



City of Milwaukee
Employees' Retirement System

Bernard J. Allen
Executive Director

David M. Silber, CFA, CAIA
Chief Investment Officer

Melody Johnson
Deputy Director

April 8, 2022

Mr. Jim Owczarski
City Clerk
Room 205, City Hall

Dear Mr. Owczarski:

Please be advised that an Investment Committee Meeting of the Annuity and Pension Board has been scheduled for **Thursday, April 14, 2022 at 9:00 a.m.** This meeting will be conducted via teleconference.

Special Notice: Instructions for the public on how to observe the meeting will be available on the ERS's website (www.cmers.com) prior to the meeting.

The agenda is as follows:

- I. Election of Vice-Chair.
- II. Approval of UBS Hedge Fund Solutions Guideline Change.
- III. Approval of Principal Global Investors Guideline Change.
- IV. Approval of Statement of Investment Policy Update.
- V. Callan 2022 Work Plan.
- VI. Callan 2022 Asset Allocation Review.
- VII. Callan Public Equity Structure Review – Phase 1.
- VIII. Callan Investment Manager Diligence Overview.
- IX. Reams Asset Management Due Diligence Report.
- X. Chief Investment Officer Report.
- XI. Informational.
 - a. Callan 4th Quarter 2021 Performance Report.

Sincerely,

Bernard J. Allen
Executive Director

BJA:jmw

Memorandum

To: CMERS Investment Committee

From: David M. Silber, CFA, CAIA

Date: April 8, 2022

Re: UBS and Principal Guideline Change; Fund Blended Benchmark Change

The purpose of this memo is to provide a high level summary of items II.-IV. on the April 14, 2022 Investment Committee agenda.

Approval of UBS Hedge Fund Solutions Guideline Change

When ERS first hired UBS to manage a Hedge Fund of One mandate, the benchmark that was selected was the 1-year LIBOR return + 400bp. LIBOR stands for London Interbank Offered Rate, and at the time it was a commonly used benchmark that was supposed to reflect what global financial institutions would charge for short-term loans. Regulations implemented after the 2008 Global Financial Crisis started a process whereby replacements for LIBOR were sought in the marketplace. ERS' Custodian, Northern Trust, notified Staff in mid-February of this year that they would no longer be able to report the 1-year LIBOR benchmark that ERS has been accustomed to using, and that they were in the process of replacing all of their LIBOR indices with a SOFR index. SOFR stands for Secured Overnight Financing Rate, and reflects the cost of borrowing cash overnight in the U.S. Treasury repurchase market. SOFR's transparency is preferable compared to how LIBOR was calculated, and Callan concurs that they are seeing many clients move to SOFR following the discontinuation of LIBOR.

With that background, and given that the ERS does not have the option to continue using the existing benchmark, Staff recommends updating the benchmark reflected in the UBS guideline effective March 1, 2022, from: 1-year LIBOR + 400bp to SOFR + 400bp.

Approval of Principal Global Investors Guideline Change

On March 18, 2022, Principal notified Staff that they were changing the benchmark used for the Diversified Real Assets strategy ERS invests in. Principal explained to Staff and Callan that the reason for the benchmark change was to better align the benchmark with the strategy's long-term strategic allocation targets. Callan noted that they have seen others in the marketplace make similar changes, and Callan's own in-house real assets team is recommending reduced allocations to TIPS amid the outlook of rising interest rates. While Principal is reflecting the benchmark change effective January 1, 2022 within their organization, Staff and Callan don't believe that ERS' reports should be changed retroactively. Staff and Callan recommend updating the benchmark currently used in the Principal guideline to match the recent change, but recommend making it effective April 1, 2022 in all ERS reports. Details of the benchmark change can be found

in the table below. While no components have been added or removed, the weights in most of the components are changing. Discussions between Staff, Callan, and Principal are ongoing to make sure the full impact of this change on the mandate's risk and return characteristics is understood. Staff will follow up with the Investment Committee regarding any notable news from these discussions.

Index allocations	Current weight	Proposed weight	Increase or Decrease
Bloomberg U.S. Treasury TIPS	35%	15%	-20%
S&P Global Infrastructure	20%	30%	10%
S&P Global Natural Resources	20%	15%	-5%
Bloomberg Commodity	15%	15%	No Change
FTSE EPRA/NAREIT Developed Market	10%	25%	15%

Approval of Statement of Investment Policy Update

The Fund's blended benchmark incorporates Principal's benchmark. As a result of this, the Fund's blended benchmark weights that ERS compares its total Fund returns to need to be tweaked to reflect the Principal benchmark change discussed previously in this memo. Principal's current target allocation is 3.9% of total Fund assets, and the component weights within this 3.9% of the Fund's benchmark are the only changes being proposed. Details of the recommended change to the Fund's blended benchmark can be seen in the table below. Similar to the Principal benchmark change discussed previously in this memo, Staff and Callan recommend making this change effective April 1, 2022.

Index allocations	Current weight	Proposed weight	Increase or Decrease
ACWI IMI	44%	44%	No Change
Bloomberg U.S. Aggregate	23%	23%	No Change
90-Day T-bill + 3%	10%	10%	No Change
Russell 3000 + 2% (1 Qtr. Arrears)	10%	10%	No Change
NFI-ODCE (1 Qtr. Arrears)	9.1%	9.1%	No Change
Bloomberg U.S. Treasury TIPS	1.365%	0.585%	-0.78%
S&P Global Infrastructure	0.78%	1.17%	0.39%
S&P Global Natural Resources	0.78%	0.585%	-0.195%
Bloomberg Commodity	0.585%	0.585%	No Change
FTSE EPRA/NAREIT Developed Market	0.39%	0.975%	0.585%

Fund:	CMERS Low Beta LLC
Managing Member:	UBS Alternative and Quantitative Investments <u>Hedge Fund</u>
Role:	<u>Solutions</u> LLC Hedge Fund of Funds Strategy

Investment Objectives

The Investment Manager will attempt to construct a broad based neutral portfolio with exposure to a number of hedge fund strategies

The Fund seeks to target limited beta to equity markets over an economic cycle (3-5 years), as measured relative to the MSCI World Index USD.

Time Horizon	Performance Standard
	<u>Index</u>
Less than one market cycle (rolling 3-year periods).	Exceed (after fees) the 1-year London Interbank Offered Rate <u>Secured Overnight</u> <u>Financing Rate</u> (LIBOR <u>SOFR</u>) by 400 basis points.
One market cycle (rolling 5-year periods).	

Investment Guidelines

Strategies and Anticipated Allocation Ranges

Equity Hedged: (0-50%)

- The Fund will retain flexibility to invest in managers who may exhibit either long or short bias to risky assets depending on market environment provided downside risk is seen to be adequately restrained. Sub-strategies currently include: Fundamental and Equity Event.

13F Strategy: (0-5%)

- The Fund is permitted to invest in a Portfolio Fund managed by the Investment Manager which pursues the Investment Manager's "13F Strategy," an equity trading strategy that seeks to replicate the aggregate performance characteristics of a portfolio of equity securities held by a select number of Submanagers which have listed them on their respective filings under SEC Form 13F. The 13F Strategy shall be considered a subset of Equity Hedged such that the allocation range for the 13F Strategy and Equity Hedge together shall be (0-50%).

Credit / Income (0-50%)

- Credit: These strategies in aggregate are subject to a guideline of no more than 50% of the total portfolio. The Fund will retain flexibility to invest in managers who may exhibit either

Fund:	CMERS Low Beta LLC
Managing Member:	UBS Hedge Fund Solutions LLC
Role:	Hedge Fund of Funds Strategy

Investment Objectives

The Investment Manager will attempt to construct a broad based neutral portfolio with exposure to a number of hedge fund strategies

The Fund seeks to target limited beta to equity markets over an economic cycle (3-5 years), as measured relative to the MSCI World Index USD.

Time Horizon	Performance Standard
	<u>Index</u>
Less than one market cycle (rolling 3-year periods).	
One market cycle (rolling 5-year periods).	Exceed (after fees) the Secured Overnight Financing Rate (SOFR) by 400 basis points.

Investment Guidelines

Strategies and Anticipated Allocation Ranges

Equity Hedged: (0-50%)

- The Fund will retain flexibility to invest in managers who may exhibit either long or short bias to risky assets depending on market environment provided downside risk is seen to be adequately restrained. Sub-strategies currently include: Fundamental and Equity Event.

13F Strategy: (0-5%)

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Credit / Income (0-50%)

- Credit: These strategies in aggregate are subject to a guideline of no more than 50% of the total portfolio. The Fund will retain flexibility to invest in managers who may exhibit either long or short bias to risky assets depending on market environment provided downside risk is seen to be adequately restrained.

- Sub-strategies currently include: Distressed, Corporate Long/Short, Structured Products and will not exceed 40% of the total portfolio.
- Income: The Fund will retain flexibility to invest in managers that participate in reinsurance strategies. Reinsurance strategies will not exceed 10% of the portfolio.

Relative Value: (0-60%)

- The Fund is permitted to invest in all Relative Value strategies, including: Quantitative Equity, Merger Arbitrage, Capital Structure/Volatility Arbitrage, Fixed Income Relative Value (FIRV), and Agency MBS.

Trading: (0-40%)

- The Fund is permitted to invest in all Trading strategies, including Global Macro, Commodities and Systematic CTAs. Sub-strategies currently include: Systematic, Global Macro, Commodities.

Other: (0-10%)

- This category contains investment approaches that are outside of the mainstream hedge fund strategies (Equity Hedged, Credit, Relative Value, and Trading). The category includes other alternative strategies, such as tactical asset allocation/risk parity, private equity, and real estate dealings, as well as new niche investment approaches that do not fit into any of the other mainstream strategies.

Multi-Strategy:

- The Fund is permitted to invest in Multi-Strategy managers, which include allocations to a combination of strategies. These offerings are often the result of commonalties in the research and trading talent required for successful execution of the strategies. These funds allocate capital opportunistically among strategies believed to offer a suitable risk-adjusted return profile going forward.
- Applicable guidelines for multi-strategy managers will be monitored on a look-through basis to the underlying Strategies and will count toward the specified limits above.

Investments in Portfolio Funds Managed by Affiliates of the Investment Manager

Investments in Portfolio Funds managed by affiliates of the Investment Manager will be capped at 20% and would be limited to Customized Baskets ("CBs"), Managed Accounts ("MAs") or other Special Purpose Vehicles ("SPVs") where the Investment Manager may seek to attain certain exposures pursuant to the investment objectives of the Fund and where such exposure may otherwise not be accessible to the Fund. In the event such investments are implemented, the Investment Manager will not charge the Fund additional management fees or performance fees within the CBs, MAs or SPVs. Aside from such investments in CBs, MAs or SPVs, no investments will be made to UBS affiliates (e.g. O'Connor).

Diversification

The Investment Manager will determine the appropriate number of Portfolio Funds in its sole discretion. However, the number will typically range between 15-39 Portfolio Funds, excluding co-investments, unless otherwise agreed by the Fund.

Liquidity Considerations

The Investment Manager will seek to invest in Portfolio Funds with a mix of different liquidity profiles. However, the Investment Manager will seek to maintain:

- At least 70% of the net asset value of the Fund to be allocated to Portfolio Funds with stated liquidity terms (with penalties) that allow for redemption within 1 year.
- Up to 30% of the net asset value of the Fund may be allocated to Portfolio Funds with stated liquidity terms that allow for redemption greater than a 1 year hard lock up. Up to 1/3 of these Portfolio Funds (approximately 10% of the Fund) may have a hard lock up of greater than 2 years, but no more than 3 years unless they fall into the category of Portfolio Funds with no predefined redemption period. The latter shall also fall inside the 10% limitation.
- An investor gate can cause a position to fall into multiple liquidity buckets. For example, a 1/8th quarterly liquidity fund would have 50% of its position in the "within 1 year " bucket and the remainder in the "greater than 1 year bucket", none of which would fall into the greater than 2 year bucket.

The above terms do not include audit withholds imposed by Portfolio Funds. The Fund acknowledges and understands that disbursements of any withheld amounts could take between 12 and 18 months to receive and will not be counted toward the above liquidity considerations.

From time to time, a manager may segregate certain securities from its Portfolio Fund and establish a “side pocket” structure and/or share class, which may have less liquid characteristics. The Investment Manager will attempt to limit the Fund’s exposure to side pocket holdings. However, the ultimate side pocket exposure will be at the discretion of the each underlying manager.

Leverage

The Investment Manager does not expect to employ leverage above and beyond what may be undertaken by the underlying Portfolio Funds. The Fund indicated it is able to provide additional cash with sufficient notice for operating purposes such as funding short term subscriptions or coverage for FX currency hedging.

Investment Manager Bespoke Structures/Co-Investments

The Fund is eligible to participate in A&Q bespoke structures and co-investments with full discretion of the Investment Manager.

Investment Eligibility

The Fund may invest in both US tax transparent funds and/or offshore vehicles.

Tail/Overlay Hedging

The Fund is eligible to participate in A&Q Tail/Overlay Program (TAU).

New Issues

The Fund is eligible to participate in new issues, and as such the Fund may invest in the new issues eligible share classes, if deemed appropriate.

Fund: Principal Diversified Real Asset CIT (“Principal DRA CIT”)
Manager: Principal Global Investors Trust
Role: Real Assets Strategy

Objectives and Guidelines

Investment Objectives

Time Horizon	Market Cycle approximately 3-5 years
Performance Standard	3-5% over CPI over a market cycle
Index	Custom Index:
	1535% Barclays U.S. TIPS Index
	3020% S&P Global Infrastructure Index
	1520% S&P Global Natural Resources Index
	15% Bloomberg Commodity Total Return Index
	2510% FTSE EPRA/NAREIT Developed Market Index

Investment Guidelines

The Principal DRA CIT is a collective investment trust for which Principal Global Investors Trust Company (f/k/a Union Bond & Trust Company) (“Trust Company”), an Oregon banking corporation acts as Trustee (the “Trustee”) pursuant to the Declaration of Trust as may be amended from time to time. The Principal DRA CIT is only available to certain retirement, pension, profit sharing, stock bonus and similar plans and their individual participants. The Trust Company has retained Principal Global Investors, LLC (“PGI”) to serve as the investment advisor for the Principal DRA CIT. PGI is an affiliate of the Trust Company.

Objective: The investment objective of the Principal DRA CIT is to seek a long-term total return in excess of CPI by 3-5%.

Main Strategies and Risks

The Principal DRA CIT seeks to achieve its investment objective by allocating its assets among numerous investment categories including, but not limited to the following: inflation-indexed bonds, securities of real estate companies, commodity futures, fixed-income securities, foreign currency, securities of natural resource companies, master limited partnership (“MLPs”), publicly-listed infrastructure companies, floating rate debt, securities of global agriculture companies, and securities of global timber companies. The Principal DRA CIT is allowed to utilize derivative instruments.

The Trustee, as authorized in the Declaration of Trust, has hired PGI to serve as investment advisor for the Principal DRA CIT. PGI develops recommendations for the Principal DRA CIT's strategic asset allocation, which are executed by multiple sub-advisors. The allocations will vary from time to time and the Principal DRA CIT may add additional investment

Fund: Principal Diversified Real Asset CIT (“Principal DRA CIT”)
Manager: Principal Global Investors Trust
Role: Real Assets Strategy

Objectives and Guidelines

Investment Objectives

Time Horizon	Market Cycle approximately 3-5 years
Performance Standard	3-5% over CPI over a market cycle
Index	Custom Index: 15% Barclays U.S. TIPS Index 30% S&P Global Infrastructure Index 15% S&P Global Natural Resources Index 15% Bloomberg Commodity Total Return Index 25% FTSE EPRA/NAREIT Developed Market Index

Investment Guidelines

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categories.

In recommending strategic allocations and sub-advisors to implement the allocations, PGI considers, among other things, quantitative measures, such as past performance, expected levels of risk and returns, expense levels, diversification of existing funds, and style consistency. In addition, qualitative factors such as organizational stability, investment experience, consistency of investment process, risk management processes, and information, trading, and compliance systems of the underlying investment option's sub-advisor are also evaluated. The Trustee considers the recommendations provided by PGI and determines whether to use cash flows or asset transfers or both to achieve the target weights established from time to time for underlying investment options.

Trustee makes this representation solely as of the date of The Employees' Retirement System of the City of Milwaukee ("ERS") initial investment in the collective investment trust and solely with respect to the current version of this Investment Policy. For avoidance of doubt, Trustee expressly disclaims any amendment or revision of this Investment Policy.

STATEMENT OF INVESTMENT POLICY

Updated ~~April~~December 20221

**THE EMPLOYEES' RETIREMENT
SYSTEM OF THE CITY OF MILWAUKEE**

789 N. Water Street, 3rd Floor
Milwaukee, WI 53202
(414) 286-3557

Individual manager guidelines are updated upon Annuity and Pension Board Approval

TOTAL FUND

OBJECTIVES AND GUIDELINES

Investment Objectives

Time Horizon	Performance Standard		Index
		Universe	
	Less than one market cycle (rolling 3-year periods).	Rank in upper 50% of a Peer Group ¹	
	One market cycle (rolling 5-year periods).	Rank in upper 40% of a Peer Group. ¹	Exceed the return on a benchmark Index by 1%. ² Have volatility of +/- 2.5% tracking error to the benchmark Index. ²

Investment Guidelines

- The investment guidelines governing each asset class/manager will together constitute the Total Fund guidelines.
- The Board is responsible for the overall asset allocation of the Fund. Each manager will be responsible for adhering to the guidelines for its portion of Fund assets only.

¹ As measured by a universe of similarly managed funds.

² As measured by a composite index designed to track the target asset allocation.

From:	1/1/00 – 4/30/06	5/1/06 – 6/30/08	7/1/08 – 9/30/10	10/1/10 – 12/31/12	1/1/13 – 12/31/13	1/1/14 – 12/31/14	1/1/15 – 12/31/15	1/1/16 – 6/30/16	7/1/16 – 12/31/16	1/1/17 – 3/31/18	4/1/18 – 12/31/18	1/1/19 – 12/31/19	1/1/20 – 3/31/21	4/1/21 – 3/31/22 Present	4/1/22 – Present
To:															
ACWI IMI (net)	-	-	-	-	-	-	-	56%	56%	55%	50%	47%	43%	44%	44%
BC Agg.	30%	28%	28%	28%	28%	28%	28%	25%	22%	22%	25%	25%	26%	23%	23%
NFI-ODCE (1 Qtr Arrears)	-	-	-	-	-	-	7%	7%	7%	7%	7.7%	7.7%	7.7%	9.1%	9.1%
90-Day T-bill + 3%	-	-	-	-	-	-	5%	5%	8%	8%	9%	9%	10%	10%	10%
Russell 3000 + 2% (1 Qtr Arrears)	-	-	-	-	-	-	-	-	-	-	-	-	10%	10%	10%
15% Barclays TIPS / 30% S&P Global Infrastructure / 15% Global Natural Resources / 25% FTSE EPRA/NAREIT Developed / 15% Bloomberg Commodity Total Return	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.9%
35% Barclays TIPS / 20% S&P Global Infrastructure / 20% Global Natural Resources / 10% FTSE EPRA/NAREIT Developed / 15% Bloomberg Commodity Total Return	-	-	-	-	-	-	-	-	3%	3%	3.3%	3.3%	3.3%	3.9%	-
Russell 3000 + 3% (1 Qtr Arrears)	-	-	-	-	2%	2%	2%	4%	4%	5%	5%	8%	-	-	-
40% ACWI / 40% Barclays TIPS / 20% Bloomberg Commodity Total Return	-	-	-	-	-	-	-	3%	-	-	-	-	-	-	-
Russell 3000	50%	45%	45%	33%	31%	31%	28%	-	-	-	-	-	-	-	-
MSCI EAFE (net)	15%	20%	20%	22%	22%	22%	20%	-	-	-	-	-	-	-	-
ACWI (net)	-	-	-	-	-	10%	10%	-	-	-	-	-	-	-	-
NCREIF (NPI 1 Qtr Arrears)	-	-	7%	7%	7%	7%	-	-	-	-	-	-	-	-	-
MSCI World (net)	-	-	-	10%	10%	-	-	-	-	-	-	-	-	-	-
NCREIF (NPI)	5%	7%	-	-	-	-	-	-	-	-	-	-	-	-	-

STATEMENT OF INVESTMENT POLICY
Updated April 2022

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OBJECTIVES AND GUIDELINES

Investment Objectives

Time Horizon	Performance Standard		Index
		Universe	
	Less than one market cycle (rolling 3-year periods).	Rank in upper 50% of a Peer Group ¹	
	One market cycle (rolling 5-year periods).	Rank in upper 40% of a Peer Group. ¹	Exceed the return on a benchmark Index by 1%. ² Have volatility of +/- 2.5% tracking error to the benchmark Index. ²

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From:	1/1/00 – 4/30/06	5/1/06 – 6/30/08	7/1/08 – 9/30/10	10/1/10 – 12/31/12	1/1/13 – 12/31/13	1/1/14 – 12/31/14	1/1/15 – 12/31/15	1/1/16 – 6/30/16	7/1/16 – 12/31/16	1/1/17 – 3/31/18	4/1/18 – 12/31/18	1/1/19 – 12/31/19	1/1/20 – 3/31/21	4/1/21 – 3/31/22	4/1/22 – Present
To:															
ACWI IMI (net)	-	-	-	-	-	-	-	56%	56%	55%	50%	47%	43%	44%	44%
BC Agg.	30%	28%	28%	28%	28%	28%	28%	25%	22%	22%	25%	25%	26%	23%	23%
NFI-ODCE (1 Qtr Arrears)	-	-	-	-	-	-	7%	7%	7%	7%	7.7%	7.7%	7.7%	9.1%	9.1%
90-Day T-bill + 3%	-	-	-	-	-	-	5%	5%	8%	8%	9%	9%	10%	10%	10%
Russell 3000 + 2% (1 Qtr Arrears)	-	-	-	-	-	-	-	-	-	-	-	-	10%	10%	10%
15% Barclays TIPS / 30% S&P Global Infrastructure / 15% Global Natural Resources / 25% FTSE EPRA/NAREIT Developed / 15% Bloomberg Commodity Total Return	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3.9%
35% Barclays TIPS / 20% S&P Global Infrastructure / 20% Global Natural Resources / 10% FTSE EPRA/NAREIT Developed / 15% Bloomberg Commodity Total Return	-	-	-	-	-	-	-	-	3%	3%	3.3%	3.3%	3.3%	3.9%	-
Russell 3000 + 3% (1 Qtr Arrears)	-	-	-	-	2%	2%	2%	4%	4%	5%	5%	8%	-	-	-
40% ACWI / 40% Barclays TIPS / 20% Bloomberg Commodity Total Return	-	-	-	-	-	-	-	3%	-	-	-	-	-	-	-
Russell 3000	50%	45%	45%	33%	31%	31%	28%	-	-	-	-	-	-	-	-
MSCI EAFE (net)	15%	20%	20%	22%	22%	22%	20%	-	-	-	-	-	-	-	-
ACWI (net)	-	-	-	-	-	10%	10%	-	-	-	-	-	-	-	-
NCREIF (NPI 1 Qtr Arrears)	-	-	7%	7%	7%	7%	-	-	-	-	-	-	-	-	-
MSCI World (net)	-	-	-	10%	10%	-	-	-	-	-	-	-	-	-	-
NCREIF (NPI)	5%	7%	-	-	-	-	-	-	-	-	-	-	-	-	-

Callan



City of Milwaukee Employees' Retirement System

2022 Work Plan

John Jackson, CFA
Senior Vice President

Mike Joecken
Senior Vice President

2022 Work Plan

February 10

- Hedge Fund of Fund Search Presentations (Finals)

April 14

- Asset Allocation Review
- Public Equity Structure Review – Phase I

June 9

- Real Estate Performance Review
- Public Equity Structure Review – Phase II

September 8

- Private Equity Pacing Review
- Infrastructure Opportunities Review

November 10

- Education: Callan Performance Reporting Overview

December 8

- Real Estate Performance and Structure Review

Callan



April 14, 2022

City of Milwaukee Employees' Retirement System

2022 Asset Allocation Review

John P. Jackson, CFA
Fund Sponsor Consulting

Michael Joecken
Fund Sponsor Consulting

Jim Van Heuit
Capital Markets Consulting

2022 Capital Markets Assumptions

Contents

Economic outlook

Asset class outlooks

- Equity
- Fixed income

Detailed 2022 Assumptions

- Returns
- Risks
- Correlations

Asset Allocation

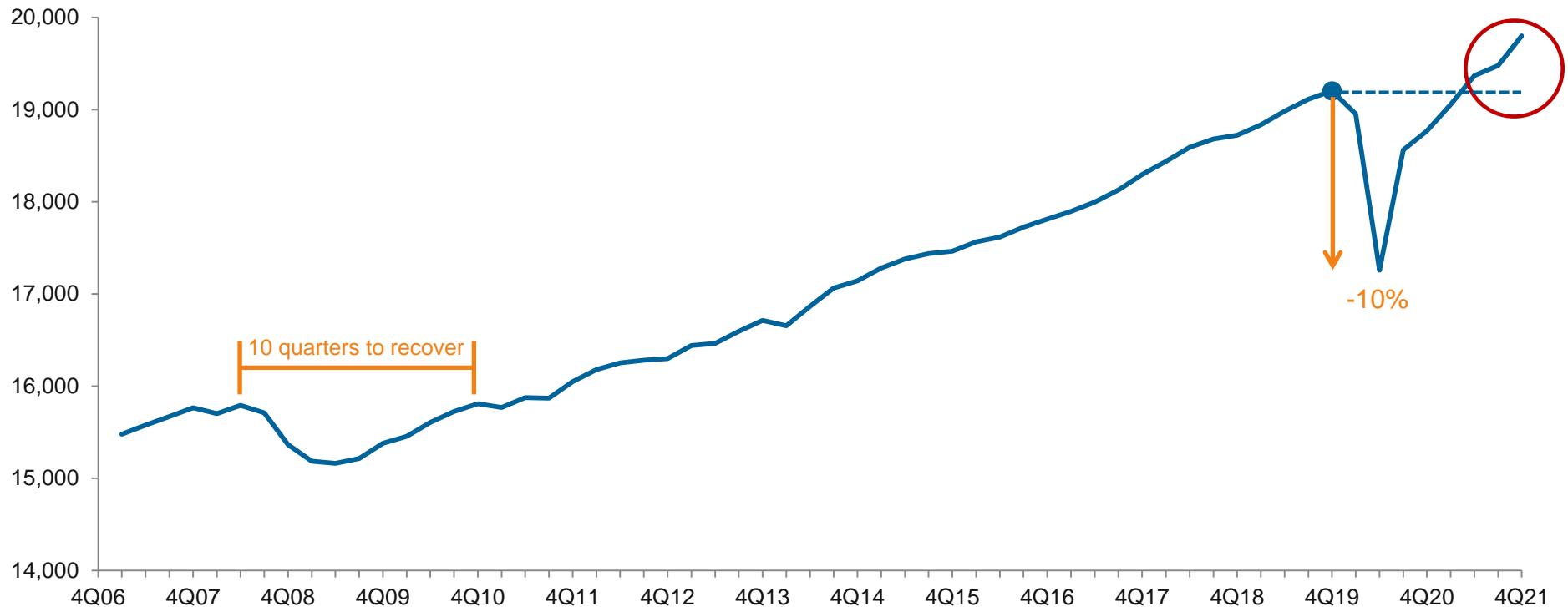
- Target and alternatives
- Ranges of returns

Callan

Economic Outlook

GDP Recovered Pre-Pandemic Level in 2Q21 After Deepest Drop in 75 Years

Seasonally Adjusted Real GDP in Billions of Dollars



After the Global Financial Crisis, it took 2.5 years before real GDP reclaimed its pre-recession highs.

