Court side of the Capitol, so please allow a few extra minutes for that process.
- We will be having lunch in the restaurant in the basement of the Capitol. Melissa will get with you for your choice of lunch options.
- We are working to have time to take the Board into the Senate Chamber and to the Whispering Gallery/ top of the outside of the dome, if anyone is interested.
- We will have an "on your own" informal dinner for anyone who is interested at the Canterbury Hill Restaurant and Winery – located at 1707 S Summit Drive in Holts Summit.

On Thursday, June 16th, we will conduct the 2nd Quarter Meeting of the Board at the MOSERS Office Building. We will begin the meeting at 9:00 a.m.

We are looking forward to seeing everyone! If you have any questions between now and Wednesday, do not hesitate to contact me on my cell at 573-230-1116 at any time.

Thanks very much,

Ronda

Success is a TEAM sport!

Ronda Stegmann

Executive Director | *MOSERS*

573-632-6110

rondas@mosers.org

From: Sierra Yoho <sierra@strivefunds.com>
Sent: Wednesday, June 15, 2022 6:43 AM
To: Ronda Stegmann <rondas@mosers.org>
Subject: Re: Visit Today

This email originated from outside of MOSERS

Also-

Will we need to go through the security process? If so can I get some more details on that?

Thanks so much!

On Wed, Jun 15, 2022 at 7:25 AM Sierra Yoho <sierra@strivefunds.com> wrote:

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> If you have a cell to provide we can text if easier!
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> Best,
>
> Sierra
>
> 614-867-7171

> (573) 632-6100. Please be advised that if you have received this e-mail in error, any use, retention, disclosure, transmission, or copying of it is strictly prohibited.

CONFIDENTIAL TRANSMISSION: This electronic communication is from the Missouri State Employees' Retirement System (MOSERS). This e-mail and any files transmitted with it are private and confidential and are solely for the use of the intended recipient. This message may contain material which is privileged or is otherwise protected by law. If you are not the intended recipient or the person responsible for delivering it to the addressee, you are requested to immediately delete the message and notify the sender or contact MOSERS by calling (573) 632-6100. Please be advised that if you have received this e-mail in error, any use, retention, disclosure, transmission, or copying of it is strictly prohibited.

From: **Melissa Johnson** melissaj@mosers.org
Subject: September Board meeting packets
Date: September 16, 2022 at 2:41 PM
To: Melissa Johnson melissaj@mosers.org

MJ

Hi All,

Attached please find the regular and executive session packets for the upcoming Board meeting. Please let me know if you need anything else.

Thanks,
Melissa

Melissa Johnson
Board Administrator
Missouri State Employees' Retirement System (MOSERS)
573-632-6193
www.mosers.org

WE ARE HERE FOR YOUR BENEFIT

PDF
REG SESSION
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EXEC SESSION
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Knowledge at Wharton

Texas Fought Against ESG. Here's What It Cost

July 12, 2022 •

When states boycott financial institutions over their ESG policies, it can have a chilling and costly effect on competition in the bond market, according to a new paper from Wharton's Daniel Garrett.

A Texas law that bans its municipalities from doing business with banks that have ESG policies against fossil fuels and firearms is driving down competition for borrowing and costing taxpayers millions in extra interest, according to a new study from Wharton.

In their paper, Wharton assistant finance professor **Daniel Garrett** and **Ivan Ivanov**, an economist with the Board of Governors of the Federal Reserve System, documented the financial impact of Senate Bills 13 and 19, which took effect Sept. 1, 2021. The legislation is aimed at protecting Texas' reliance on the oil and gas and firearms industries by prohibiting local jurisdictions from contracting with banks that have adopted environmental, social, and corporate governance policies against those industries. That means cities can no longer use those banks as underwriters for municipal bonds, which are one of the main ways that cities raise money.

After Texas passed the law, five of the largest underwriters exited the market: JPMorgan Chase, Goldman Sachs, Citigroup, Bank of America, and Fidelity.

"This is a really big rule for the municipal space," Garrett said. "This is not the first time we've seen states use municipal markets as a way to enforce bank behavior they want to see, but this is new in its scale in that five large banks left Texas. [They] used to underwrite about 35% of the debt in the market, so they've left a really big gap."

"I think it does have a chance of becoming more common going forward."

Garrett joined **Wharton Business Daily** on SiriusXM to talk about the paper, "**Gas, Guns, and Governments: Financial Costs of Anti-ESG Policies**." In their study, the co-authors analyzed data from the first eight months of the law and estimated that Texas cities will pay an additional $303 million to $532 million in interest on $32 billion in bonds.

"It's a really substantial increase in borrowing costs," Garrett said.

Cities often have "sticky" relationships with their underwriters and choose the same banks over and over again to facilitate their bonds, according to the co-authors. The regulatory change unstuck those relationships, forcing municipalities to negotiate borrowing terms with other financial institutions that suddenly had less competition because the big banks left. Borrowing costs increased by about 40 basis points for jurisdictions that previously relied on the exiting underwriters for a majority of their issues.