- GFC peak to trough down 4%

2Q20 real GDP level was down over 10% from 4Q19.

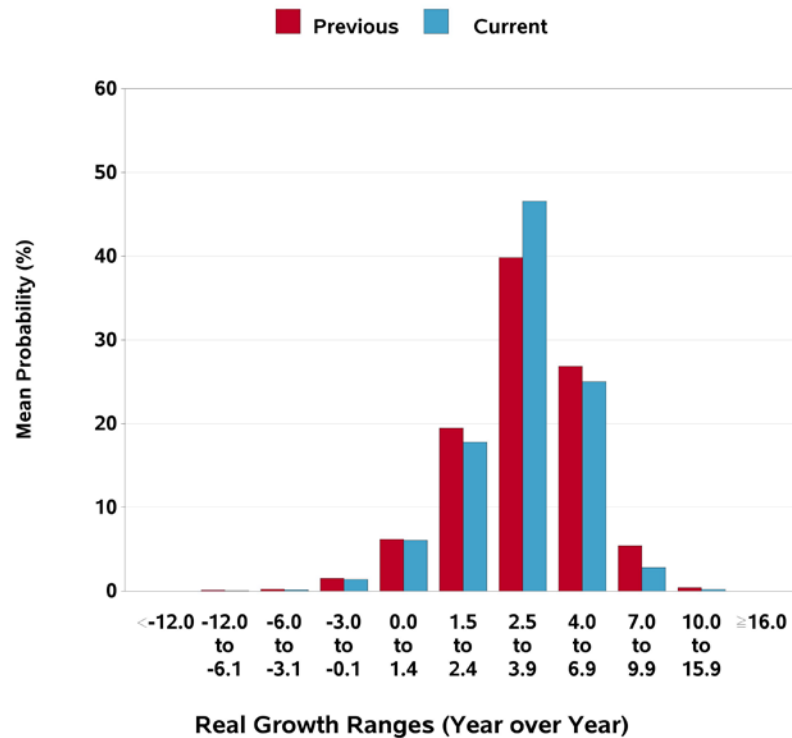
- Pre-pandemic peak level of GDP reached in 2Q21: \$19.368T vs. \$19.202T for 4Q19

2021 GDP grew at 5.7

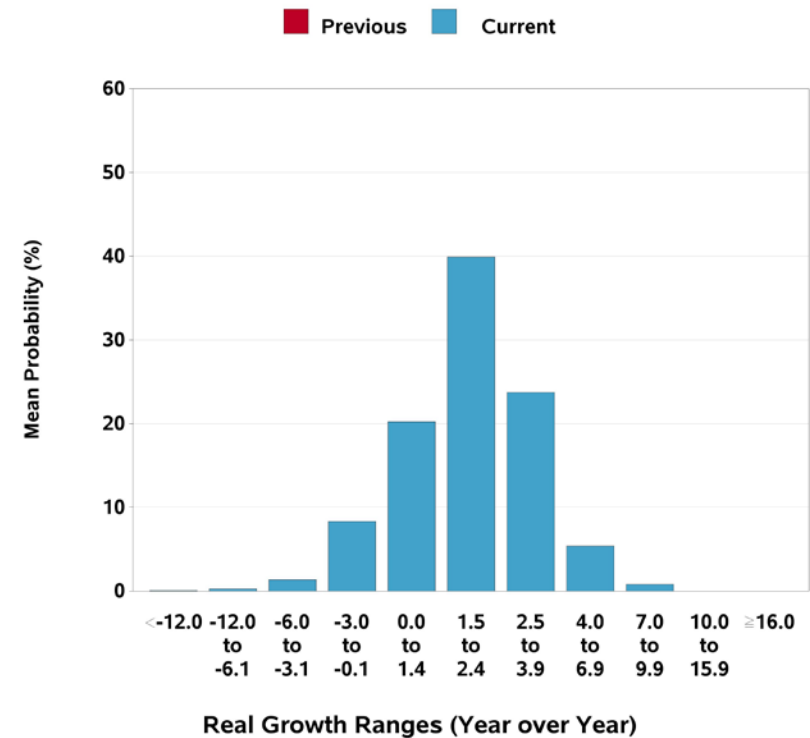
Source: Federal Reserve Bank of St. Louis

GDP Forecasts

Mean Probabilities for Real GDP Growth in 2022



Mean Probabilities for Real GDP Growth in 2025

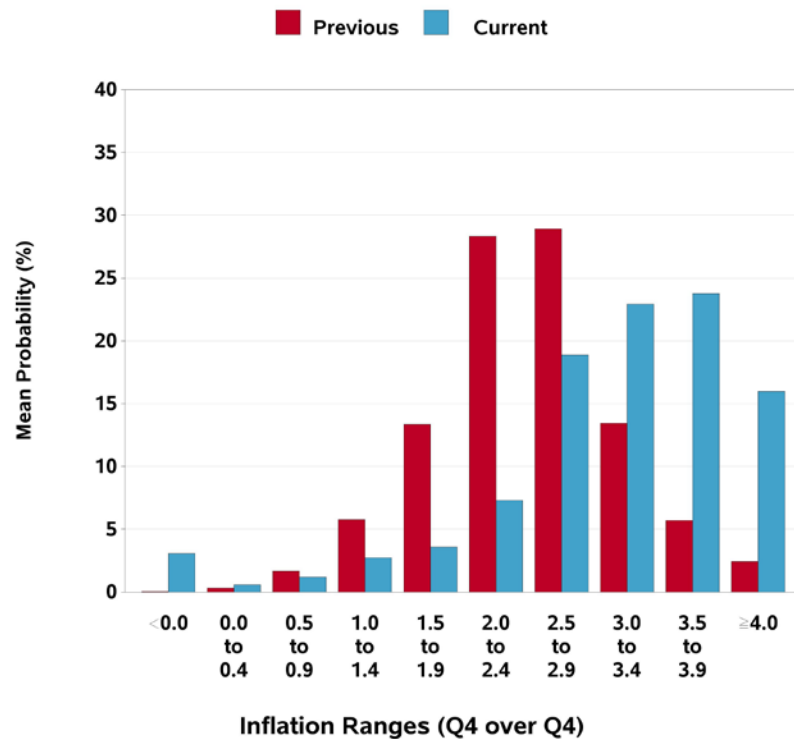


- 2022 real GDP forecasts coalescing in the 2.5% to 3.9% range
 - Probabilities for more extreme values declining, few forecast recession
- First round of forecasts for 2025 substantially more muted than for 2022
 - 1.5% to 2.4% growth is highest probability forecast
 - Probability of recession increases to about 10%

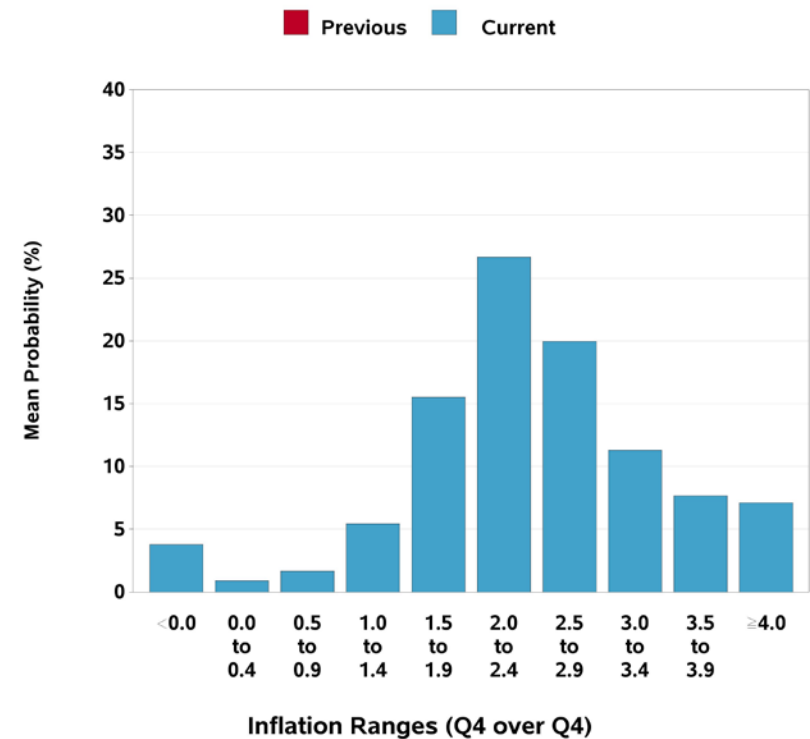
Source: Philadelphia Federal Reserve, Survey of Professional Forecasters

Inflation Forecasts

Mean Probabilities for Core PCE Inflation in 2022



Mean Probabilities for Core PCE Inflation in 2023

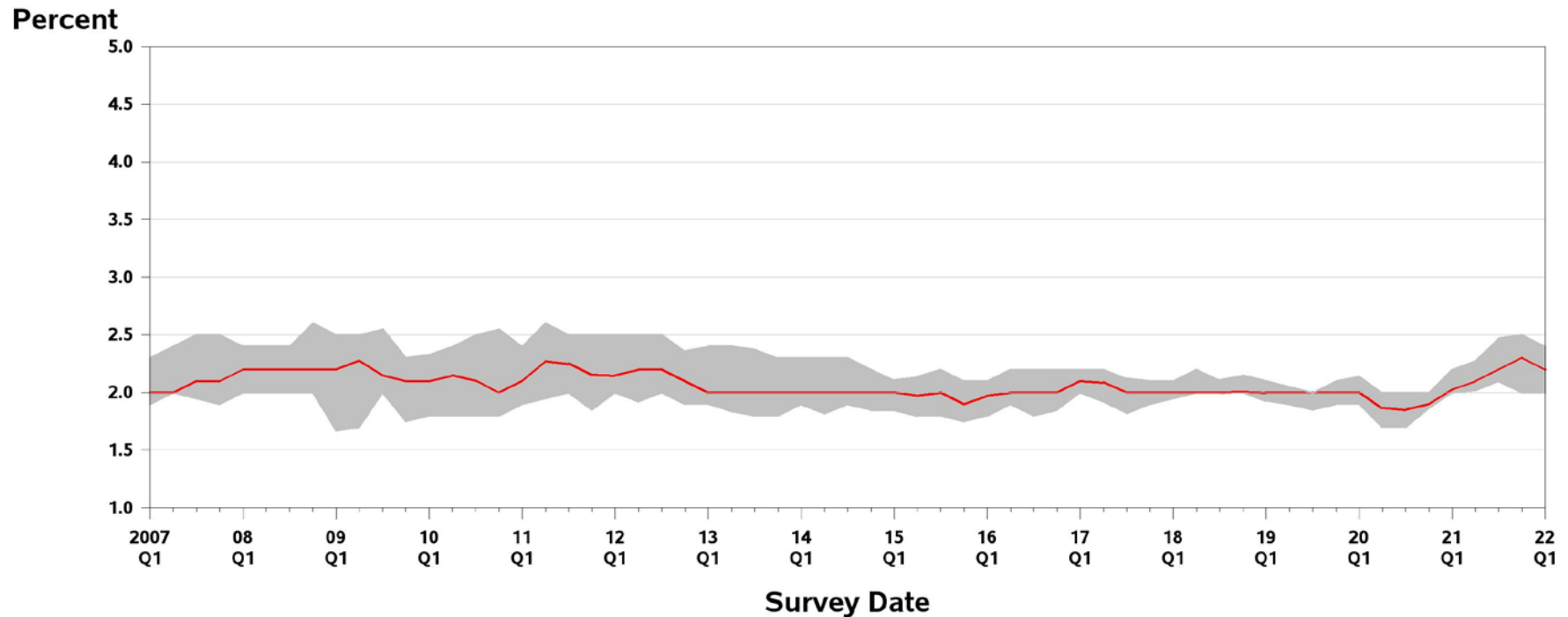


- 2022 inflation forecasts have risen substantially since the Q4 2021 survey
 - Inflation in the 3% to 3.9% range now forecast with almost 50% probability
- First round of forecasts for 2025 are lower than for 2022
 - 2.0% to 2.4% is the highest probability scenario
 - Still some bias to higher levels

Source: Philadelphia Federal Reserve, Survey of Professional Forecasters

Forecasts of Personal Consumption Expenditure (PCE) Inflation

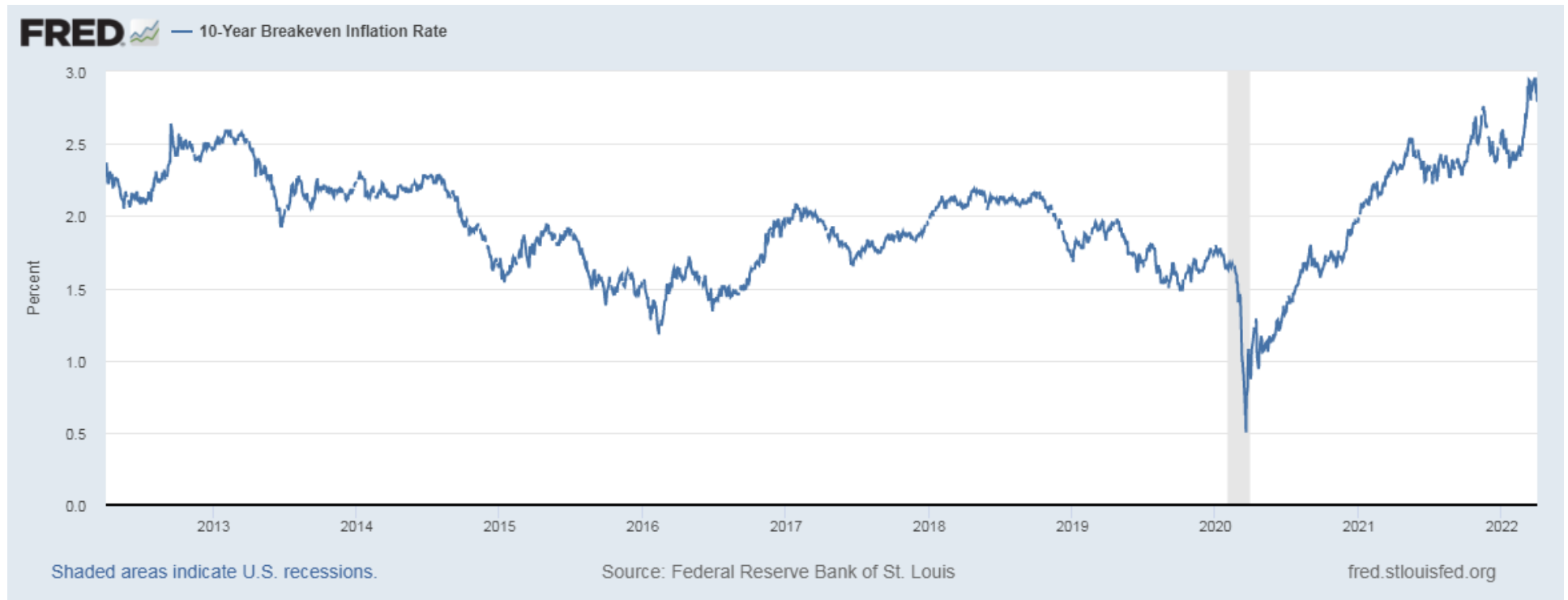
Projections for the 10-Year Annual-Average Rate of PCE Inflation (Median and Interquartile Range)



- 10-year PCE inflation forecasts below their highs in Q4 2021
- Longer term inflation expected to be higher than historical levels but well contained
- Interquartile range (forecast uncertainty) wider than recent years but narrower than periods near the Global Financial Crisis (GFC)

Sources: Philadelphia Federal Reserve, Survey of Professional Forecasters

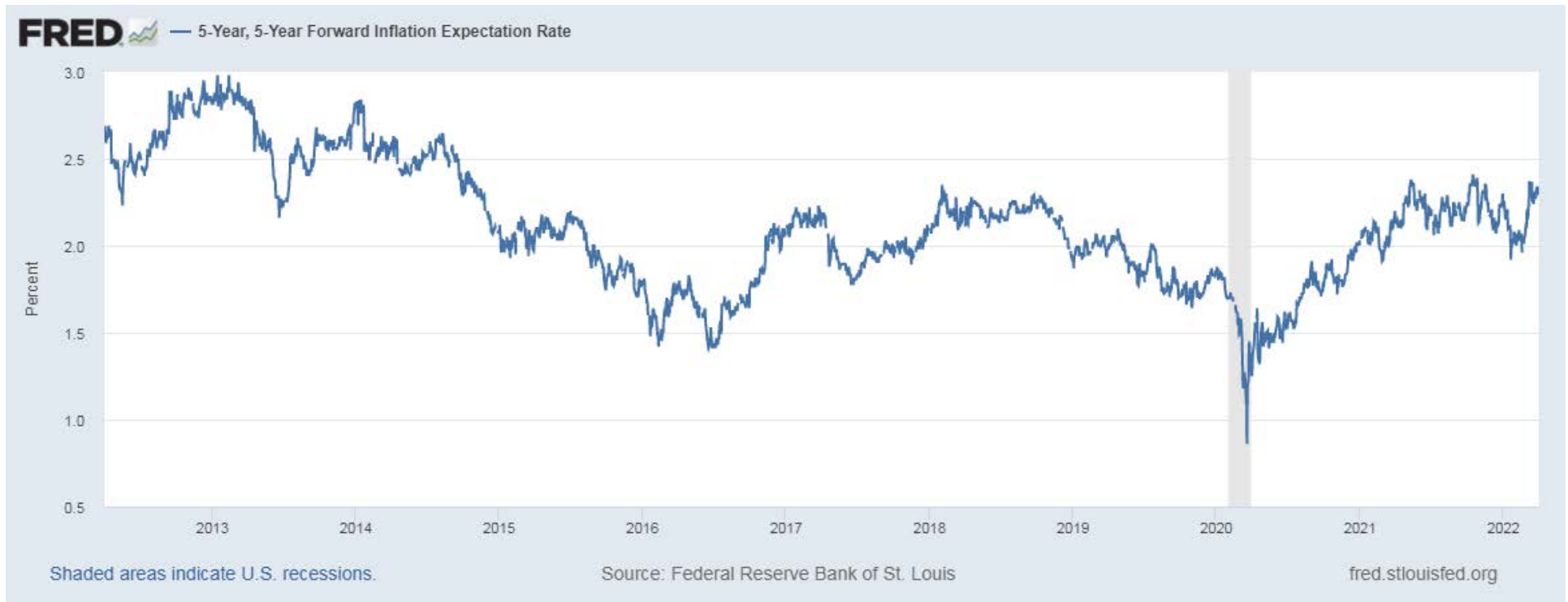
10-Year Breakeven Rate



- 10-year breakeven inflation rate is the difference in yield between the nominal 10-year Treasury and the 10-year Treasury Inflation Protected Security (TIPS)
 - Extra yield nominal Treasury would have to earn to maintain the same purchasing power as a TIPS investment
- Current values of implied inflation are approaching 3%
 - Includes current high levels of inflation

Sources: Federal Reserve Bank of St. Louis

5-Year, 5-Year Forward Rate

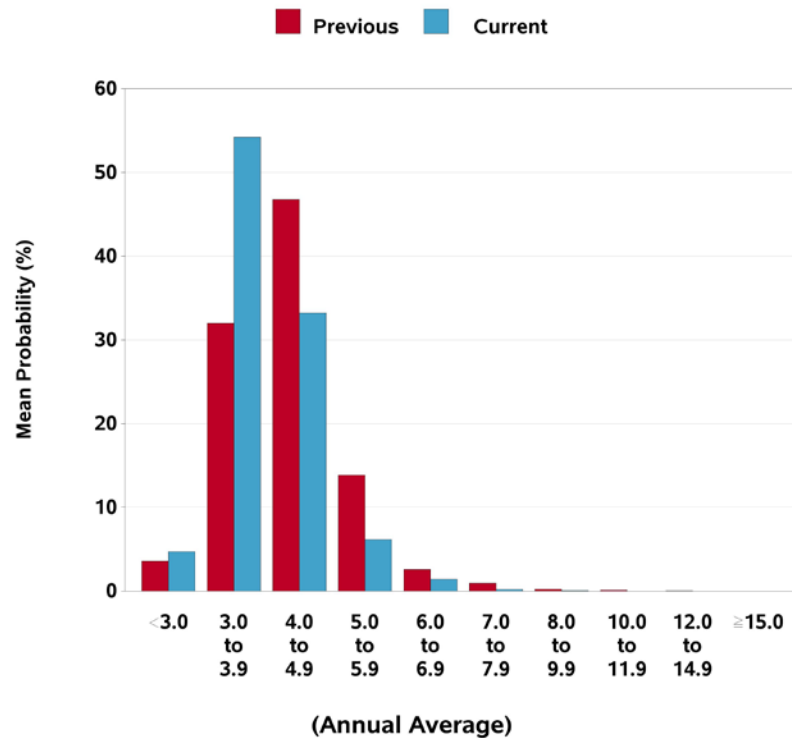


- The 5-Year, 5-year forward rate is the bond market's estimate of the 5-year inflation rate 5 years from now
 - Excludes current high levels of inflation
- The market expects that inflation for the years 2027 through 2031 will be less than 2.5%

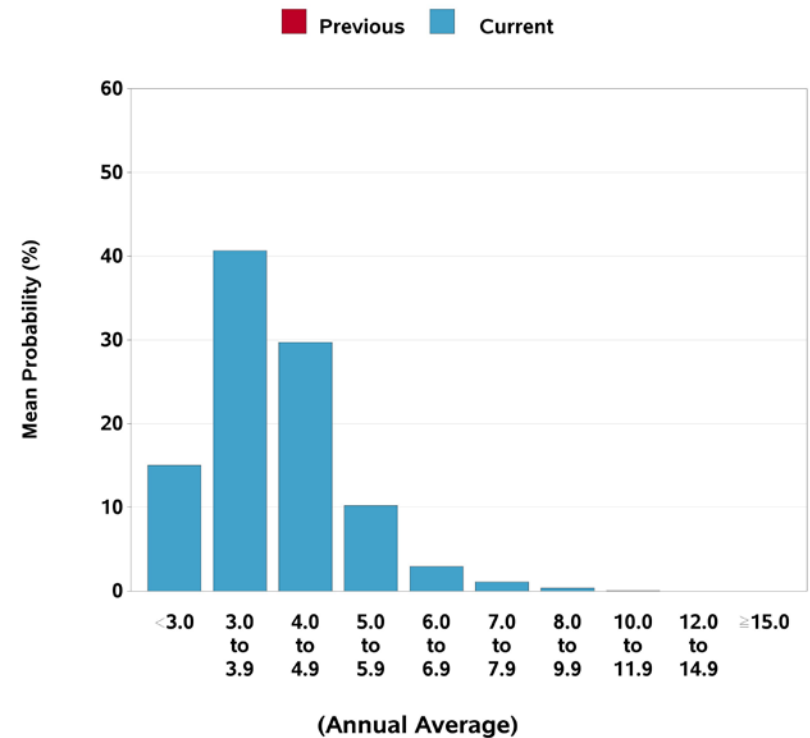
Sources: Federal Reserve Bank of St. Louis

Inflation Forecasts

Mean Probabilities for Unemployment Rate in 2022



Mean Probabilities for Unemployment Rate in 2025



- The biggest threat to subdued inflation is a wage-price spiral
- Consumers' inflation expectations become "unanchored" to low inflation rates
- Demand for higher wages to compensate for expected higher prices could be successful due to tight labor markets
 - Exhibits above show low forecast unemployment rates strengthening workers' bargaining power

Source: Philadelphia Federal Reserve, Survey of Professional Forecasters

Regular Gas and Inflation Expectations



- Anecdotal evidence suggests that consumers' inflation expectations are driven but their most frequent, visible transactions
 - Prices for goods and services purchased regularly more important than those purchased periodically
 - High visibility prices most important
- Gas has a strong influence on inflation expectations since it's price is very visible and it is purchased often

Sources: US Energy Information Administration, Federal Reserve Bank of St. Louis

Economic Outlook

Role of economic variables

GDP and inflation

- GDP forecasts provide a very rough estimate of future earnings growth
- Inflation forecasts provide an approximate path for short-term yields
- Inflation is added to the real return forecasts for equity and fixed income

GDP forecasts

- 2% to 2.5% for the U.S.
- 1.5% to 2.0% for developed ex-U.S. markets
- 4% to 5% for emerging markets
- All forecasts are below long-term averages
- Path to longer-term growth will include cycles with recessions

Inflation forecasts

- 2.0% to 2.5% for the U.S.
- 1.75% to 2.25% for developed ex-U.S. markets
- 2.40% to 2.90% for emerging markets

Asset Class Outlooks

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Fixed Income

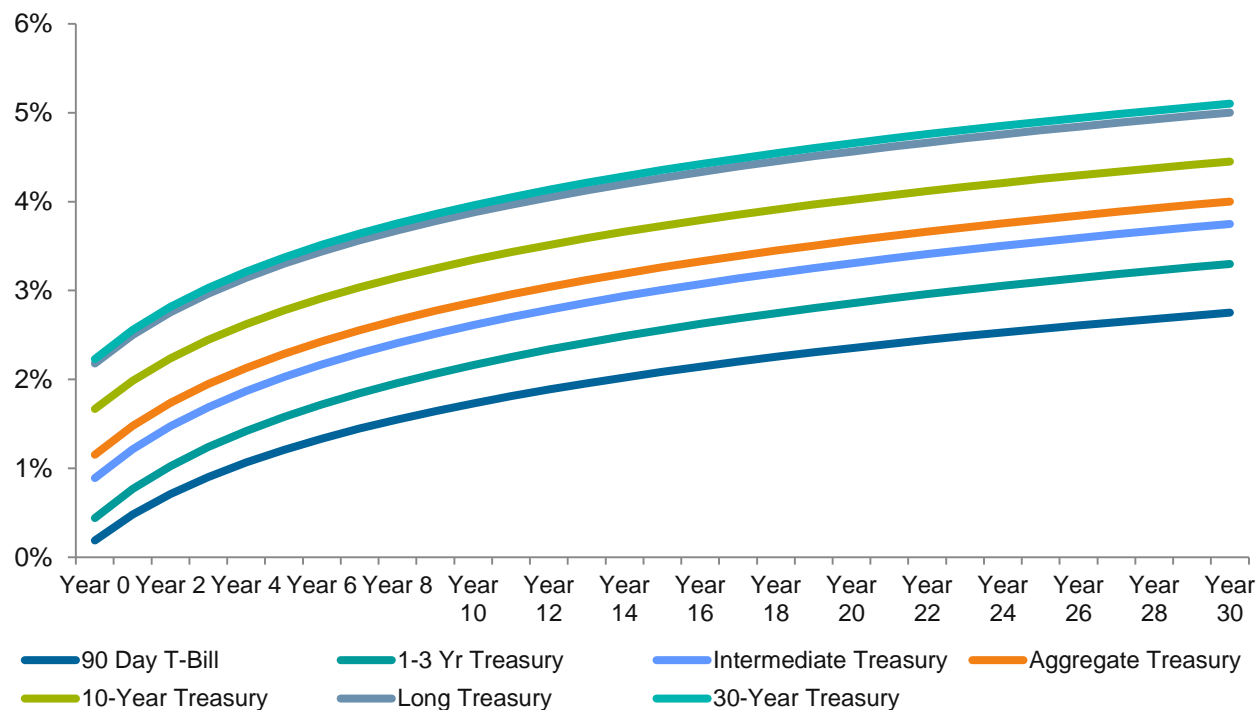
10-Year Expected Returns

10-Year Projections

	Income Return	+	Capital Gain/Loss	+	Credit Default	+	Roll Return	=	2022 Expected Return	2021 Expected Return	Change
Cash	1.20%		0.00%		0.00%		0.00%		1.20%	1.00%	0.20%
Short Duration 1-3 Year G/C	1.65%		-0.40%		0.00%		0.25%		1.50%	1.50%	0.00%
1-3 Year Government	1.55%		-0.40%		0.00%		0.25%		1.40%		
1-3 Year Credit	2.15%		-0.50%		-0.10%		0.25%		1.80%		
Intermediate G/C	2.35%		-0.80%		-0.10%		0.25%		1.70%	1.50%	0.20%
Intermediate Government	2.05%		-0.80%		0.00%		0.25%		1.50%		
Intermediate Credit	2.95%		-1.00%		-0.20%		0.25%		2.00%		
Aggregate	2.90%		-1.30%		-0.10%		0.25%		1.75%	1.75%	0.00%
Government	2.25%		-1.20%		0.00%		0.25%		1.30%		
Securitized	2.55%		-0.90%		0.00%		0.25%		1.90%		
Credit	3.85%		-1.80%		-0.30%		0.25%		2.00%		
Long Duration G/C	4.25%		-2.85%		-0.20%		0.60%		1.80%	1.80%	0.00%
Long Government	3.30%		-2.80%		0.00%		0.60%		1.10%		
Long Credit	4.70%		-2.90%		-0.30%		0.60%		2.10%		
TIPS	2.50%		-1.50%		0.00%		0.25%		1.25%	1.70%	-0.45%
Non-U.S. Fixed (unhedged)	2.15%		-1.50%		-0.10%		0.25%		0.80%	0.75%	0.05%
High Yield	6.95%		-1.30%		-2.00%		0.25%		3.90%	4.35%	-0.45%
Emerging Market Debt	6.05%		-1.40%		-1.30%		0.25%		3.60%	3.50%	0.10%
Bank Loans	6.50%		-0.30%		-1.60%		0.00%		4.60%	4.30%	0.30%

Yield Curve Path

Smoothed Yield Curve Paths



	Long Term Premium	Final Yield	Premium Over
Inflation	0.00%	2.25%	N/A
90 Day T-Bill	0.50%	2.75%	Inflation
TIPS	1.50%	4.25%	Cash
1-3 Year Treasury	0.55%	3.30%	
Intermediate Treasury	1.00%	3.75%	
Aggregate Treasury	1.25%	4.00%	
10-Year Treasury	1.70%	4.45%	
Long Treasury	2.25%	5.00%	
30-Year Treasury	2.35%	5.10%	

We updated the bond model this year to extend our yield forecast horizon over 30 years.

- Allows for a longer-term view on reversion to equilibrium rates, durations, convexity, and spreads.
- We used a smoothing approach where yields rise faster early in the horizon and reach equilibrium at year 30.

Cash at the end of the 30-year horizon is 2.75%.

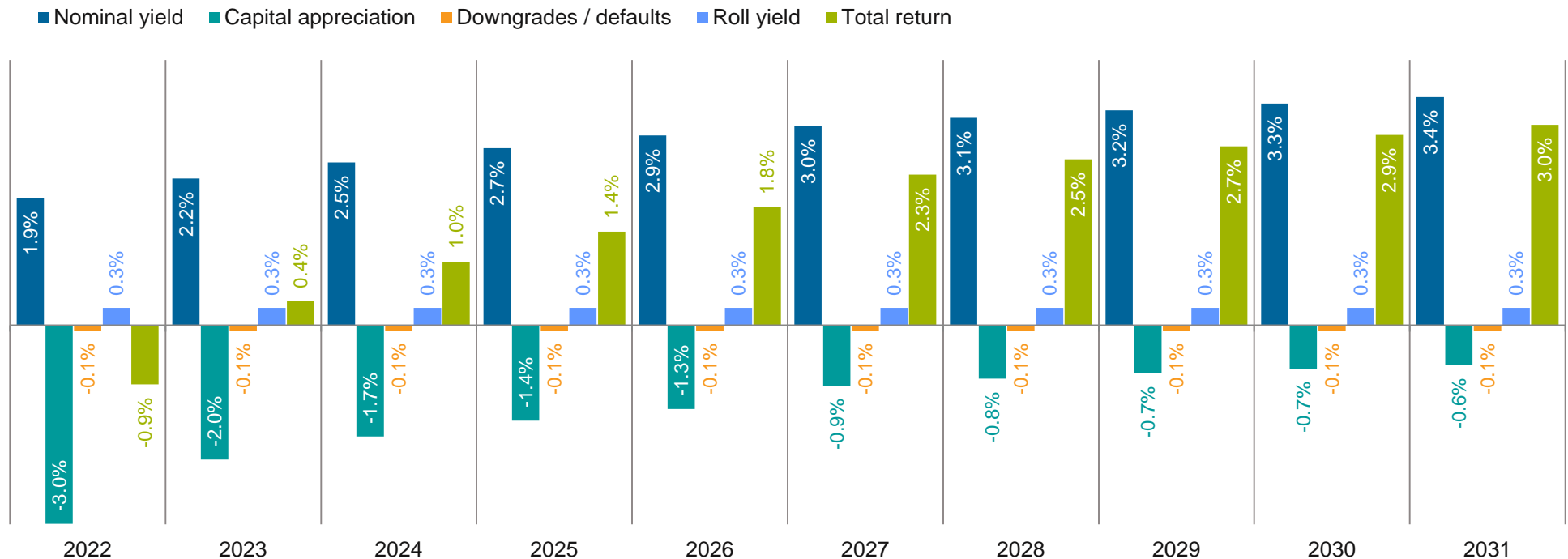
- Reflects a 50 basis point premium over projected inflation, which is consistent with long-term U.S. interest rate history.

Term premiums are consistent with long-term historical medians.

- For example, in Year 30 the 10-Year Treasury yield is 4.45%, or 1.70% above cash.

Core Fixed Income Return Components

Total Return Attribution

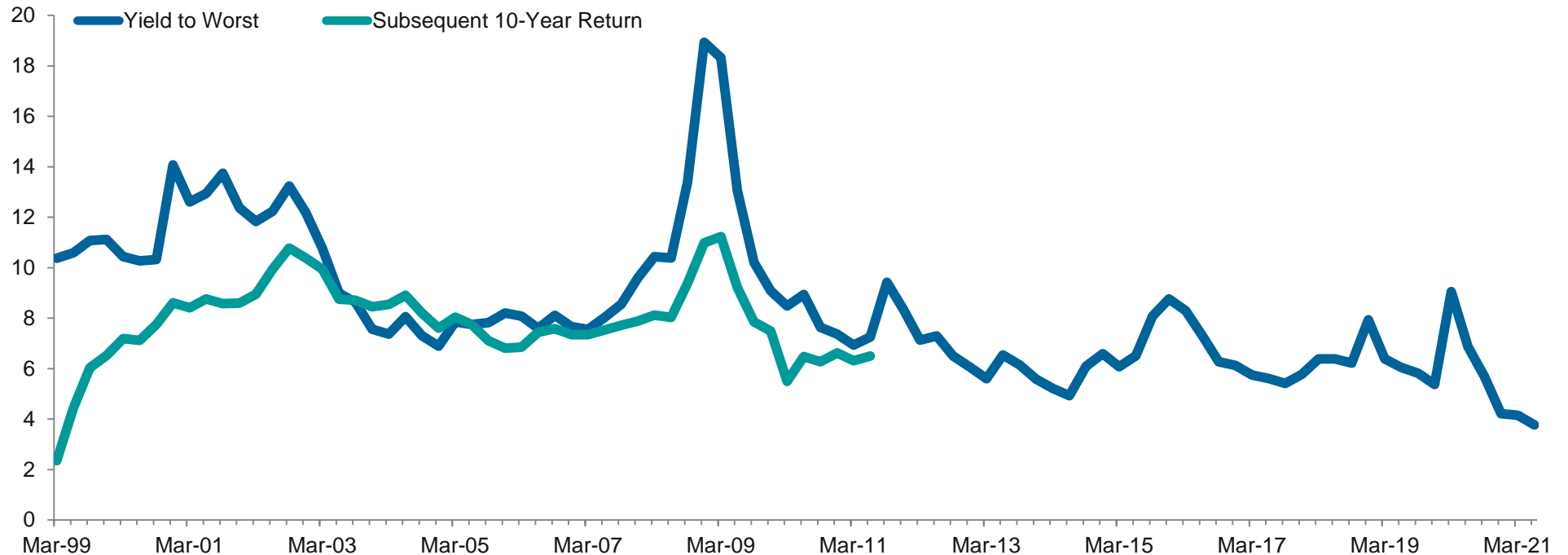


Higher yields relative to last year are offset by capital losses from our rising rate projection.

- We project rates to rise faster early in the forecast, leading to larger capital losses and lower total returns.
- As rates stabilize, the carry from yield outweighs capital losses, leading to positive total returns.

Key Assumption Changes for 2022: High Yield

High yield starting yield vs. forward 10-year return



- There have only been a few periods where the subsequent 10-year return beat the starting yield.
- The performance gap represents downgrade and default drag.
- Our high yield projection reflects this relationship, with the starting yield acting as a constraint on our return expectation.

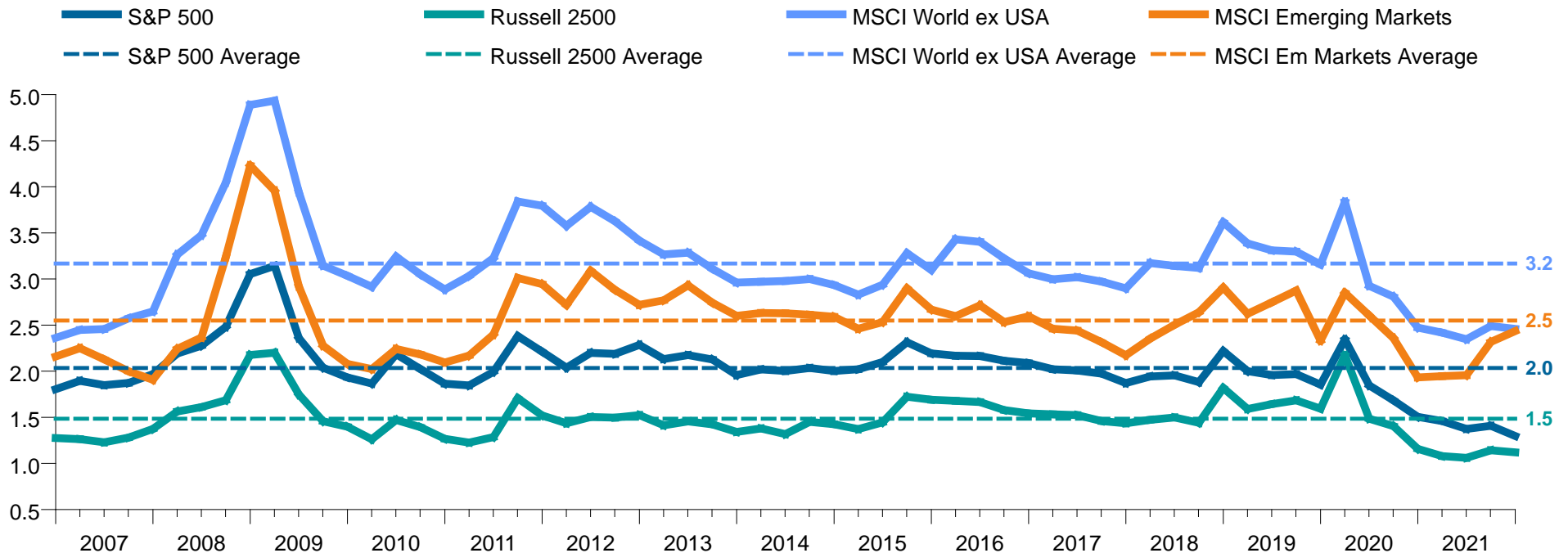
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Equity

U.S. Equity Assumptions

Dividend yields

Dividend Yield for 15 Years Ended December 31, 2021



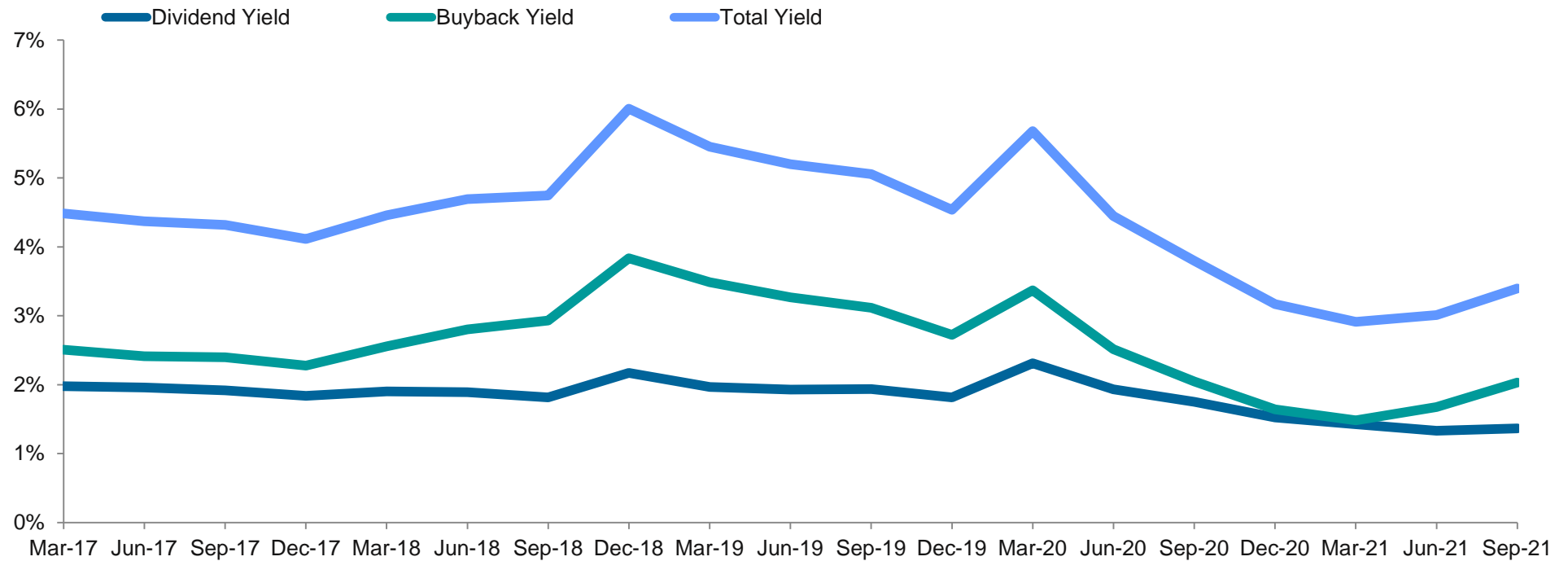
- COVID-19 caused a decline in yields around the world.
- Yields have turned up but have still not reached their pre-pandemic levels.
- Forecast yields are expected to return to approximately their longer-term averages.

Sources: MSCI, Russell, Standard & Poor's

U.S. Equity Assumptions

Return of cash

S&P 500



S&P 500 dividend and buyback yields declined in 2020.

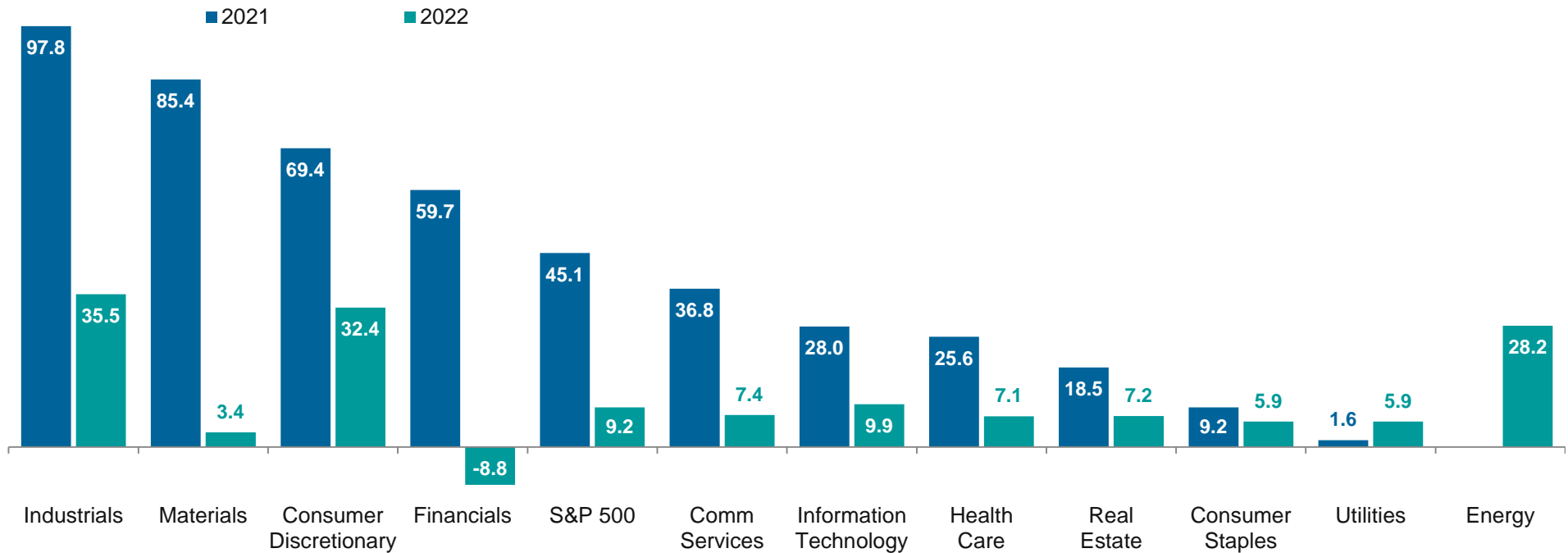
- Dollar value of dividends stalled.
- Dollar value of buybacks dropped significantly at the onset of the pandemic but recovered to near pre-pandemic levels.
- Price appreciation was the major cause of declines in yields.