"I think what's really interesting about this story is who leaves," Garrett said. "It's not a random selection of banks. It's a selection of banks that are making profit-maximizing decisions, and they're choosing to leave, and they happen to be the largest."

More States Joining the Anti-ESG Push

Garrett said the research has implications beyond Texas because a growing number of states are enacting similar legislation to boycott financial institutions over ESG policies that appear to threaten their livelihoods or run contrary to prevailing political values. According to a **Reuters report**, there are 44 bills or new laws in 17 conservative states — including **Oklahoma**, **West Virginia**, Arkansas, and Kentucky — that punish Wall Street for taking stances on issues ranging from gun control and abortion to diversity and climate change.

"I think it does have a chance of becoming more common going forward," Garrett said. "Since interstate banking deregulation, we don't see states have a lot of other markets they can really punish banks using, and that's why the public finance space becomes really important for these social fights."

The paper doesn't debate the politics or take a position; the researchers wanted to focus on the financial costs of anti-ESG policies. In addition to quantifying the increased debt burden on taxpayers, the study directly shows how such legislation reduces competition in the bond market.

"This is not the first time we've seen states use municipal markets as a way to enforce bank behavior they want to see, but this is new in its scale…"

"What this winds up leading to is more segmentation in an already segmented municipal bond market in the U.S.," Garret said, adding that it could create "potentially bad outcomes for the people who rely on these banks for credit access and don't actually have anything to do with the ESG fights that are being had."

Financial institutions also have to consider whether leaving a state over ESG regulation is worth the trade-off, he said. There is no single set of standards for ESG, so it's hard for states to craft specific legislation. In Texas, the law has so many **loopholes and exceptions** that the state comptroller in March began sending out letters asking financial institutions to detail their climate policies. In an effort to re-enter the market, both **Citigroup** and JPMorgan Chase have said their policies are in compliance with Texas law, Garrett said.

"I'm not sure how much willpower there is in Texas to uphold the ongoing equilibrium we saw after Sept. 1," he said. "But people realize that it's costly and we kind of need to keep an eye on costs incurred by this."

From: **Sierra Yoho** sierra@strivefunds.com
Subject: Visit Today
Date: June 15, 2022 at 7:26 AM
To: Ronda Stegmann rondas@mosers.org

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This email originated from outside of MOSERS

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614-867-7171

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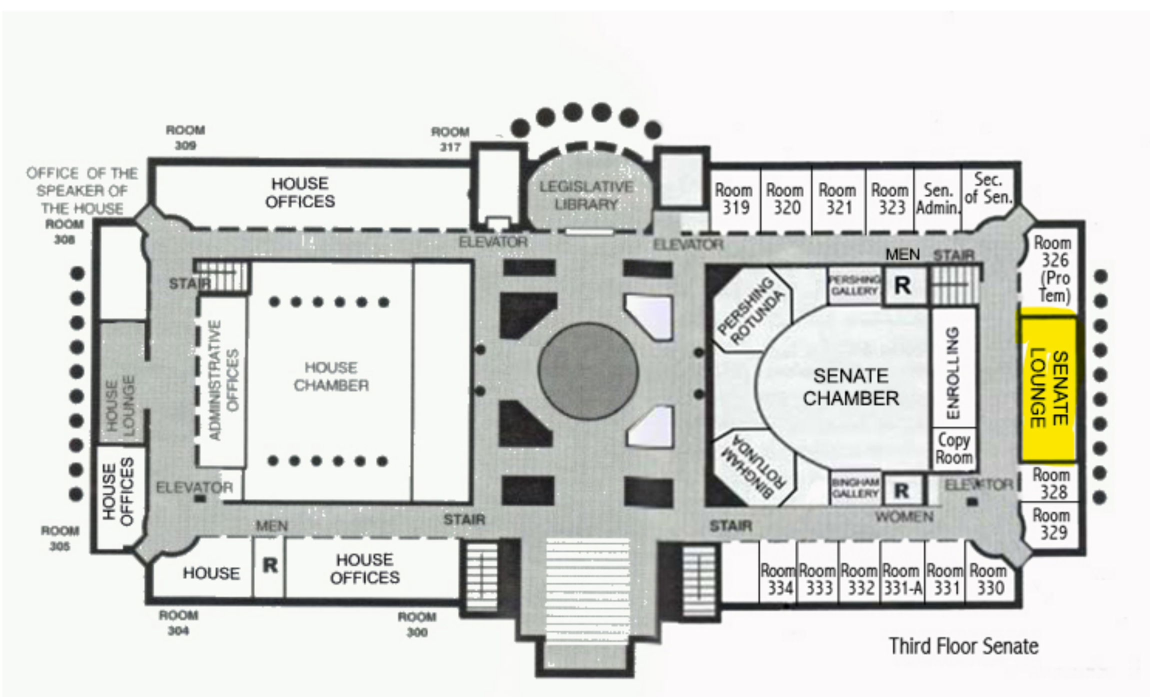

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