Source: Standard & Poor's

U.S. Equity Assumptions

Current earnings growth

Percent S&P 500 Earnings Growth



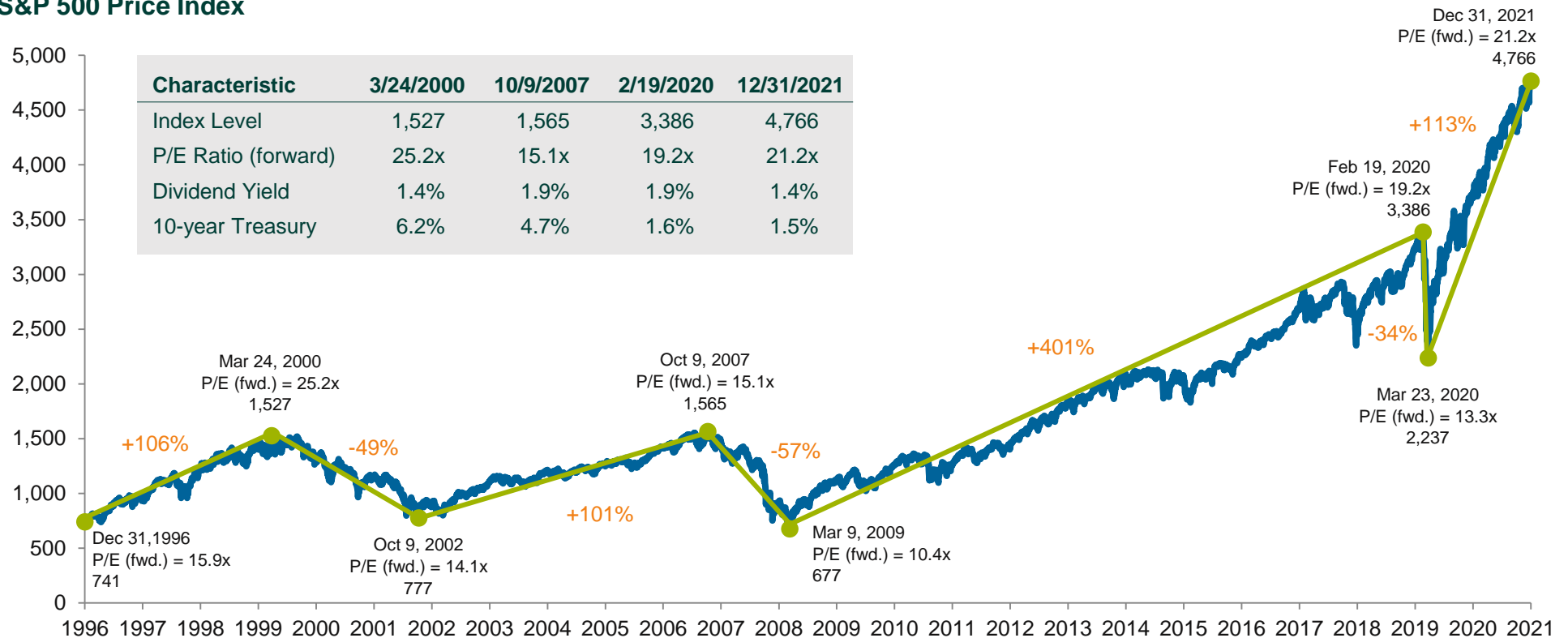
- Projections are as of December 2021.
- Earnings growth for 2021 continues to surprise on the upside.
- The magnitude of that growth was due to poor earnings in 2020 as well as demand from the economy's reopening.
- Projected earnings growth for 2021 is likely to outpace return, which was 29% for 2021.
 - Keeps backward-looking P/E in line

Source: FactSet, Standard & Poors

U.S. Equity Assumptions

Price appreciation

S&P 500 Price Index



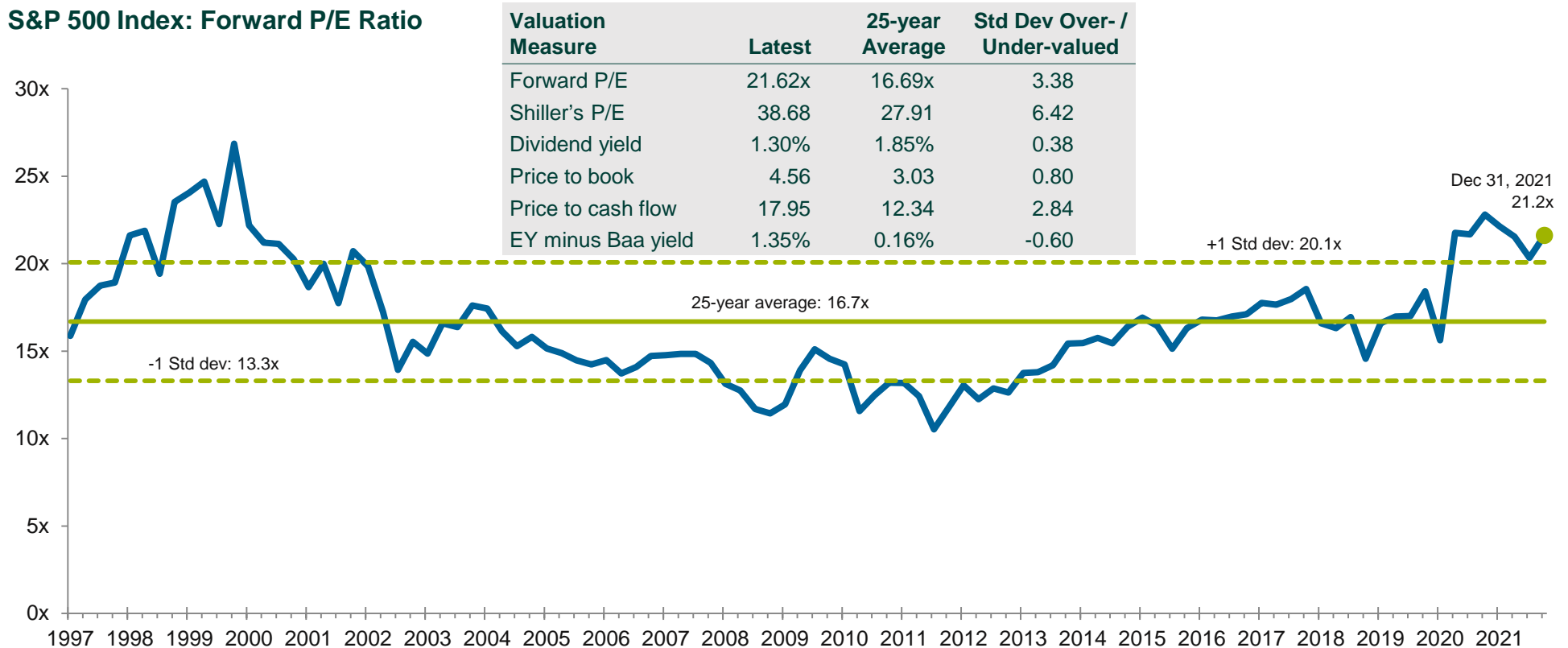
- The S&P has more than doubled since the pandemic low.
- Appreciation has outpaced forward earnings estimates and valuations have increased above pre-pandemic levels.

Source: Federal Reserve, Standard & Poor's

U.S. Equity Assumptions

Large cap valuations

S&P 500 Index: Forward P/E Ratio



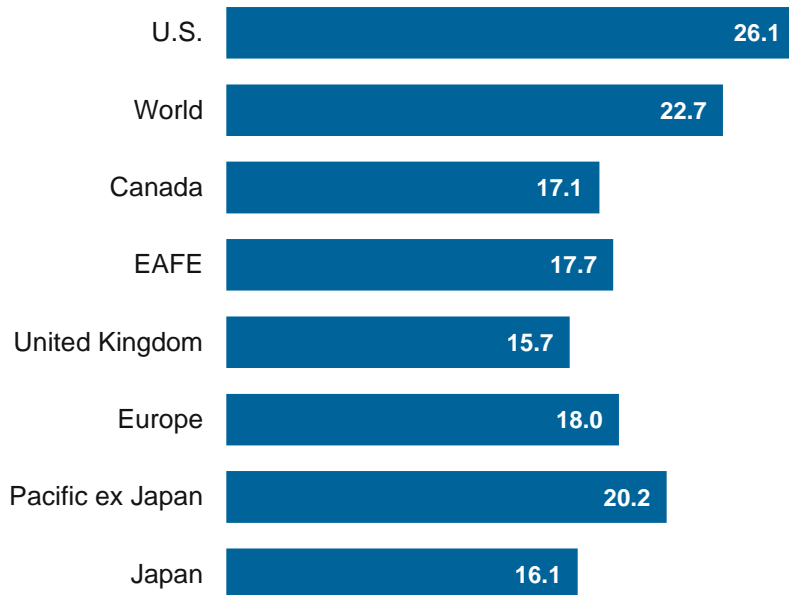
- All valuation measures in excess of one standard deviation above 25-year averages.
- Forward P/E has stalled even with exceptional forecast returns for 2022.
- Return to more normal earnings growth in future years limits price appreciation without further valuation expansion.

Source: FactSet, FRB, Robert Shiller, Standard & Poor's, Thomson Reuters, J.P. Morgan Asset Management

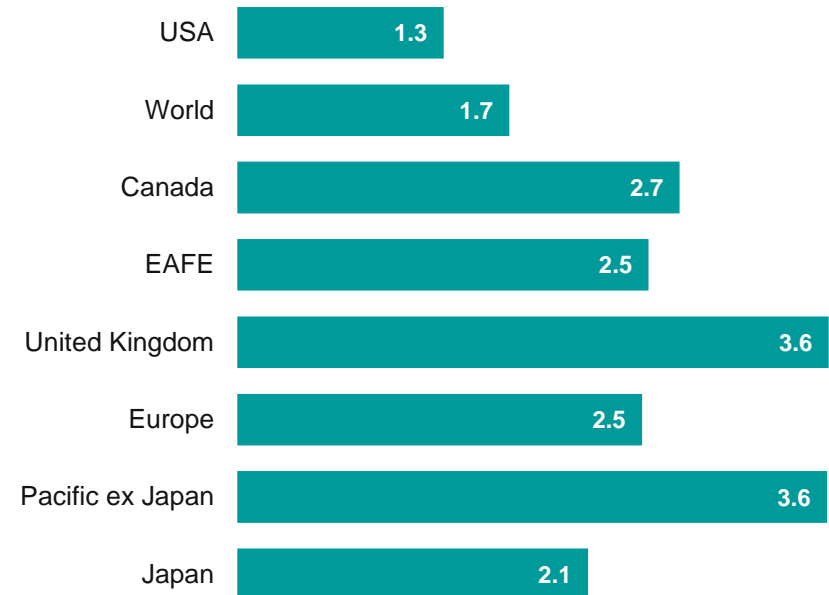
Global ex-U.S. Equity Assumptions

Developed markets valuations and dividend yield

Price Earnings Ratio



Dividend Yield



Valuations are generally high in developed markets.

- Valuations have changed only modestly over the past year.
- U.S. continues to have the highest valuations.

Low dividend yields have a direct impact on returns.

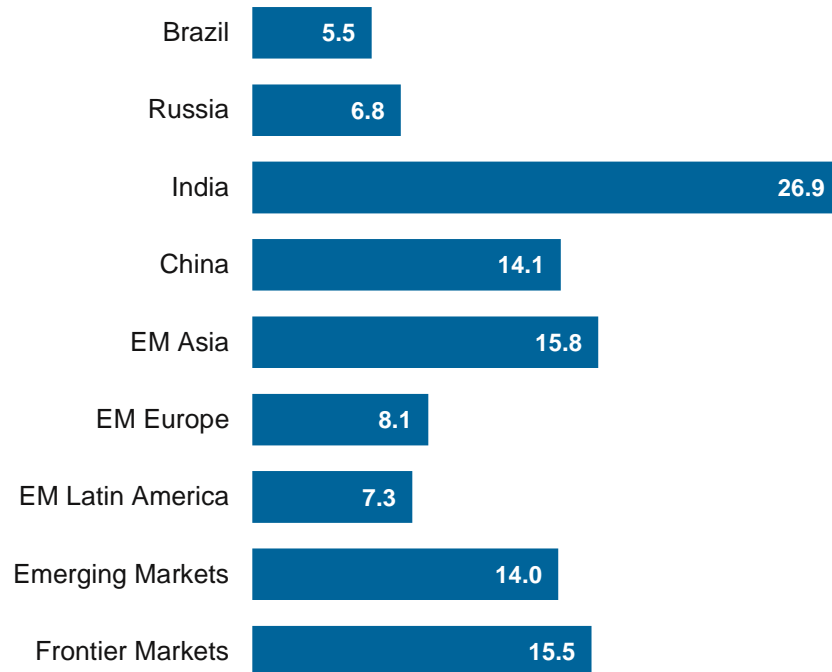
- Dividend yields have generally stayed the same or fallen since last year.

Source: MSCI (Dec. 31, 2021)

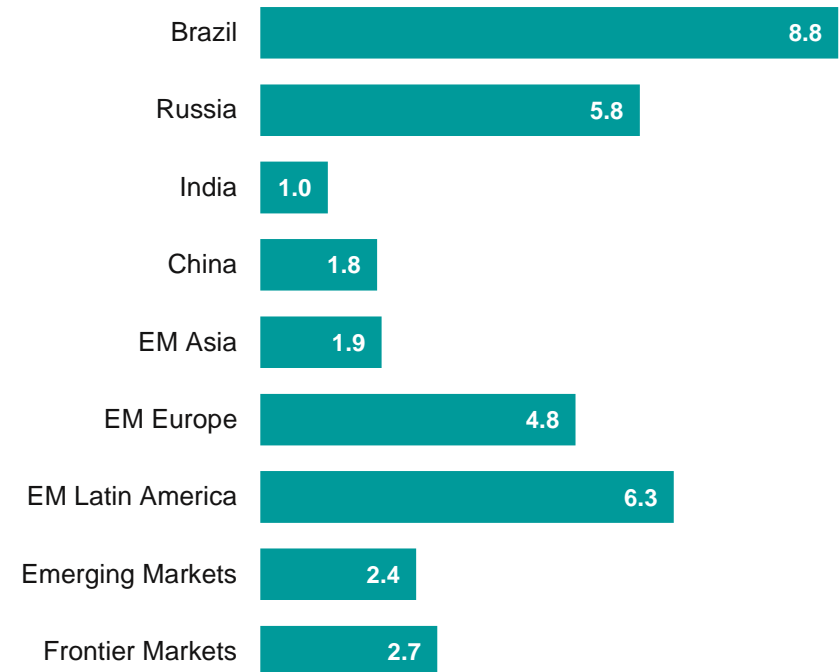
Global ex-U.S. Equity Assumptions

Emerging markets valuations and dividend yield

Price Earnings Ratio



Dividend Yield



Emerging markets also have elevated valuations.

- Among the BRICs, India has the highest valuation metrics while Brazil has fallen dramatically.
- Asia has the highest regional valuations, Latin America the lowest.

Significant dilution is realized as growing companies issue more shares.

Source: MSCI (Dec. 31, 2021)

Public Equity Assumptions

Index	Current Dividend Yield*	Forecasts Dividend Yield	Net Buyback Yield	Inflation	Real Earnings Growth**	Valuation Adjustment	Total Geometric Return	2021 Return	Change
S&P 500	1.35%	1.75%	0.50%	2.25%	2.25%	-0.25%	6.50%	6.50%	0.00%
Russell 2500	1.17%	1.50%	0.00%	2.25%	2.95%	0.00%	6.70%	6.70%	0.00%
Russell 3000	1.24%	1.70%	0.45%	2.25%	2.35%	-0.20%	6.55%	6.60%	-0.05%
MSCI World ex USA	2.53%	2.75%	0.00%	2.00%	1.75%	0.00%	6.50%	6.50%	0.00%
MSCI Emerging Markets	2.38%	2.10%	-2.10%	2.65%	4.25%	0.00%	6.90%	6.90%	0.00%
Aggregate							1.75%	1.75%	0.00%
Cash							1.20%	1.00%	0.20%

Index	Forecast ERP Cash^	Historical ERP Cash	Delta ERP Cash	Forecast ERP Aggregate	Historical ERP Aggregate^^	Delta ERP Aggregate
S&P 500	5.30%	7.62%	-2.32%	4.75%	4.80%	-0.05%
Russell 2500	5.50%	8.04%	-2.54%	4.95%	5.21%	-0.26%

No changes in public equity projections

- Change in Russell 3000 projection due to a difference in rounding
- 25 bps increase in inflation is offset by a 25 bps decrease in dividend yields

* Index yields as of December 31, 2021

** S&P 500 real earnings growth is forecast real GDP growth. R 2500 real earnings growth is an 70 bps spread over S&P 500. Developed and emerging markets earnings growth in line with their respective GDP assumptions.

^ Assumes cash return of 1.2%.

^^ Assumes Aggregate forecast is 1.75%.

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Detailed 2022 Assumptions

Risk and Returns

2022 - 2031

		2022-2031		2021-2030		Change	
Asset Class	Index	10-Year Returns	Standard Deviation	10-Year Geometric*	Standard Deviation	Geometric* Delta	Std Dev Delta
Equities							
Global Equity	55% US Equity / 45% Non-US Equity	6.85%	18.25%	6.85%	18.25%	0.00%	0.00%
Large Cap U.S. Equity	S&P 500	6.50%	17.70%	6.50%	17.70%	0.00%	0.00%
Small/Mid Cap U.S. Equity	Russell 2500	6.70%	21.30%	6.70%	21.20%	0.00%	0.10%
Developed ex-U.S. Equity	MSCI World ex USA	6.50%	19.90%	6.50%	19.70%	0.00%	0.20%
Emerging Market Equity	MSCI Emerging Markets	6.90%	25.15%	6.90%	25.70%	0.00%	-0.55%
Private Equity	Cambridge Private Equity	8.00%	27.60%	8.00%	27.80%	0.00%	-0.20%
Fixed Income							
CMERS Fixed Income	62.5% Aggregate / 37.5% High Yield	2.70%	4.65%	2.95%	4.55%	-0.25%	0.10%
Core U.S. Fixed	Bloomberg Aggregate	1.75%	3.75%	1.75%	3.75%	0.00%	0.00%
High Yield	Bloomberg High Yield	3.90%	10.75%	4.55%	10.25%	-0.65%	0.50%
Cash Equivalents	90-Day T-Bill	1.20%	0.90%	1.00%	0.90%	0.20%	0.00%
Real Assets							
Core Real Estate	NCREIF ODCE	5.75%	14.20%	5.30%	14.00%	0.45%	0.20%
CMERS Real Assets	50% Large Cap / 35% TIPS / 15% Com	4.60%	10.05%	4.55%	9.95%	0.05%	0.10%
TIPS	Bloomberg TIPS	1.25%	5.05%	1.55%	5.05%	-0.30%	0.00%
Commodities	Bloomberg Commodity	2.50%	18.00%	1.50%	18.00%	1.00%	0.00%
Absolute Return							
Hedge Funds	Callan Hedge FoF Database	4.10%	8.20%	2.80%	4.95%	1.30%	3.25%
Inflation	CPI-U	2.25%	1.60%	2.25%	1.50%	0.00%	0.10%

* Geometric returns are derived from arithmetic returns and the associated risk (standard deviation).

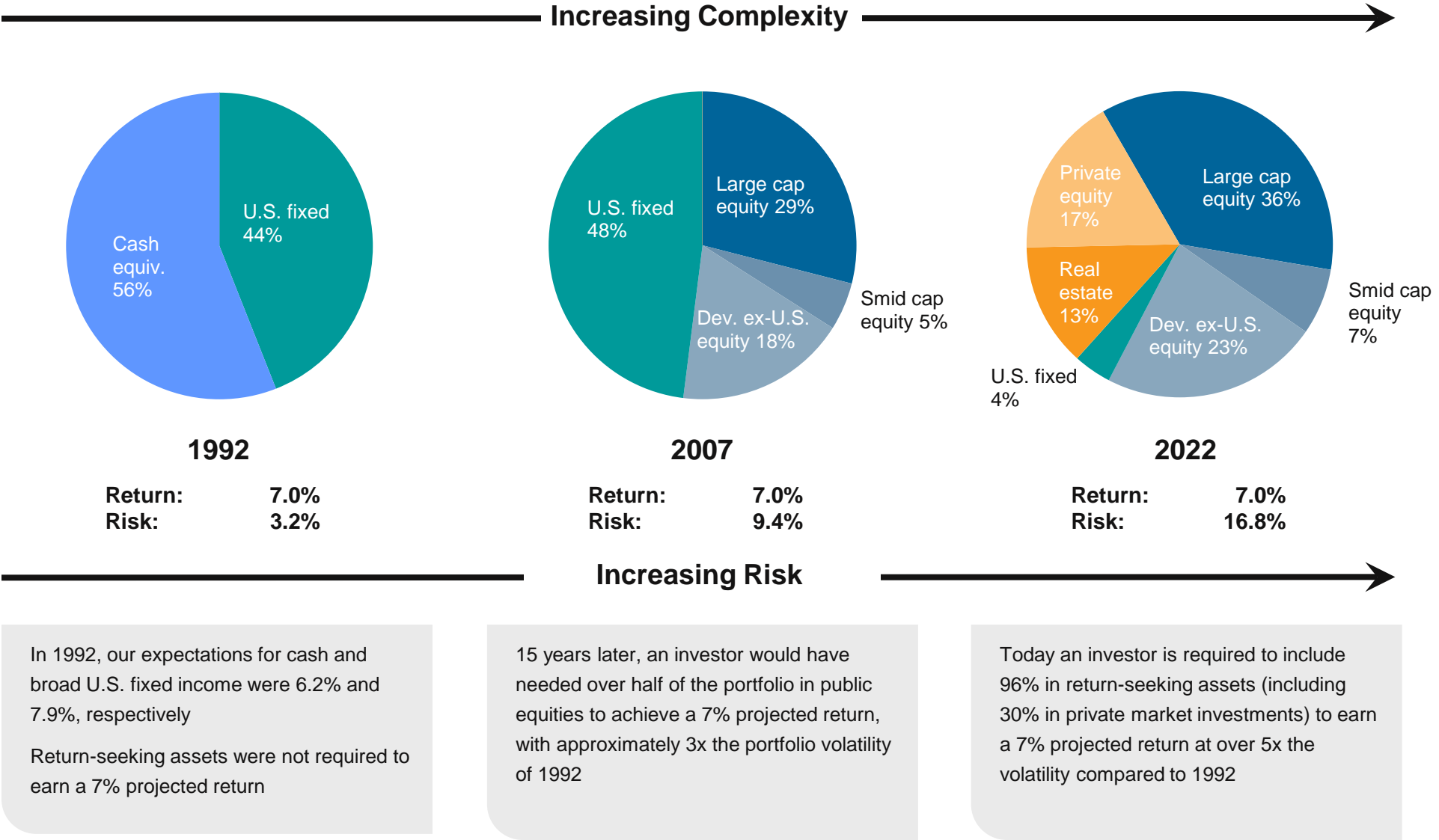
- Capital market expectations represent passive exposure (beta only) with the exception of privately-traded classes
- All return projections are net of fees
- Limited changes in forecasts between 2021 and 2022 for most major asset classes
 - Significant changes for high yield, TIPS, core real estate and commodities

Correlations

2022 - 2031

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1 Global Equity	1.000	0.947	0.913	0.925	0.897	0.803	0.590	-0.118	0.749	-0.088	0.655	0.899	-0.089	0.295	0.820	-0.001
2 Large Cap US Equity	0.947	1.000	0.900	0.770	0.790	0.770	0.566	-0.099	0.711	-0.060	0.640	0.944	-0.075	0.280	0.790	-0.020
3 Small/Mid Cap US Equity	0.913	0.900	1.000	0.770	0.760	0.731	0.524	-0.120	0.675	-0.080	0.595	0.852	-0.082	0.270	0.740	0.020
4 Developed ex-US Equity	0.925	0.770	0.770	1.000	0.840	0.734	0.544	-0.106	0.690	-0.100	0.595	0.737	-0.085	0.270	0.745	0.000
5 Emerging Market Equity	0.897	0.790	0.760	0.840	1.000	0.715	0.523	-0.140	0.685	-0.100	0.560	0.752	-0.100	0.270	0.738	0.030
6 Private Equity	0.803	0.770	0.731	0.734	0.715	1.000	0.414	-0.190	0.589	0.000	0.500	0.717	-0.140	0.234	0.568	0.060
7 CMERS Fixed	0.590	0.566	0.524	0.544	0.523	0.414	1.000	0.500	0.864	-0.020	0.437	0.590	0.398	0.080	0.622	-0.083
8 Core US Fixed	-0.118	-0.099	-0.120	-0.106	-0.140	-0.190	0.500	1.000	-0.004	0.150	-0.035	0.008	0.695	-0.100	0.130	-0.250
9 High Yield	0.749	0.711	0.675	0.690	0.685	0.589	0.864	-0.004	1.000	-0.110	0.525	0.677	0.055	0.150	0.643	0.050
10 Cash Equivalents	-0.088	-0.060	-0.080	-0.100	-0.100	0.000	-0.020	0.150	-0.110	1.000	0.000	-0.037	0.120	-0.020	-0.040	0.050
11 Core Real Estate	0.655	0.640	0.595	0.595	0.560	0.500	0.437	-0.035	0.525	0.000	1.000	0.617	-0.020	0.210	0.450	0.100
12 CMERS Real	0.899	0.944	0.852	0.737	0.752	0.717	0.590	0.008	0.677	-0.037	0.617	1.000	0.137	0.534	0.774	0.075
13 TIPS	-0.089	-0.075	-0.082	-0.085	-0.100	-0.140	0.398	0.695	0.055	0.120	-0.020	0.137	1.000	0.100	0.085	0.080
14 Commodities	0.295	0.280	0.270	0.270	0.270	0.234	0.080	-0.100	0.150	-0.020	0.210	0.534	0.100	1.000	0.230	0.290
15 Hedge Funds	0.820	0.790	0.740	0.745	0.738	0.568	0.622	0.130	0.643	-0.040	0.450	0.774	0.085	0.230	1.000	0.150
16 Inflation	-0.001	-0.020	0.020	0.000	0.030	0.060	-0.083	-0.250	0.050	0.050	0.100	0.075	0.080	0.290	0.150	1.000

7% Expected Returns Over Past 30 Years



Source: Callan

Asset Allocation

Alternative Asset Mixes

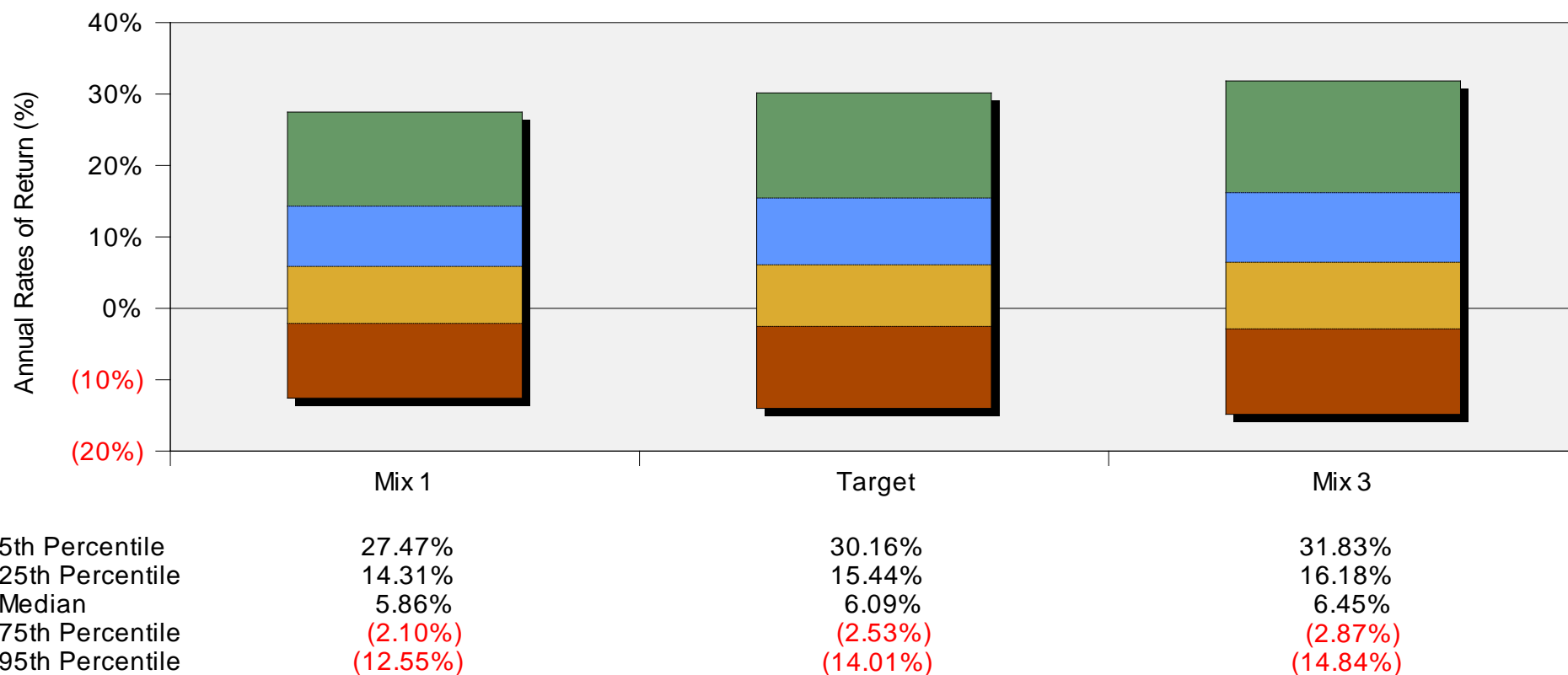
Comparative 10-Year Projected Results

Asset Classes	Less Risk	Target	More Risk
Global Equity	41.1	44.0	48.5
Private Equity	10.9	10.0	12.7
CMERS Fixed Income	28.5	22.0	18.4
Cash Equivalents	1.0	1.0	1.0
Core Real Estate	8.8	9.1	10.2
CMERS Real Assets	5.4	3.9	4.9
Hedge Funds	4.3	10.0	4.2
Total	100.0	100.0	100.0
10-Year Compound Return	5.73	5.98	6.23
Risk (Standard Deviation)	11.69	12.88	13.55

- Existing Target mix in center numerical column
 - 5.98% compound return consistent with 2021 expectation
- “Less Risk” mix increases fixed income at the expense of growth assets
 - Return reduced by 25 bps relative to the target mix while risk declines by 1.19%
- “More Return” mix increases growth assets at the expense of fixed income
 - Return increases by 25 bps relative to the target mix while risk increases by 68 bps

Ranges of Projected Rates of Return

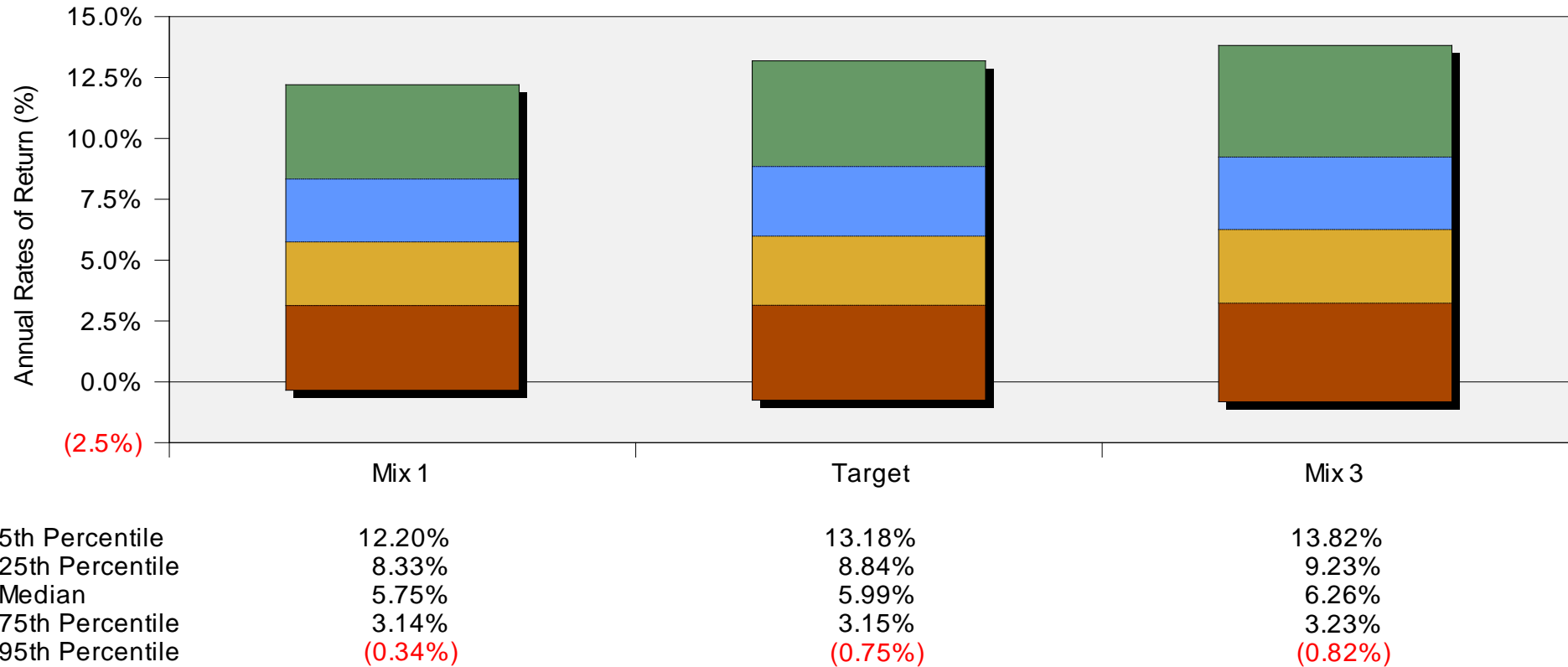
1 Year



- “Less Risk” has lowest expected return but best 95th percentile outcome
 - 1-year median return reduction relative to the target mix is 23 bps while the 95th percentile improvement is 146 bps
- “More Return” has highest expected return but poorest 95th percentile outcome
 - 1-year median return increase relative to the target mix is 36 bps while the 95th percentile decline is 83 bps

Ranges of Projected Rates of Returns

10 Years



- Patterns over 10 years same as one year but ranges compressed
- “Less Risk” has lowest expected return but best 95th percentile outcome
 - 10-year median return reduction relative to the target mix is 24 bps while the 95th percentile improvement is 41 bps
- “More Return” has highest expected return but poorest 95th percentile outcome
 - 10-year median return increase relative to the target mix is 27 bps while the 95th percentile decline is 7 bps

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Past performance is no guarantee of future results.

The statements made herein may include forward-looking statements regarding future results. The forward-looking statements herein: (i) are best estimations consistent with the information available as of the date hereof and (ii) involve known and unknown risks and uncertainties such that actual results may differ materially from these statements. There is no obligation to update or alter any forward-looking statement, whether as a result of new information, future events or otherwise. Undue reliance should not be placed on forward-looking statements.



April 14, 2022

City of Milwaukee Employees' Retirement System

Public Equity Structure Review

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Public Fund Manager Structure Review

Contents

Public Equity Structure Philosophy and Process

Review of CMERS Current Structure

Appendix: Index and Style Group Definitions

Public Equity Structure Philosophy and Process

Basic Tenets of Manager Structure

Definition of the “Market”

- The “universe” of securities available for manager investment
- The universe is defined by a market index such as the S&P 500, MSCI ACWI- ex U.S., or Bloomberg Barclays U.S. Aggregate

Active or Passive Management

- Passive management approach attempts to replicate the performance of the target index with minimal tracking error
- Active managers construct portfolios that differ from their market indices in an attempt to outperform the index

Style Considerations

- Market capitalization: The size of a firm as measured by the dollar value of its stock outstanding
- Capitalization is divided into large, mid, and small
- “Growth” stocks are faster growing companies with more volatile returns
- “Value” stocks provide more stable returns often with relatively significant income components

Investment Strategy

- Active manager investment philosophy, idea generation framework, and implementation The criteria used to implement the portfolio varies across investment strategies
- “Bottom up” focuses on company fundamentals
- “Top down” emphasizes broader market factors
- “Core” managers have market-like characteristics
- “Satellite” managers focus on “best ideas” by usually owning a limited number of stocks

Equity Structure Considerations

Seek to maximize plan alpha at a palatable level of active risk relative to the plan benchmark

- Think of manager structure in an overall portfolio context
- Incorporate active managers only if they are expected to contribute sufficient alpha to compensate for the possibility of underperforming the benchmark
- This is a net-of-fees exercise

Spend plan's active risk budget efficiently

- Spend active risk in sectors and regions where active management has high probability of succeeding
- Otherwise, rely heavily on indexes in order to control both expenses and risk
- Keep magnitude of systematic bets vs. the plan benchmark (misfit risk) under control

Incorporate diversification

- Seek broad diversification across all global equity markets
- The risk an individual active manager contributes to the overall portfolio depends on both its size and its tracking error
- Avoid excessive risk contribution from any one manager
- However, avoid over diversification or “closet indexing”

Simplify where appropriate

- Structure should meet investment objective with the minimum level of complexity
- Benefit is lower monitoring costs as well as explicit costs
- Active manager mandate sizes must be large enough to be meaningful to the fund but not overwhelming to the manager

Sources of Active Risk in the Equity Structure

Selection Risk

Risk stemming from active managers' bets relative to their benchmarks

- Risk which is expected to be rewarded with alpha if manager is skillful
- The risk you are paying your active managers to take
- This risk at the plan level is reduced as the number of active managers increases due to diversification

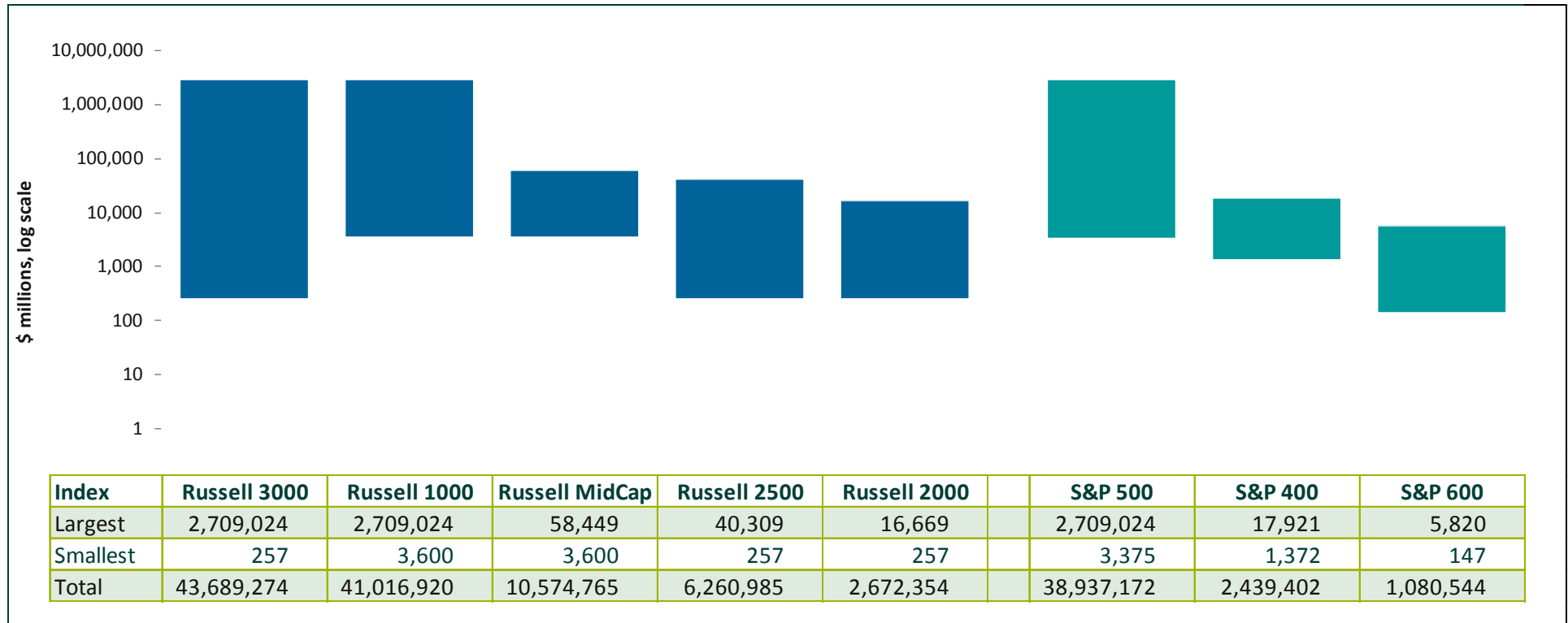
Misfit Risk

Risk which results when the overall style exposures of the plan's manager benchmarks differ from the plan's benchmark

- When unintentional, misfit confers additional active risk without any expected return
- Misfit can be controlled by ensuring overall manager style exposures (large vs. small; value vs. growth, U.S. vs. international) are generally consistent with the plan's benchmark
- When intentional, some misfit can be justified if reflects a high conviction bet on styles, capitalizations, or regions
- However, the bar for skill is high and tactical bets should be scaled as to not be a disproportionate driver of active risk

US Equity Structure Background

Capitalization Ranges, 2/28/22

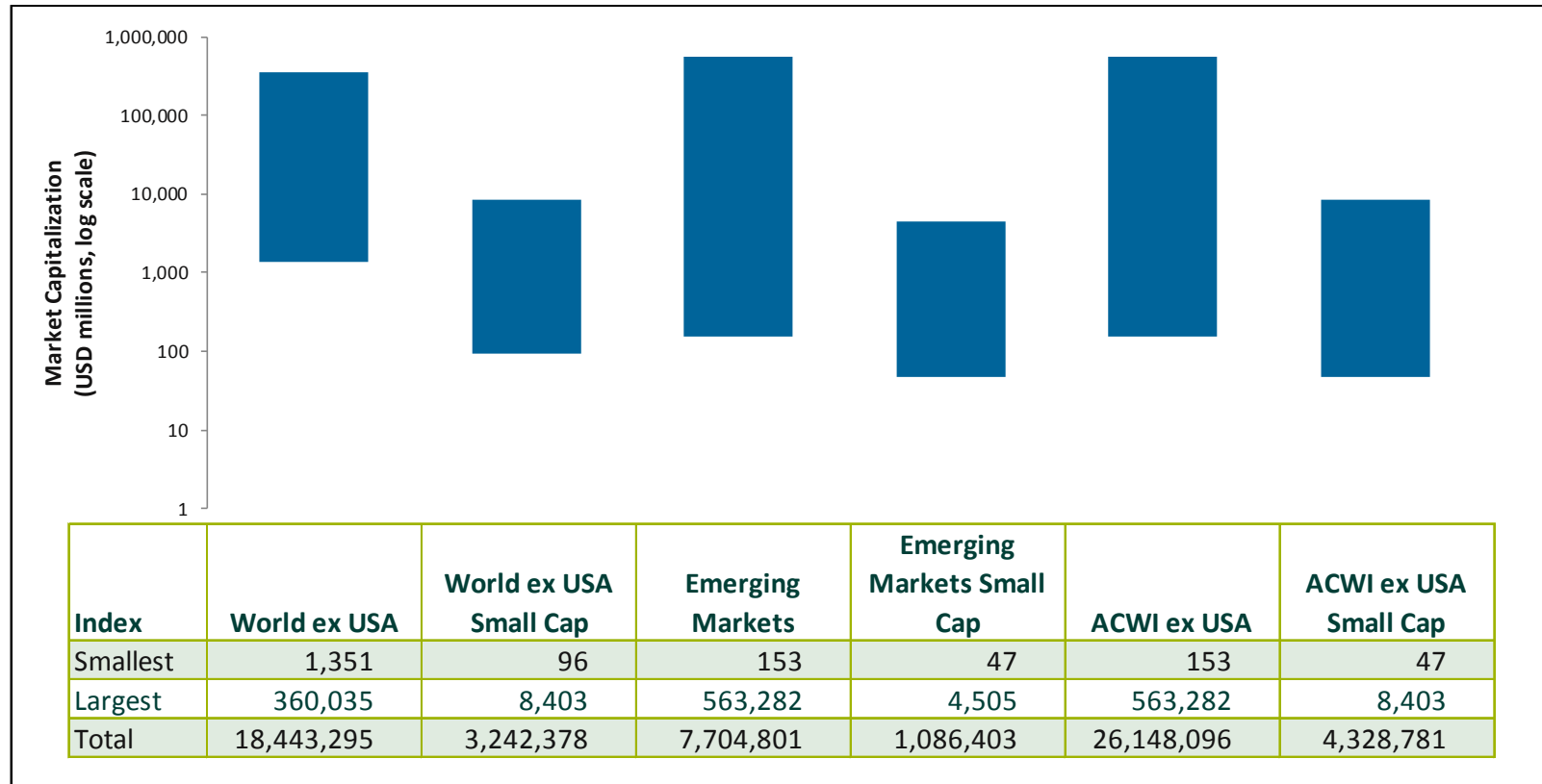


- No common definition of large, mid and small capitalization across index providers
 - Different definition provided by different index providers
 - The capitalizations of the stock indices overlap even within an index family
 - *For example, the smallest large cap stocks in each index family is smaller than the largest mid cap stock*
 - Values migrate with returns
- No “objective” definition of large, mid and small cap

Sources: FTSE Russell, Standard & Poors

Non-US Equity Structure Background

Capitalization Ranges, 1/31/22



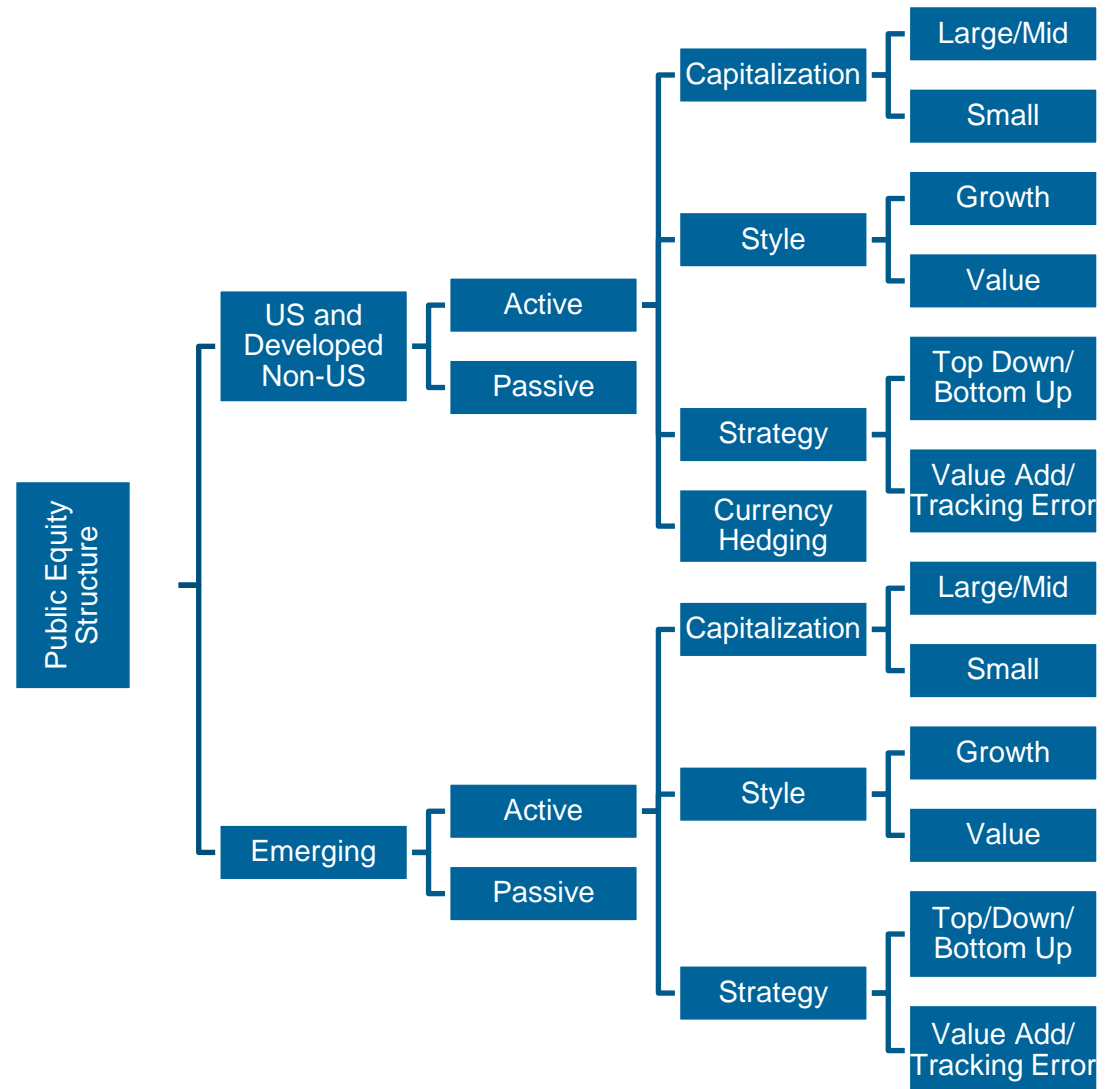
- Capitalizations for developed markets (World ex USA) and emerging markets overlap
- Emerging markets capitalizations range more widely than those of developed non-US markets
 - The large/mid cap emerging markets index contains both larger and smaller capitalization stocks than the large/mid cap developed markets index
 - Taiwan Semiconductor, is larger than Nestle (but smaller than US tech stocks)
 - Top 10 capitalization stocks in the emerging markets index are comparable in size to top 10 stocks in the developed markets index

Sources: MSCI

Equity Structure Components

Implementation Considerations

- US, Developed Non-US and Emerging Markets
 - Allocation
 - Capitalization
 - Style
 - Currency hedging
 - *Generally limited to developed markets*
 - Strategy
 - Sub-categories of active management are often a continuum
 - *Active manager capitalizations vary widely*
 - *Core encompasses both growth and value*
 - *Managers may combine elements of top down and bottom up approaches*
 - *There is a long list of individual manager strategy characteristics*

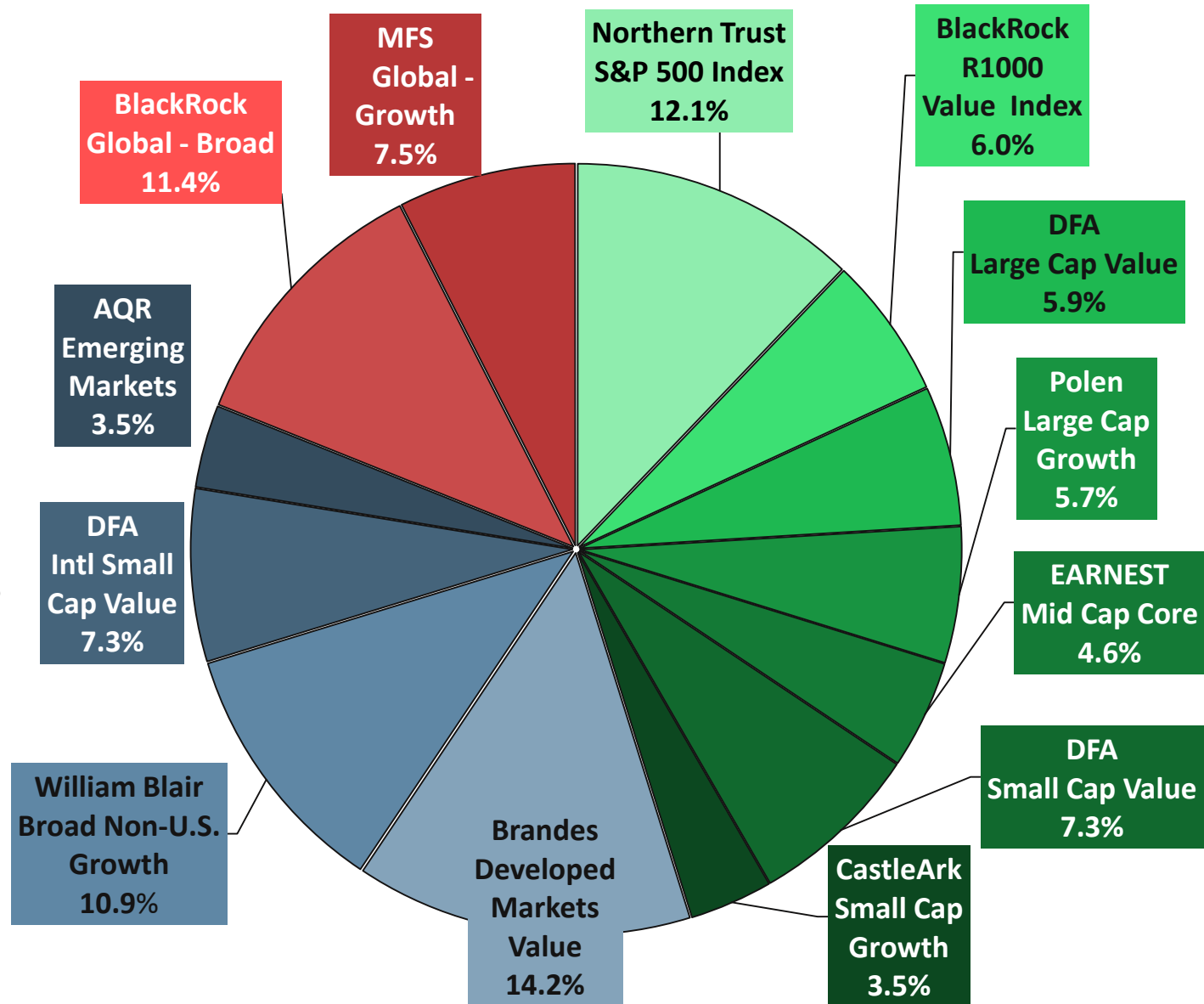


Review of CMERS Current Structure

CMERS Global Equities Fund Structure

Current Implementation

- The current CMERS public equity fund structure is well diversified
- Major regions covered
 - 45.2% US
 - 35.9% Non-US
 - 18.9% Global
 - Non-US and global exposures include emerging markets
- Substantial allocations to US passive
 - S&P 500 for US large cap core
 - Russell 1000 Value for US large cap value
- Broad active exposure in non-US
 - Separate allocations to large/mid, emerging markets and small cap
- Broad active global exposure



CMERS Public Fund Structure

Current Active Manager Summary Descriptions

- **DFA US Large Cap Value Strategy**

- The US Large Cap Value Portfolio is designed to capture the returns and diversification benefits of a broad cross-section of US value companies, on a market-cap weighted basis. The Portfolio invests in securities of US companies with market capitalizations within the largest 90% of the market universe or larger than the 1,000th largest US company, whichever results in a higher market capitalization break. After identifying the aggregate market capitalization break, a value screen is applied to the universe. Securities are considered value stocks primarily because a company's shares have a high book value in relation to their market value (BtM). This BtM sort excludes firms with negative or zero book values. In assessing value, additional factors such as price-to-cash-flow or price-to-earnings ratios may be considered, as well as economic conditions and developments in the issuer's industry. The criteria for assessing value are subject to change from time to time.

- **Polen Focus Growth**

- The Polen Focus Growth strategy reflects concentrated portfolios of high quality companies that seek to deliver sustainable above average growth in earnings driven by solid franchises, superior financial strength, proven management teams and powerful products/services. Portfolios hold 20-30 stocks with position sizes ranging from 4-10%, and average positions of 6%. Average annual turnover has historically been around 20% with the average holding period for an investment of over 5 years.

- **Earnest Partners Mid Cap Core**

- EARNEST Partners is a fundamental, bottom-up investment manager. The Firm's investment objective is to outperform the benchmark while controlling volatility and risk. EARNEST Partners implements this philosophy using a screen developed in-house called Return Pattern Recognition, thorough fundamental analysis, and risk management that minimizes the likelihood of meaningfully underperforming the benchmark.

- **DFA Small Cap Value**

- DFA's investment philosophy stems from academic research conducted by Professors Eugene Fama and Kenneth French that finds that high book/market value stocks have higher expected returns than growth stocks. DFA's quantitative investment strategy in highly diversified portfolios of small companies with "deep" value characteristics is designed to capture the returns of small value stocks.

CMERS Public Fund Structure

Current Active Manager Summary Descriptions

- **CastleArk Small Company Growth**

- CastleArk believes that excess returns can be achieved by investing in companies with improving business fundamentals, and that companies with superior earnings and revenue growth rates outperform over time. A differentiating factor of the team's philosophy is the belief that the direction of growth is more important than the absolute level of growth.

- **Brandes International Equity**

- Brandes uses a bottom-up value approach, heavily influenced by the work of Graham & Dodd, to build non-US equity portfolios. The firm utilizes fundamental research to identify companies selling below their intrinsic business value. The firm's equity analysts are organized at the industry level and cover companies across the entire capitalization spectrum. For the International Equity product, analysts formally present the most compelling investment ideas to the firm's International Large Cap Committee, which is ultimately responsible for all buy and sell decisions. The strategy holds between 55-80 securities and turnover has typically averaged between 10-40% a year. Industry or country exposure is limited to either a 20% absolute or a 150% benchmark-relative maximum (at time of purchase). Conversely, the portfolio can be completely out of an industry or country. Emerging markets exposure is limited to 30% of the portfolio (at time of purchase).

- **William Blair International Growth**

- Although there is a top-down element to its process, this growth-oriented international equity fund has historically added value mostly from bottom-up stock selection. The team's investment philosophy is conservative and long-term oriented. It believes that this philosophy can be combined with strategic flexibility to manage geographic exposure, capitalization, sector allocation, and relative growth and valuation. Industry sector allocation and country selection are the next most important investment criteria. The Fund will generally invest anywhere from 10-35% of its assets in emerging markets.

CMERS Public Fund Structure

Current Active Manager Summary Descriptions

- **DFA World ex US Small Cap Value**

- Dimensional's philosophy of investing is based on empirical and academic research and over thirty years' experience structuring and implementing investment solutions to address global investors' needs. Their philosophy follows three beliefs: (1) Public capital markets work - In liquid and competitive markets, market prices reflect available information about fundamental values and the aggregate risk and return expectations of all market participants. As a result, Dimensional uses information in market prices to identify reliable dimensions of expected returns market, size, relative price, and expected profitability and to structure and implement strategies along those dimensions. (2) Diversification is essential - Diversification helps reduce uncertainty, manage risk, and increase the reliability of outcomes. (3) Managing trade-offs adds value - Investing involves trading off risks and costs with expected returns.

- **AQR Emerging Markets Equity**

- AQR considers themselves as fundamental investors who employ quantitative tools to build diversified portfolios which favor undervalued securities with good momentum characteristics - two negatively correlated categories. The strategy employs three models: stock selection, country selection and currency selection. The view from each model is implemented distinctly through stock selection and country and currency overlays, allowing each model to be fully expressed in the portfolio.

- **BlackRock Systematic Active Global Alpha Tilts**

- Employs a combination of top-down and bottom-up systematic processes to construct risk-controlled portfolios
- Composition of the alpha model is dynamic and consists of value, quality, sentiment, and theme factors
- Quant model leverages machine learning and AI techniques
- Portfolio holds 400-900 names with annual turnover of 100%-200%
- Risk-controlled, diversified strategy with a modest value tilt

CMERS Public Fund Structure

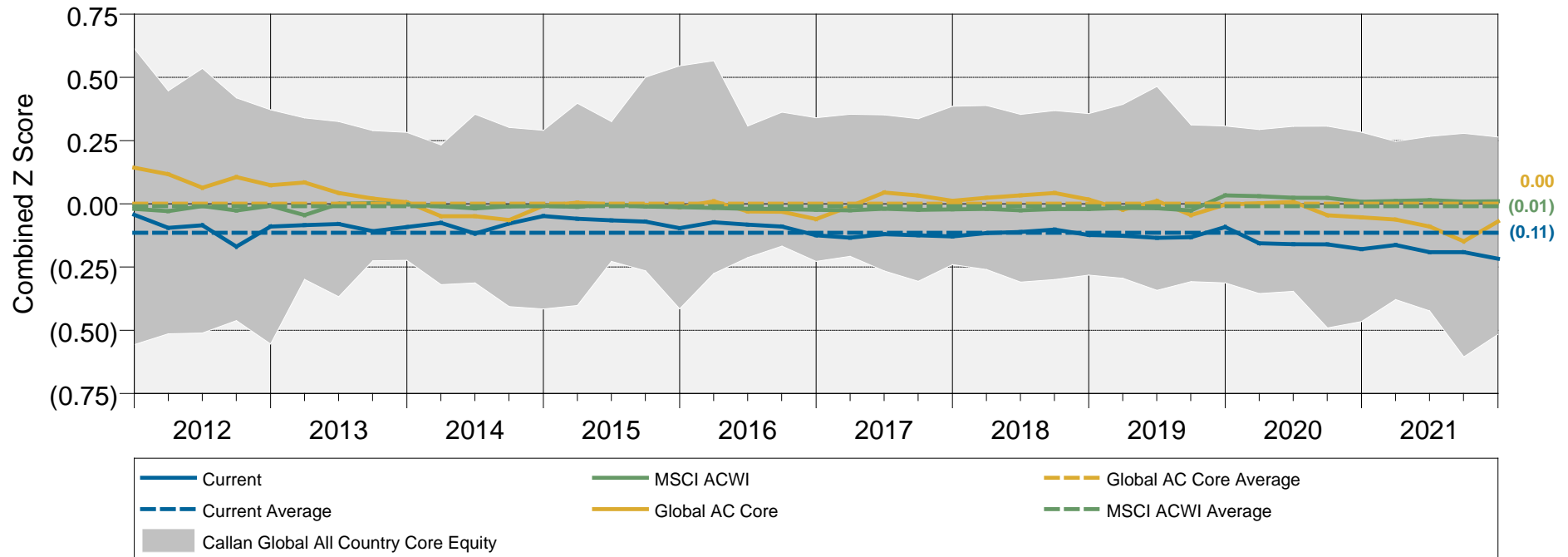
Current Active Manager Summary Descriptions

- MFS Global Growth Equity
 - MFS believes earnings growth drives share price performance over the long term. They conduct proprietary fundamental and quantitative research to identify companies with the following characteristics: (1) higher sustainable earnings growth rates and returns than the company's industry, (2) improving fundamentals leading to multiple expansion and (3) stock valuations not fully reflecting the company's long-term growth prospects.

Existing Structure Analysis

Combined Z Score

Combined Z Score
for 10 Years Ended December 31, 2021

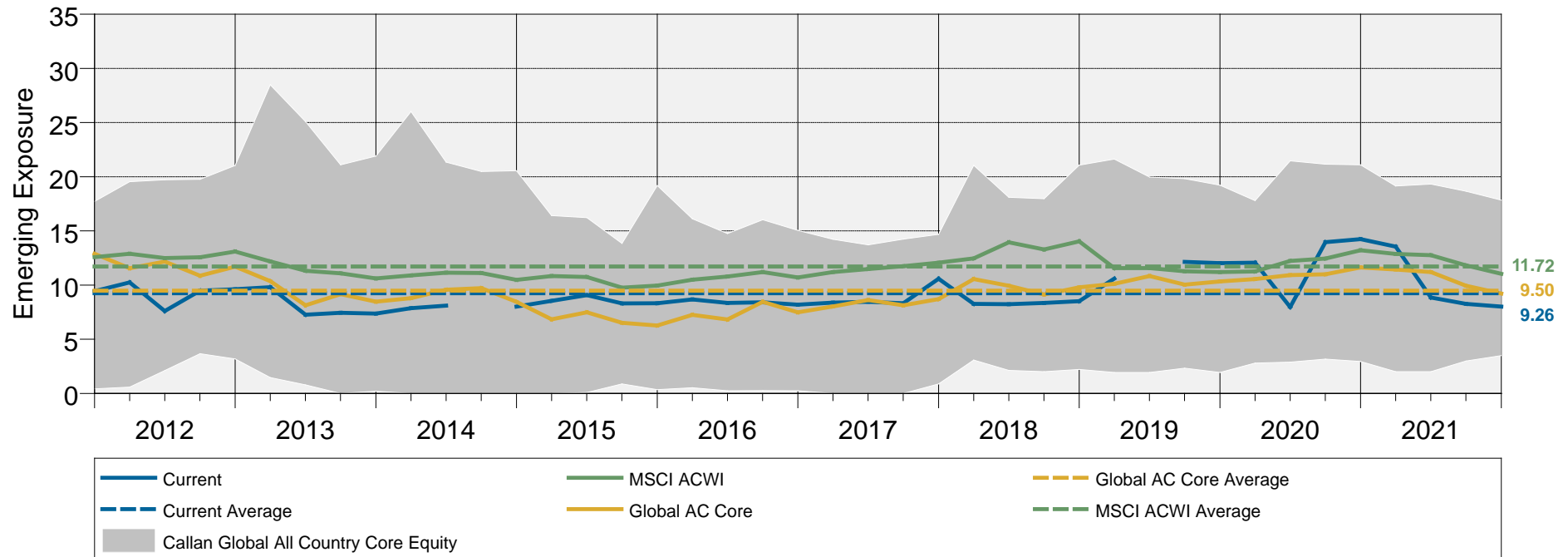


- Combined Z score is a measure of style exposure
 - Positive numbers represent growth, negative numbers represent value
 - The MSCI All Country World Index is neutral (~0) by design
- CMERS has had a very modest but consistent value bias
- The median of the Global All Country Core Style Group had an average of 0 but has fluctuated between grow and value styles

Existing Structure Analysis

Emerging Markets Exposure

Emerging Exposure
for 10 Years Ended December 31, 2021

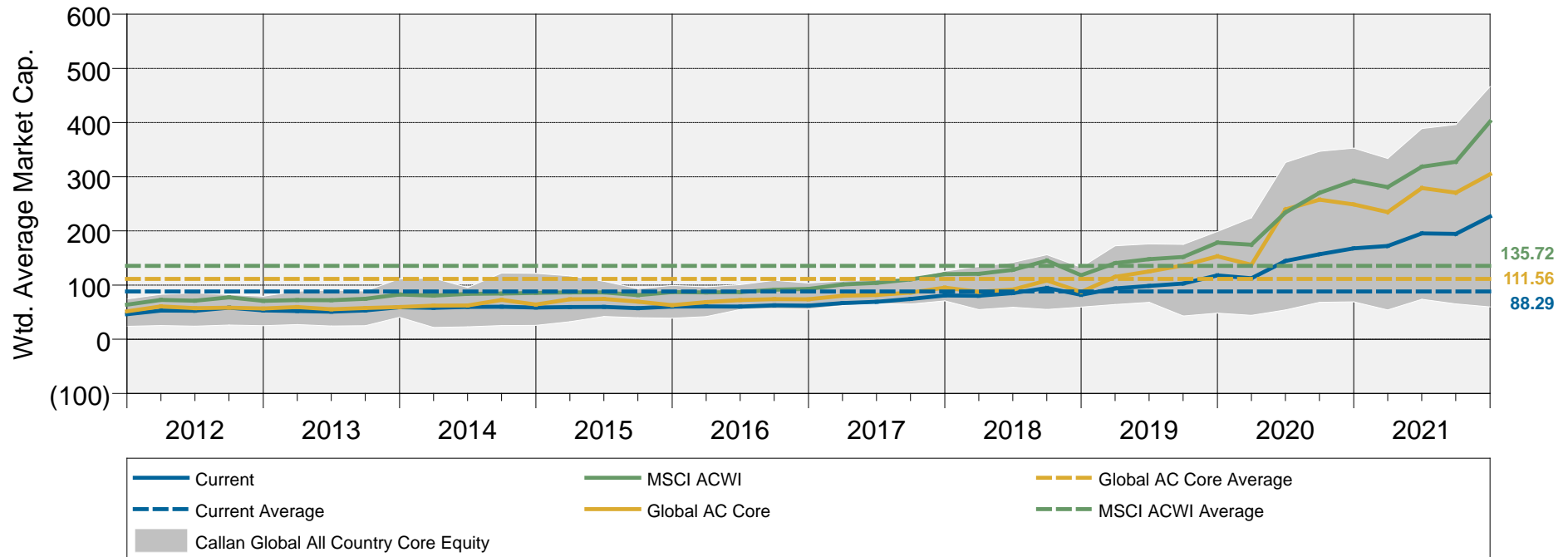


- CMERS emerging markets exposure has fluctuated through time but is generally consistent with the median of the All Country Core Style Group
- Both CMERS and the median of the Global All Country Core Style Group have emerging markets exposures below that of the MSCI All Country World Index

Existing Structure Analysis

Weighted Average Market Cap

Wtd. Average Market Cap.
for 10 Years Ended December 31, 2021

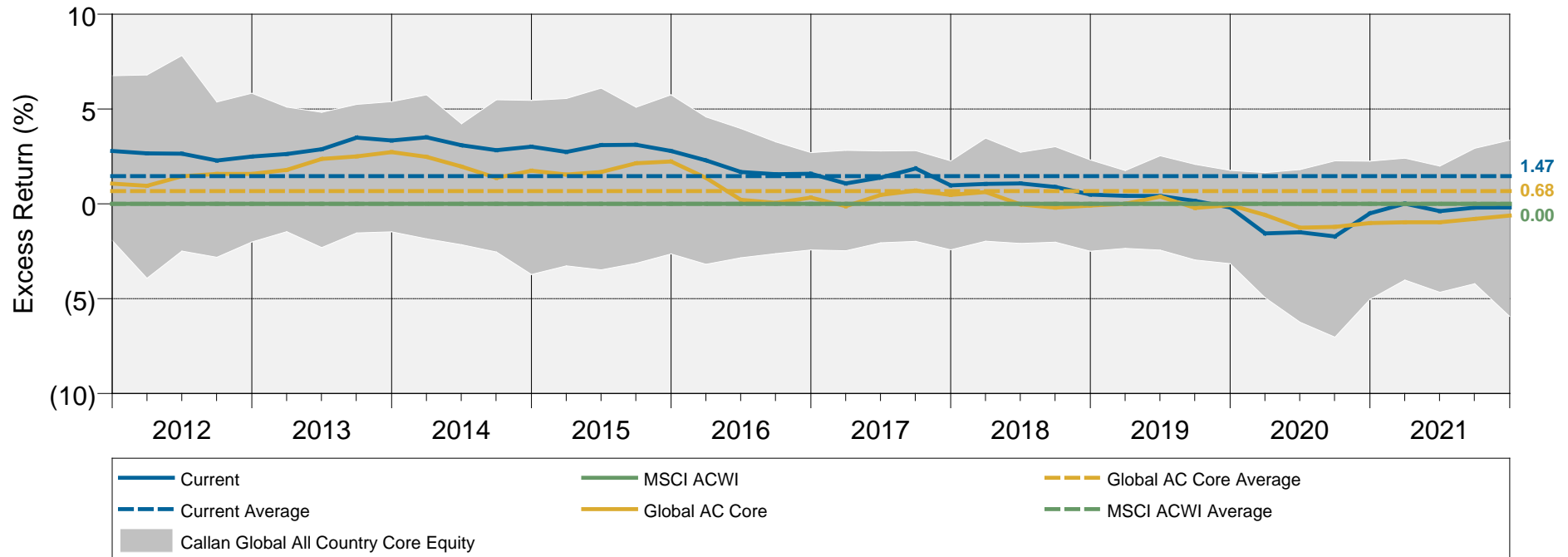


- CMERS has consistently had a weighted average market cap below both the median of the Global All Country Core Style Group and the MSCI All Country World Index
 - CMERS was more in line with the style group in earlier periods
 - The range of market caps has widened in recent years as many large cap stocks have grown substantially
 - CMERS market cap has increased but not as much as the median of the Global All Country Core Style Group
 - CMERS market cap is well above the lowest 10% of the Global All Country Core Style Group

Existing Structure Analysis

Excess Return

Rolling 12 Quarter Excess Return Relative To MSCI ACWI
for 10 Years Ended December 31, 2021

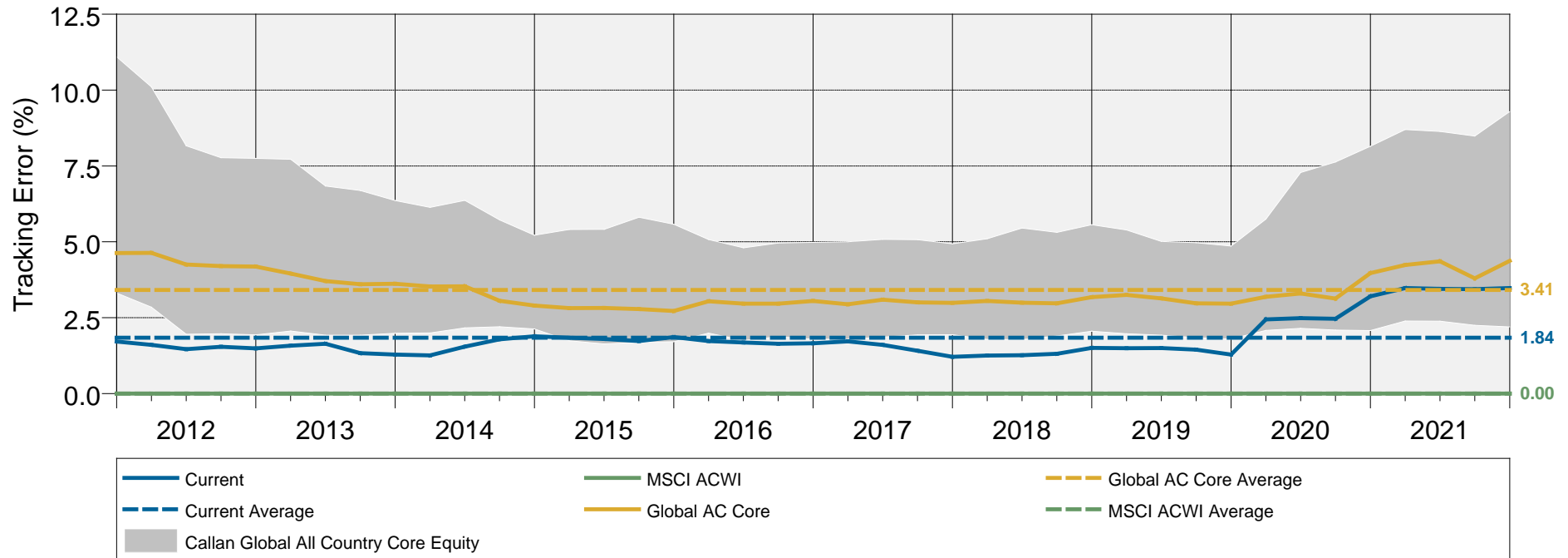


- The CMERS public equity structure has earned a high average excess return
 - 1.47% annualized for the most recent 10 years
 - The median of the Global All Country Core Style Group has been 0.68% while that of the MSCI All Country World Index is zero by definition
- CMERS has had many periods of higher excess returns than the median of the style group but also some periods below

Existing Structure Analysis

Tracking Error

Rolling 12 Quarter Tracking Error Relative To MSCI ACWI
for 10 Years Ended December 31, 2021

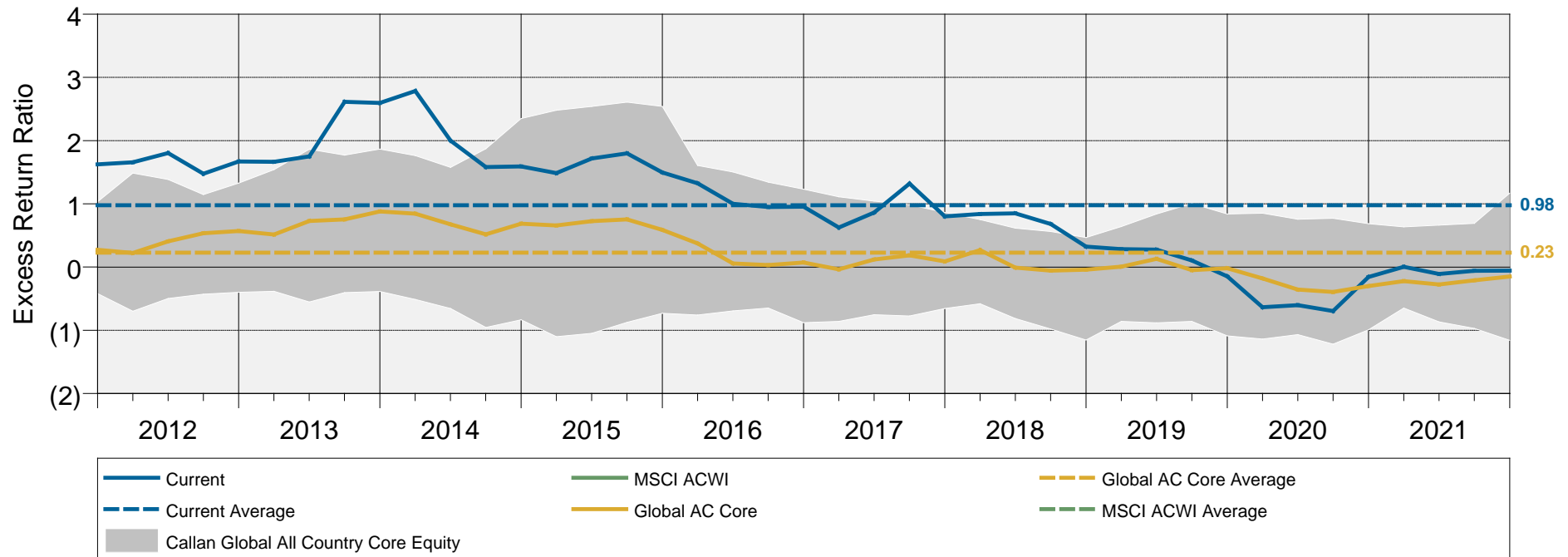


- The CMERS public equity structure has experienced a modest level of tracking error
 - An average of 1.84% vs. 3.41% for the median of the Global All Country Core Style Group
 - In earlier periods the tracking error was below that of the 90th percentile of the style group
 - Low tracking error is likely due in part to more diversification in the CMERS structure than the managers in the style group
 - The low tracking error is notable because CMERS US benchmarks differ from both the index and the core managers

Existing Structure Analysis

Excess Return Ratio

Rolling 12 Quarter Excess Return Ratio Relative To MSCI ACWI
for 10 Years Ended December 31, 2021

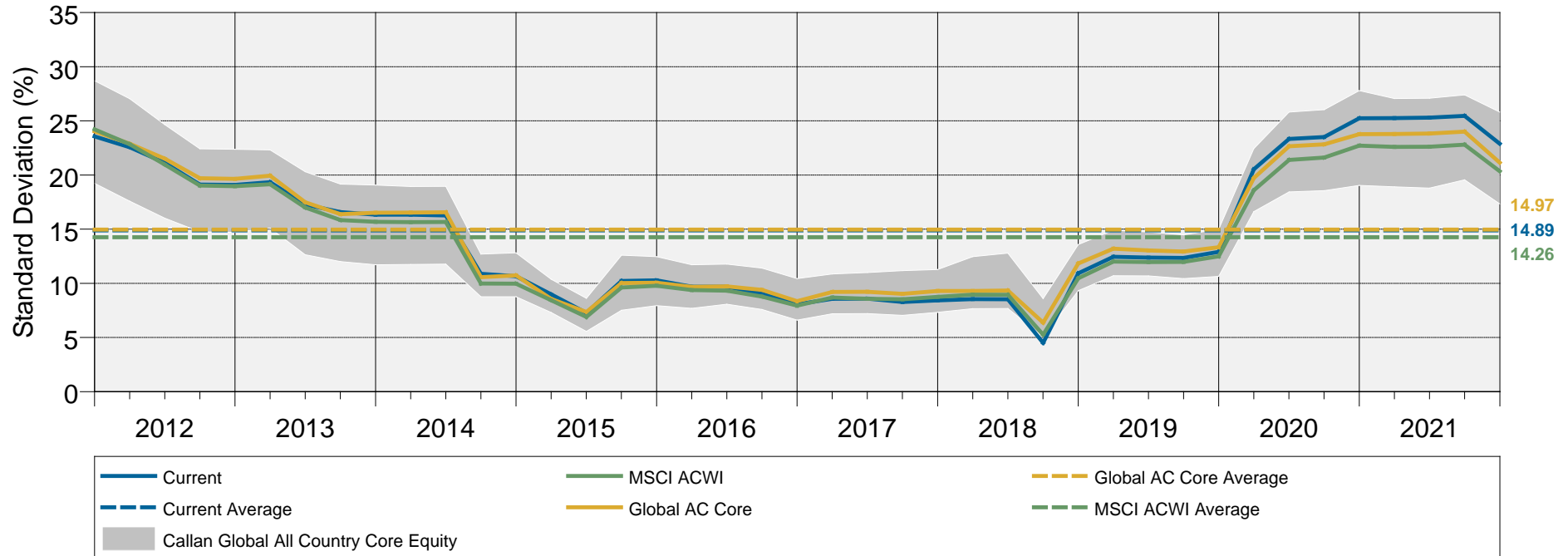


- The CMERS public equity structure has had a high excess return ratio
 - Excess return ratio is excess return divided by tracking error and represents a risk-adjusted rate of return
 - CMERS has averaged 0.98 vs. 0.23 for the median of the Global All Country Core Style Group
 - The index has not excess return or tracking error therefore no excess return ratio
 - In earlier periods the excess return ratio was often above that of the 10th percentile of the style group
 - In more recent periods performance has been in line with the style group

Existing Structure Analysis

Standard Deviation

Rolling 12 Quarter Standard Deviation
for 10 Years Ended December 31, 2021

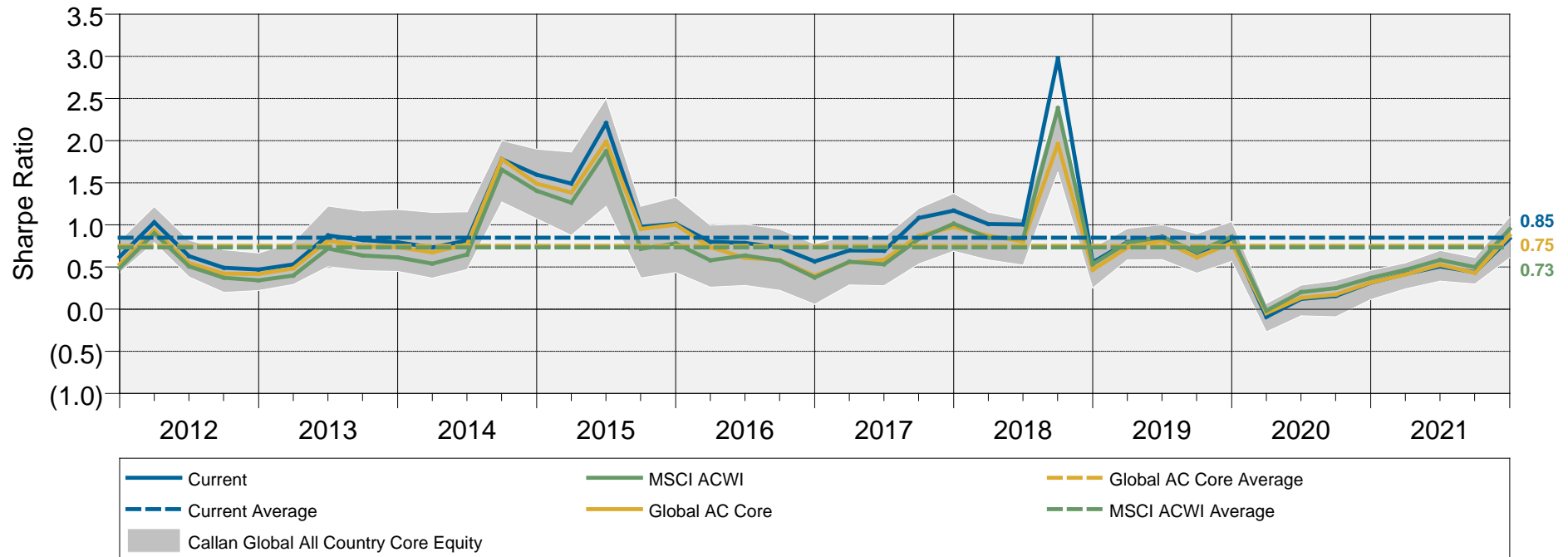


- The CMERS public equity structure has had a moderate standard deviation
 - CMERS has averaged 14.89% while the median for the Global All Country Core Style Group has been 14.97% and the index has been 14.26%
 - CMERS has had periods with higher standard deviations than the benchmarks and periods with lower standard deviations

Existing Structure Analysis

Sharpe Ratio

Rolling 12 Quarter Sharpe Ratio
for 10 Years Ended December 31, 2021



- The CMERS public equity structure has consistently had a strong Sharpe ratio
 - The CMERS average Sharpe ratio of 0.85 has exceeded that of the median for the Global All Country Core Style Group (0.75) and the index (0.73)
 - CMERS has generally been above the Sharpe ratios for both of the benchmarks
 - CMERS and the benchmarks dipped slightly below zero in 2020

Existing Structure Analysis

Style vs. Capitalization

- CMERS style exposures are balanced
 - This is the desired default position since it is very difficult to time style cycles
- CMERS is measurably underweight to large cap stocks
- CMERS mid cap stock exposure is consistent with both the index and the style group
- CMERS has a substantially higher exposure to small and micro cap stocks than the benchmarks

Style Exposure Matrix
for 10 Years Ended December 31, 2021
Top: Current
Middle: MSCI ACWI
Bottom: Global AC Core

Large	19.9%	17.9%	23.8%	61.7%
	25.7% (273)	24.8% (274)	30.5% (316)	81.0% (863)
	19.7% (16)	23.9% (18)	27.5% (19)	74.3% (51)
Mid	6.9%	6.6%	7.2%	20.7%
	5.4% (411)	5.5% (413)	6.4% (479)	17.3% (1302)
	5.6% (6)	7.0% (8)	7.0% (8)	20.1% (22)
Small	5.9%	5.3%	3.2%	14.4%
	0.7% (193)	0.5% (128)	0.4% (113)	1.6% (433)
	1.5% (2)	2.0% (3)	1.6% (2)	5.4% (8)
Micro	1.7%	1.1%	0.4%	3.2%
	0.0% (4)	0.0% (2)	0.0% (1)	0.1% (6)
	0.1%	0.2%	0.0%	0.4% (1)
Total	34.4%	30.9%	34.7%	100.0%
	31.8% (880)	30.9% (817)	37.3% (908)	100.0% (2606)
	29.0% (25)	33.1% (31)	38.0% (30)	100.0% (87)
	Value	Core	Growth	Total

Existing Structure Analysis

Style vs. Region

- Style exposures are balanced
 - This is the desired default position since it is very difficult to time style cycles
- CMERS regional exposures are consistent with both the index and the style group
 - CMERS emerging markets exposure is slightly low

Style Exposure Matrix
for 10 Years Ended December 31, 2021
Top: Current
Middle: MSCI ACWI
Bottom: Global AC Core

Europe	8.3%	7.0%	8.7%	24.0%
	6.4% (135) 6.6% (6)	6.1% (127) 8.0% (7)	8.2% (188) 10.2% (9)	20.7% (450) 23.6% (22)
N. America	18.3%	18.7%	20.2%	57.2%
	18.1% (244) 16.2% (13)	17.4% (238) 17.3% (16)	20.4% (229) 20.1% (16)	55.9% (711) 54.0% (44)
Pacific	4.3%	2.5%	2.7%	9.5%
	3.7% (143) 2.8% (4)	3.8% (148) 3.9% (4)	4.1% (167) 4.0% (4)	11.7% (458) 11.4% (11)
Emerging	3.5%	2.7%	3.1%	9.3%
	3.6% (358) 3.2% (4)	3.6% (304) 3.7% (4)	4.5% (325) 3.2% (3)	11.7% (987) 10.7% (11)
Total	34.4%	30.9%	34.7%	100.0%
	31.8% (880) 29.0% (25)	30.9% (817) 33.1% (31)	37.3% (908) 38.0% (30)	100.0% (2606) 100.0% (87)
	Value	Core	Growth	Total

Appendix

Index and Style Group Definitions

Style Group Definitions

- MSCI All Country World Index (ACWI)

- The MSCI ACWI captures large and mid cap representation across 23 Developed Markets (DM) and 25 Emerging Markets (EM) countries. With 2,959 constituents, the index covers approximately 85% of the global investable equity opportunity set.
- DM countries include: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the UK and the US.
- EM countries include: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Kuwait, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Russia, Saudi Arabia, South Africa, Taiwan, Thailand, Turkey and United Arab Emirates.

- Global All Country Core Style Definition

- Philosophy
 - *Strategies benchmarked to the MSCI ACWI Index with a focus on developed and emerging countries with liquid markets. They aim to add value over and above the index through stock selection and/or changes in the weighting of individual countries and/or sectors versus the index without significant style exposure, and exposure to emerging markets hovers around the index. Strategies can range from large cap to all-cap.*
- Definition
 - *The Global Core Plus peer group is consists of active managers exhibiting the general portfolio characteristics similar to the MSCI ACWI Index. EM exposure varies but generally ranges from 0 to almost 20%. Weighted average market cap ranges from less than \$100 billion to more than \$400 billion. Combined Z scores generally indicate style neutrality should be between -0.25 and 0.25.*

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April 2022



City of Milwaukee Employees' Retirement System

Investment Manager Diligence
Overview

John Jackson, CFA
Senior Vice President

Mike Joecken
Senior Vice President

Callan Meetings, Conference Calls, Onsites with CMERS' Managers

Activity over the Last 12 Months

- Touchpoints in the table below reflect firmwide meetings and include strategies specific to CMERS

Manager Name	Meetings/ Calls/Onsites	Manager Name	Meetings/ Calls/Onsites	Manager Name	Meetings/ Calls/Onsites
Abbott	4	Earnest	5	Polen	5
AQR	4	Loomis	18	Principal	4
BlackRock	36	Mesirow	6	Private Advisors	5
Brandes	7	MFS	19	Reams	2
CastleArk	2	Neuberger Berman	16	UBS HF Solutions	3
DFA	9	Northern Trust	1	Wm Blair	3

Manager Assessment

	Organization	People	Process and Philosophy	Short Term Performance	Long Term Performance	Product Dynamics	Overall	OVERALL STATUS	NOTES
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FIXED INCOME

BlackRock US Debt Index Fund	●	●	●	●	●	●	●	Satisfactory	
Loomis Core Plus Full Discretion	●	●	●	●	●	●	●	Satisfactory	<ul style="list-style-type: none"> • Callan has no concerns about Dan Fuss transitioning his PM duties. Fuss is 87 years old, and is currently in his 45th year with Loomis, so this transition is more than a few years in the making. Remaining co-PMs Matt Eagan, Elaine Stokes, and Brian Kennedy are well suited to lead the strategy. Eagan and Stokes have been on the strategy since 1997 and 1987, respectively, and have been named PMs since 2007. Kennedy was named PM in 2016, but has been at Loomis since 1994.
Reams Core Plus Fixed Income	●	●	●	●	●	●	●	Satisfactory	

DOMESTIC EQUITY

BlackRock Russell 1000 Value Index	●	●	●	●	●	●	●	Satisfactory	
Northern Trust NT S&P 500 Index	●	●	●	●	●	●	●	Satisfactory	
DFA Large Cap Value	●	●	●	●	●	●	●	Satisfactory	
Polen Focus Growth	●	●	●	●	●	●	●	Satisfactory	<ul style="list-style-type: none"> • Notable on Product Dynamics due to strategy's soft close. No concerns.
EARNEST Mid Cap Core	●	●	●	●	●	●	●	Satisfactory	<ul style="list-style-type: none"> • Weighted median and average market cap is notably larger than Mid Core peer group median.
DFA US Small Cap Value	●	●	●	●	●	●	●	Satisfactory	<ul style="list-style-type: none"> • Performance relative to the Russell 2000 Value Index has rebounded in trailing one-year period due to more cyclical exposure (within expectations).
CastleArk Small Company Growth	●	●	●	●	●	●	●	Satisfactory	<ul style="list-style-type: none"> • Organization remains stable post Kevin Dolsen, CEO, departure in Q1 2020. • Continue to monitor small/smld strategy AUM totals; assets have declined

● Positive status; no issues ● Notable status; noteworthy item but no concerns ● Cautionary status; noteworthy item and monitoring closely
 ● Under Review status; noteworthy item with concerns

Product Dynamics: reflects noteworthy highlights of the portfolio and strategy including assets and portfolio characteristics.

Short-Term Performance: reflects periods of three years and under with a focus on whether or not the manager is performing within expectations.

Long-Term Performance: reflects periods of five years and longer with a focus on whether or not the manager is performing within expectations.

Manager Assessment

	Organization	People	Process and Philosophy	Short Term Performance	Long Term Performance	Product Dynamics	Overall	OVERALL STATUS	NOTES
									over the past few years.

GLOBAL EQUITY

BlackRock Global Alpha Tilts	●	●	●	●	●	●	●	Satisfactory	
MFS Global Growth	●	●	●	●	●	●	●	Satisfactory	<ul style="list-style-type: none"> • People is "notable" due to the retirement of portfolio manager David Antonelli in April 2021; PMs Jeff Constantino (2008) and Joe Skorski (2018) will continue to manage the strategy. • The strategy remains in good standing; Antonelli's departure had a prolonged transition and the remaining PM team is tenured.

INTERNATIONAL EQUITY

AQR Emerging Markets Equity	●	●	●	●	●	●	●	Satisfactory	<ul style="list-style-type: none"> • Organization, People and Product Dynamics are Notable due to a series of departures and redemptions in recent years; however, AQR continues to maintain leadership continuity, deep investment team and a healthy level of assets. • Moreover, short- and long-term performance has recovered.
Brandes International Equity	●	●	●	●	●	●	●	Satisfactory	<ul style="list-style-type: none"> • Organization and Product Dynamics are Cautionary given the asset level and flow activity over the years; however, the firm continues to maintain a healthy level of profitability as a result of cost restructuring (e.g., outsourcing client reporting/back office functions to SEI) in recent years.
DFA World ex U.S. Sm Cap Value	●	●	●	●	●	●	●	Satisfactory	<ul style="list-style-type: none"> • Product Dynamic is Notable due to the recent process enhancement. • DFA began the implementation of excluding

● Positive status; no issues ● Notable status; noteworthy item but no concerns ● Cautionary status; noteworthy item and monitoring closely
● Under Review status; noteworthy item with concerns

Product Dynamics: reflects noteworthy highlights of the portfolio and strategy including assets and portfolio characteristics.
Short-Term Performance: reflects periods of three years and under with a focus on whether or not the manager is performing within expectations.
Long-Term Performance: reflects periods of five years and longer with a focus on whether or not the manager is performing within expectations.

Manager Assessment

	Organization	People	Process and Philosophy	Short Term Performance	Long Term Performance	Product Dynamics	Overall	<u>OVERALL STATUS</u>	<u>NOTES</u>
									small cap companies with high asset growth on August 1, 2019; the enhancement is subject to a 5% cap and expected to have a minimal impact on TE or standard deviation.
William Blair Intl Growth	●	●	●	●	●	●	●	Satisfactory	<ul style="list-style-type: none"> The Organization, People and Product Dynamics are "Notable" to denote the following: appointment of new CEO Brent Gledhill to replace John Ettelson on January 13, 2022; the addition of Andy Siepker on the portfolio management joining Ken McAtamney and Simon Fennell in January 2022; and closure of the strategy since 2012.

- Positive status; no issues ● Notable status; noteworthy item but no concerns ● Cautionary status; noteworthy item and monitoring closely
 ● Under Review status; noteworthy item with concerns

Product Dynamics: reflects noteworthy highlights of the portfolio and strategy including assets and portfolio characteristics.

Short-Term Performance: reflects periods of three years and under with a focus on whether or not the manager is performing within expectations.

Long-Term Performance: reflects periods of five years and longer with a focus on whether or not the manager is performing within expectations.

Memorandum

To: CMERS Investment Committee

From: Thomas Courtright, CAIA

Date: April 14, 2022

Re: Reams Asset Management Due Diligence Meeting October 1, 2021

Team: Erich Sauer, Thomas Courtright, & Anthony Lubarsky

Background

The Milwaukee Employees' Retirement System (ERS) hired Reams Asset Management (Reams) at the end of 2000 to manage a core-plus fixed income mandate. As of February 28, 2022, Reams managed \$611.2 million, or 9.9% of the Fund's assets.

Key Takeaways from the Recent Meeting

- Todd Thompson was promoted to Managing Director and added to the Reams Investment Committee in March of 2020. This promotion coincided with the retirement of Tom Fink in April of 2020.
- Stephen Vincent has announced his plans to retire in April of 2023. Mr. Vincent is a portfolio manager and leads the structured products research team. He is supported by two analysts, each with more than 20 years of experience, both of whom should provide continuity when he retires.
- Daniel Spurgeon was promoted from Vice President of Operations to President. Mr. Spurgeon assumed this responsibility from David McKinney, who relinquished the title in July 2021 and retired at the end of 2021, after a lengthy transition period.
- Reams has moved from key professionals having employment contracts with defined terms, to perpetual employment contracts with industry-standard non-compete agreements. This removes a key concern that had been noted in past memos.
- Reams has moved its office from Columbus, IN to Indianapolis, IN. Reams believes this will allow for better recruitment, especially at the analyst level. Reams noted that 75% of investment team staff members already live in the Indianapolis area.
- Reams expressed that they continue to maintain autonomy and independence for managing the business under the ownership of Carillon Tower Advisers (CTA).

Firm Summary

During the fourth quarter of 2010, Reams was purchased by Scout Investments, which had been a wholly-owned subsidiary of UMB, a financial services company based in Kansas City, Missouri. Previously, Reams had been an independent, employee-owned investment management firm since its inception in 1981. UMB is better known for its reputation with retail investors and only offered equity products prior to its acquisition of Reams. Reams' fixed income strategies, track record, and presence in the institutional space led UMB to make the \$42 million acquisition.

In November of 2017, UMB sold its Scout and Reams subsidiaries to CTA, a multi-boutique asset manager and subsidiary of Raymond James Financial, Inc. Staff noted at the time that the multi-boutique manager model meant that Reams should be free to continue to operate its business just as it has in the past. Non-compete covenants apply to any key individuals who may decide to leave the firm, thereby incentivizing retention. The operating agreement Reams had with Scout, which kept Reams' operations independent, carried over as well.

Dave McKinney, President, decided to retire in 2021. Accordingly, Reams has promoted Dan Spurgeon, VP of Operations, and a 17-year tenured employee of Reams, to assume the title of President at Reams. Mr. McKinney relinquished his title to Mr. Spurgeon in July 2021. Additionally, Mr. McKinney stayed on in an advisory role through December 2021 in order to assist Mr. Spurgeon with the transition. Staff will continue to monitor Mr. Spurgeon's progress in his new role, however, Staff does not believe this is a concern at this time due to Mr. Spurgeon's long tenure and experience at Reams.

Reams has decided to relocate its main office to Indianapolis, IN and close the Columbus, IN location. Leadership's rationale for the move includes efficient commute times for 75% of the investment team already residing in or near Indianapolis, improved access to talent when recruiting, and improved proximity to the Indianapolis airport.

Total firm assets under management have grown since our last meeting, from \$20.3 billion as of June 30, 2019, to \$23.5 billion as of June 30, 2021. The Core Plus strategy the ERS is invested in is Reams' largest strategy, with \$6.8 billion in assets across 38 accounts, an increase from the ERS' last visit, when the product had \$5.7 billion in assets and 35 accounts. A majority of the AUM increase can be attributed to inflows in other types of institutional accounts including hospitals, not-for-profit, mutual fund, and commingled funds.

The fixed income team has 13 members, which is steady since our last visit. In 2021, Todd Thompson was promoted to Managing Director and assumed Tom Fink's investment committee and portfolio management responsibilities upon Mr. Fink's retirement. Reams also hired Dimitri Silva as a portfolio manager. Mr. Silva has a background in global interest rates and currencies that the team felt it was lacking. Mark Egan is the lead portfolio manager on the strategy, and Bob Crider maintains a high level of involvement with the team, serving on the investment committee and as the firm's chief economist. Mr. Egan has been with the firm since 1990, and Mr. Crider helped found the firm in 1981. Mr. Egan, Mr. Crider, and Todd Thompson are the firm's Managing Directors.

Portfolio Manager Stephen Vincent has announced his plans to retire in April of 2023. Mr. Vincent has been the lead of the Reams structured products research team for 21 years. Mr. Vincent is currently supported by structured products analysts Kevin Salsbery and Patrick Laughlin, each with more than 20 years of experience. Callan and ERS staff will continue to monitor this transition over the coming year, however, we currently believe Reams is well situated to navigate this retirement, as the two remaining members of the structured products team have significant experience. Reams did note that any personnel changes, total head count and compensation decisions are still addressed by Reams rather than Raymond James. Reams has had no problems filling roles when needed.

Reams has expressed over that past couple visits that future growth is expected to come from the Unconstrained and Low Duration strategies, rather than from the Core Plus strategy ERS is invested in, however, as noted above, Core Plus has remained the largest strategy. The Raymond James transaction brought in a larger distribution network than provided by UMB. It appears that even with the larger distribution network, Reams has been responsible about growing assets, and they noted that they have support from CTA to add staff when needed.

Investment Portfolio Construction Process

Reams' investment philosophy is based on its belief that volatility is an important driver of performance in the fixed income market, since future volatility is often greater than the market anticipates, and can lead to attractive investment opportunities. The portfolio team adopts a long-term macroeconomic outlook and then builds a trading strategy around the opportunities created by the short-term volatility in interest rates and security prices.

Reams' approach to investing has not changed since ERS' last visit. Reams combines a macroeconomic and bottom-up research-oriented process when it constructs the portfolio. The first step is the duration decision. To do this, Reams uses a proprietary model that estimates the inflation-adjusted return on Treasury bonds. In recent years Reams has kept its duration close to neutral to the index due to what they believed to be artificially low interest rates as a result of central bank policies. After the duration decision, Reams determines its sector allocation by comparing the valuations of each sector and the opportunities uncovered by its research team. The final step in the portfolio construction process is individual security selection, which depends on the sector and industry being researched. In general, Reams approaches individual securities from a total return view and focuses on securities that may benefit from a dynamic interest rate and credit environment.

In 2015, CMERS granted Reams the ability to invest up to 30% of the portfolio in index credit default swaps. At the time, Reams was very enthusiastic to have the use of these instruments, because their liquidity makes it much easier to be tactical in the high yield sector, and the index nature removes the risk of the default of a single issuer. Todd Thompson, head of Credit Research, noted that the index CDS consists of 100 names, while the highest exposure to any single name is 7%. With swaps available to the portfolio, tactical investments in high yield will likely be exclusively implemented through swaps, and high yield cash bonds will only be purchased for the portfolio when the credit team has a "blockbuster" idea. During the guideline approval process, Reams explained to CMERS that during times when Reams finds high yield attractive, exposure could potentially be greater than it has been in the past, given the increased ease of implementation from the index product. ERS staff and Callan were comfortable with this, with the reasoning being that CMERS' guidelines should be the limiting factor in high yield exposure, not an inability to efficiently invest in the asset class.

Research Process

Potential investments are separated between sectors with credit risk (i.e. corporate bonds) and those that Reams views as not having credit risk (i.e. mortgage and asset backed securities, CMO's). Mr. Thompson leads the credit research team and Mr. Vincent leads the mortgage research team. Reams relies primarily on internal research. The professionals involved in the investment process are centrally located to help foster open communication. Mr. Thompson leads the investment team in brief credit meetings daily and in-depth reviews weekly. The senior investment professionals, consisting of Mr. Egan, Mr. Crider, Mr. Thompson, Mr. Vincent, Mr. Silva, as well as Clark Holland and Jason Hoyer, meet weekly to review portfolios, cash flows, economic releases, and securities. As a complement to the daily and weekly meetings, Reams also has an Investment Committee, comprised of Mr. Egan, Mr. Crider, and Mr. Thompson, that meets on a monthly basis to review the portfolio strategy and structure.

Reams places a substantial emphasis on scenario analysis. The primary inputs for the scenario analysis are interest rates, credit spreads, and option-adjusted spreads. Scenario analysis allows Reams to identify bonds that will perform the best under likely scenarios. At the same time, many securities are rejected as candidates for the portfolio based on the downside

risk the analysis uncovers. The result of the scenario analysis allows Reams to rank each security based on its risk-adjusted return and select the bonds with the most attractive risk and return trade-offs for the portfolio. As a result, Reams' portfolio will often have a bias towards bonds that are securitized and at the top of the credit structure.

Credit analysts rotate sectors every two to three years, with the goal of gaining a deeper understanding of the overall market and allowing analysts to make relative value calls, instead of just recommendations from a certain sector. The only exception to this rule relates to the transportation sector, in which Mr. Egan covers continuously without rotation to other analysts. An additional item to note is that Reams does not utilize the standard sector naming convention and relies on their own categorization system on the credit side. Specifically, Reams consolidates cyclical with non-cyclical, but breaks out autos and retail sub-sectors.

Mr. Thompson likes the analysts to think of themselves as "credit managers" as opposed to just analysts. Reams' view is that other firms' personnel structures are often organized with distinct sector or regional specialists and coordination of ideas are not as fluid. "Max uniformity" is a concept stressed by Reams, meaning the same investment idea is implemented across all strategies, while only tweaking the maturity depending on the objective.

Portfolio Risk Controls

Reams monitors the majority of the portfolio's risk characteristics daily. Reams has internal portfolio diversification risk controls that limit the amount it may invest in a single issuer to the greater of 1% or 1.5 times the issuer's weight in the index. Reams also limits the amount that can be invested in any one industry to 15%. In volatile credit markets, such as those experienced during the last financial crisis, the Investment Committee has selectively made exceptions to these limits when it has a strong conviction for an issuer or industry. Reams is always bound by, and has not breached, the ERS' client guidelines that limit issuer concentration to 2% at the time of purchase. Finally, Reams has indicated in the past that the portfolio allocation to corporate bonds will never exceed 60% and the allocation to commercial mortgage backed securities (CMBS) will never exceed 20%.

When Reams utilizes the index credit default swaps, they must also keep a corresponding reserve of cash in CMERS' portfolio to avoid the creation of leverage. This cash collateral is required by CMERS' guidelines to be in the form of cash, cash equivalents, or U.S. Treasury securities, and Reams has specialized internal reporting to monitor the required amount of collateral on a daily basis.

Reams takes a total return view for the portfolio and is largely benchmark agnostic with respect to sector and security allocations. Thus, the risk controls Reams employs focus more on downside protection from losses than tracking error. This is why Reams' tracking error often increases when volatility in the fixed income markets increases.

Portfolio Compliance and Personnel Transactions

Reams has not violated any of the ERS' guidelines in the past two years. Reams implements a pre- and post-trade compliance monitoring system through Bloomberg that notifies the personnel of a potential violation before the trade is completed. In addition, a compliance monitor check runs overnight for the post-trade state of compliance and is reviewed daily by the compliance/risk analyst, who works with the investment team to decide on a course of action to address violations. Any concerns are reported to portfolio management daily.

Dan Spurgeon is the President and leader of compliance at Reams. Mr. Spurgeon assumed Dave McKinney's responsibilities as of July 2021 and he now receives updates addressing any concerns and a weekly report covering any violations. Although Reams does not put a single individual in charge of monitoring the ERS' guideline compliance, it has a series of checks and balances in place to identify possible issues. There are three separate areas that share this responsibility, including administration, portfolio management, and portfolio accounting.

Chang Shin has been the Chief Compliance Officer of Scout Investments since 2018. Mr. Shin is located out of the Scout Investments office in Kansas City, MO, but frequently makes in-person visits to Reams and regularly keeps in touch with Mr. Spurgeon. Mr. Shin reports directly to the CCO of CTA and is responsible for 1940 Act compliance, personal trading monitoring, training and pre/post trade compliance. Mr. Shin serves on multiple committees, including the best execution committee.

Reams employees are bound by Scout's Code of Ethics and compliance procedures. Each employee receives compliance training upon being hired and annually thereafter. Scout's compliance and guidelines cover the code of ethics, personal trading, anti-money laundering monitoring, and client confidentiality.

Trading

Global Trading Analytics, the ERS' transaction cost measurement provider, reports that Reams' trading costs have been lower on average than its institutional peer universe over the eight quarters ending in December 31, 2021. In fact, Reams has been in the top quartile of GTA's universe in seven out of eight quarters. The majority of Reams' trading is conducted electronically and processed via the Bloomberg Trading System. Excluding Treasury and Agency securities, turnover during the past three years ending December 31, 2020 has been 121%. Interest rate volatility increased in 2020 and Reams undertook numerous sector rotations throughout the year, which resulted in increased portfolio turnover. Structured securities such as agency pass-throughs cheapened early in 2020 and Reams increased its allocation to this sector. Then, purchases of these pass-through securities by the Federal Reserve increased and Reams reduced its allocation. At the same time attractive corporate credit issuance increased and Reams rotated into attractive credit issues. Accordingly, portfolio turnover increased from 37% at the time of the last visit.

Reams does not have a dedicated trader and acknowledges that this may be unique compared to other fixed income managers. While all trades require the approval of one of the managing directors, each investment team member acts as both an analyst and a trader and is expected to use his or her experience to seek best execution. Mr. Thompson discussed trading with staff and he stated the strategy is still below capacity and the analysts do not have a problem filling orders. He feels that Reams has been a beneficiary of the reduced bond market liquidity due to lower dealer inventory, because Reams is often a buyer when the market is looking to sell, and a seller when the market is looking to buy, and can therefore trade at advantageous prices.

Disaster Recovery and Information Technology

Greg VanDuesen is the VP of Operations and Technology and reports directly to Mr. Spurgeon. Reams has a disaster recovery program in place and tests its plan twice a year. The most recent test took place July 2021 and the test confirmed the reliability of the plan.

Raymond James provides, administers, and supports the IT infrastructure, including the cybersecurity program. Accordingly, Reams no longer has IT hardware or servers on-site and Reams abides by all of Raymond James related policies. Proprietary software development for investment tools will continue to be performed by Reams' in-house staff.

Since the closing of the CTA acquisition in 2017, Reams has made significant adjustments to their disaster recovery plan mentioned above. Reams' accounting system, PORTIA, is now backed-up via a cloud-based system. Raymond James' primary data centers are located in Denver, CO and Southfield, MI. The CTA information technology team also helps support Reams' IT team.

In addition, critical Reams employees are provided laptops as an alternative to working on-site as part of a back-up plan. Raymond James hosts 10 computers off-site in Memphis, TN that can be accessed remotely in case of a business continuity event. These 10 computers have the required applications installed for each employee to complete any critical functions necessary for day-to-day business.

Performance

As of February 28, 2022, Reams has outperformed its benchmark in all time periods shown. This is encouraging given the conservative recent positioning of the portfolio. Reams should be well positioned to protect the portfolio and make opportunistic investments if volatility should increase in the fixed income market. Reams also shows strong outperformance over the longer time periods. Net of fee returns compared to the benchmark are provided in the table below.

	1-Year	3-Year	5-Year	10-Year	Since Inception (1/1/2001)
Reams (Net)	-1.8%	6.5%	4.9%	3.7%	5.4%
<i>Barclays Capital Agg Index</i>	-2.6%	3.3%	2.7%	2.5%	4.3%

Conclusion

Callan and ERS staff are comfortable with Reams and have a few items to continue to watch, as noted in the takeaways section at the beginning of the memo. Overall, Reams has applied its strategy consistently over time, maintained a stable investment team, and appears capable of continuing to provide ERS with a very good core plus fixed income mandate that is a nice complement to ERS' other fixed income managers.

December 31, 2021



City of Milwaukee Employees' Retirement System

Investment Measurement Service Quarterly Review

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U.S. EQUITY

Returns grind higher despite mounting concerns

- S&P 500 posted a strong 11.0% gain in 4Q21; large cap growth (Russell 1000 Growth) was the top performer, which contrasted with the worst-performing asset class, small cap growth (Russell 2000 Growth).
- The new Omicron variant, continued supply chain disruptions, and renewed fears of persistent inflation pushed investors into the perceived safety of the largest stocks.
- S&P 500 sector results were mixed, with Real Estate (+17.5%) posting the top returns alongside Technology (+16.7%) and Materials (+15.2%); Communication Services (0.0%) and Financials (+4.6%) lagged broad returns.
- In 2021, small value outperformed small growth by over 2,500 bps (Russell 2000 Value: 28.3% vs. Russell 2000 Growth: 2.8%), a stark reversal from 2020 and a pattern consistent with periods of robust GDP growth.

Index concentration driving positive returns...

- The 10 largest stocks in the S&P 500 comprised 30.5% of the index but accounted for 65% of the 2021 return.
- During 4Q21, top 10 weights accounted for ~40% of return.

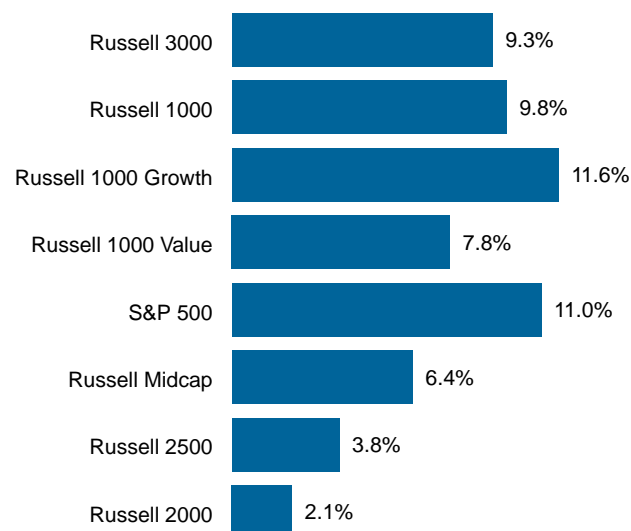
...but this may be hiding underlying weakness

- Nearly 10% of Russell 3000 stocks fell by 35% or more in 2021, which is unusual for a year when market returns were in excess of 25%.

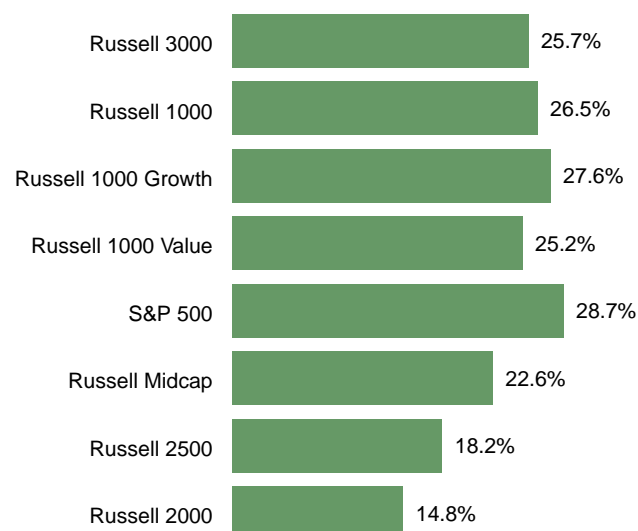
Market capitalization, style driving divergence in returns

- Mega-cap growth (Russell Top 200 Growth) was the strongest performer in both 4Q21 and 2021.
- Growth style returns highly correlated with market capitalization in both 4Q21 and 2021 (higher market capitalization = high return).
- Within micro-, small-, and smid-cap growth, Health Care (especially biotech/pharma) was biggest detractor to returns.
- Value returns correlated with market capitalization in 4Q21; for 2021, value returns did not experience much divergence.

U.S. Equity: Quarterly Returns

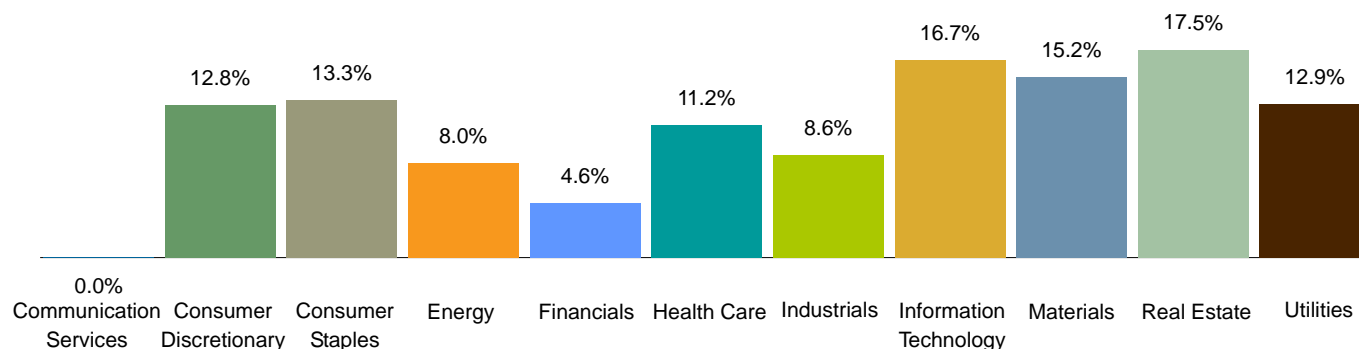


U.S. Equity: One-Year Returns



Sources: FTSE Russell, S&P Dow Jones Indices

S&P Sector Returns, Quarter Ended 12/31/21



Source: S&P Dow Jones Indices

GLOBAL EQUITY

Omicron takes center stage

- A recovery-driven market shifted back to COVID favorites, boosting Information Technology stocks.
- Small cap underperformed large amid global growth concerns.
- Emerging markets struggled relative to developed markets as China experienced significant pressure from an economic slowdown and its regulatory crackdown.

Stalled recovery

- As the new variant took hold, Energy and Communication Services lagged on fear of restrained growth.
- Japan suffered from both supply chain issues and economic constraints from COVID-19.
- Growth and momentum factors outperformed in developed markets but not in emerging markets.

U.S. dollar vs. other currencies

- The U.S. dollar rose against other major currencies as tapering accelerated alongside the expectation for 2022 rate hikes, which notably detracted from global ex-U.S. results.

Growth vs. value

- Inflationary pressures and the ultimate rebound from COVID-19 supported value's leadership for the full year, despite the shift to growth in 4Q21.

Regulation has spooked Chinese market

- Although regulation is not new in China, the duration, scope, and intensity of the current regime are unprecedented.
- Regulations have been centered on antitrust, financial markets, data/national security, and social welfare to enhance sustainability of its economy.
- Regulatory uncertainty should subside as China focuses on implementation.

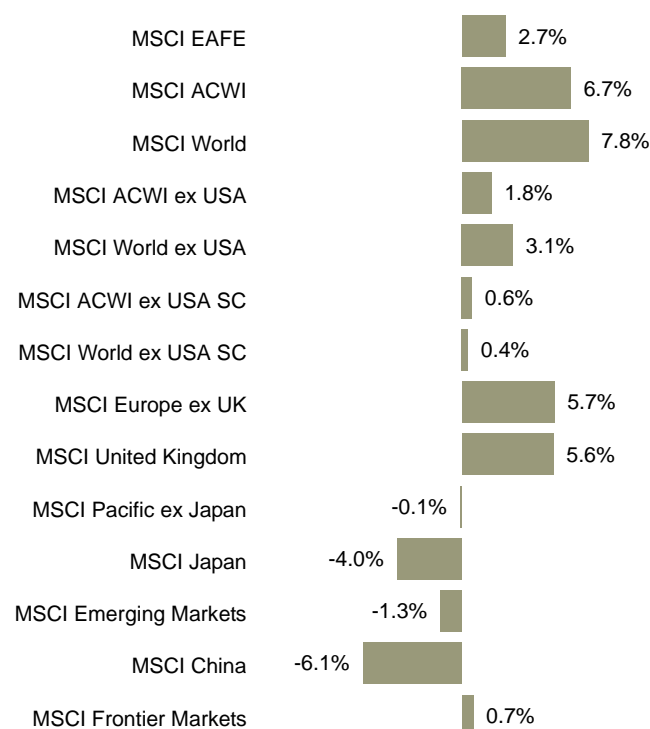
Inflation is expected to normalize in a few years

- Forecasted year-over-year core CPI is expected to reach its peak between 1Q22 and 2Q22.
- Inflationary environment by and large has shifted central banks to contractionary policy.

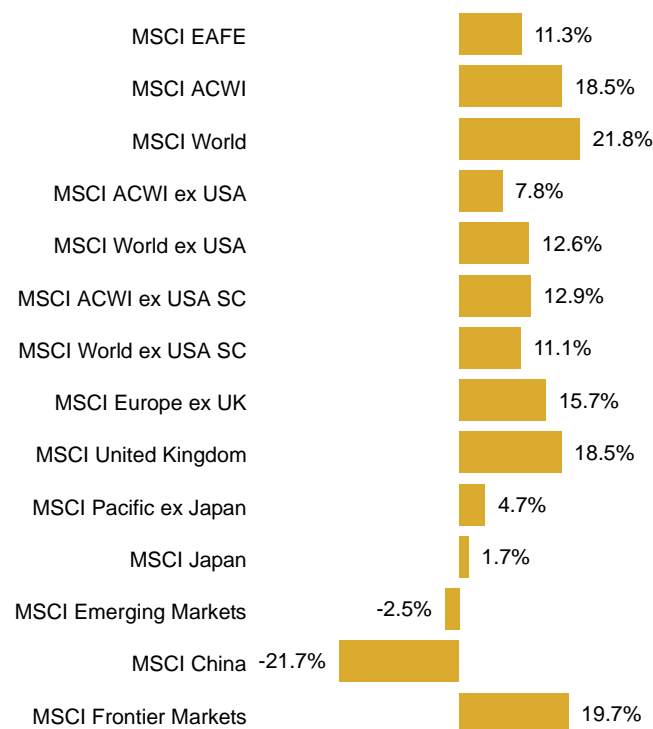
Rise in inflation expectations tends to stoke value

- Correlation between cyclical sectors and inflation/interest rate expectations generally has been positive.
- Growth relative to value is more vulnerable as interest rates normalize.
- Global recovery from COVID and deficit in Energy should support value.

Global Equity: Quarterly Returns



Global Equity: One-Year Returns



Source: MSCI

U.S. FIXED INCOME

Treasury yields again unchanged

- 10-year at 1.52% at 9/30 and 12/31, up slightly from 1.45% on 6/30.
- TIPS outperformed nominal Treasuries and 10-year breakeven spreads widened to 2.56%.
- Real yields remain solidly in negative territory.

Bloomberg Aggregate was flat, literally

- Spread sectors (Agencies, ABS, CMBS, MBS, and Credit) all underperformed UST by a modest amount (but positive YTD).
- Yield curve flattened; curve positioning had a meaningful impact on returns in 4Q.

High yield and leveraged performed relatively well

- Spreads remain near historic tights.
- High yield issuers' default rate declined to a record low in December (J.P. Morgan).
- New issuance hit a record for the second year in a row as issuers looked to finance at relatively low rates.

Munis outperformed Treasuries

- Lower-quality bonds continued their trend of outperformance as investors sought yield.

Inflation is being felt, indicated by several measures

- Annual CPI jumped to 7.0% in December—its eighth consecutive reading above 5% and the largest 12-month increase since the period ending June 1982.
- Increases for shelter and for used cars/trucks were the largest contributors to the seasonally adjusted all-items increase.
- Even service inflation, which had declined initially, has since recovered and is on an upward trend.

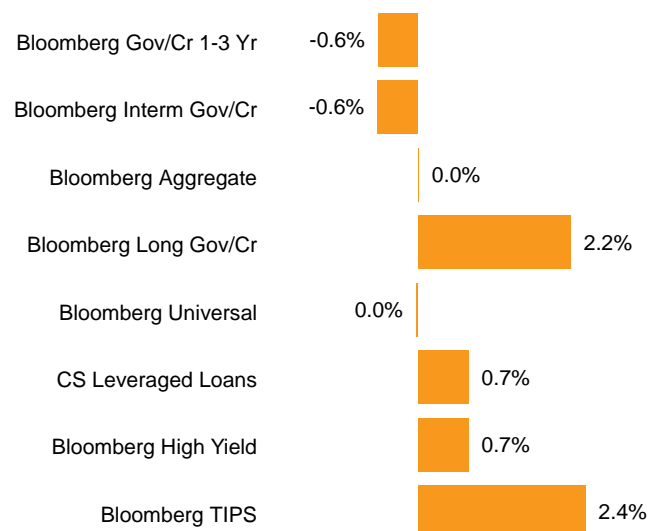
Fed has turned more hawkish than expected

- Fed announced a doubling of the pace of tapering and an upward revision to the anticipated path of rate hikes.
- FOMC participants now expect three rate hikes in 2022 to bring the targeted range to 0.75%-1.0% by year-end.

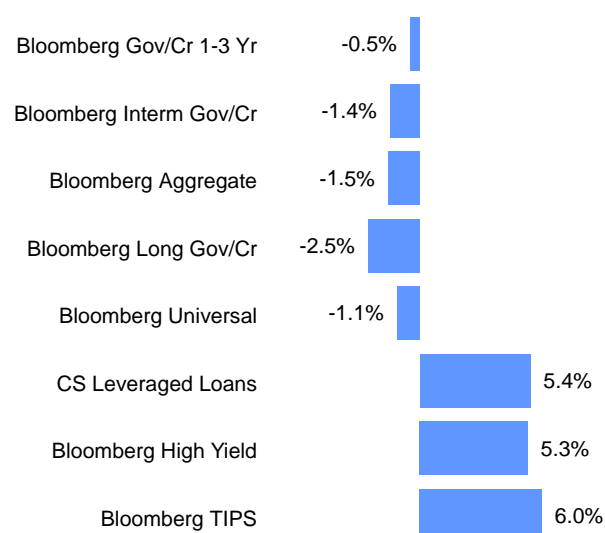
Spreads have returned to tights

- Fundamentals remain strong and default expectations low.
- Revenue, profits, and free cash flow at or near cycle highs.
- Gross and net leverage trending lower while interest coverage trends higher.

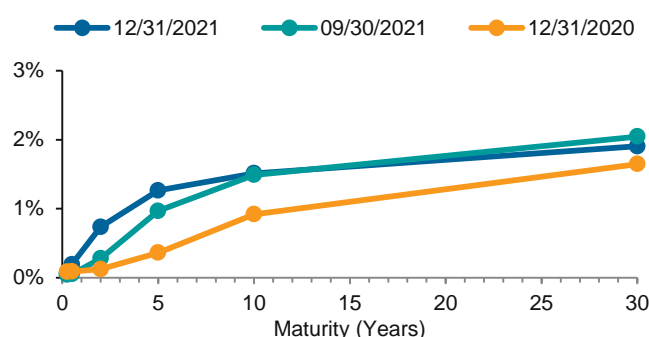
U.S. Fixed Income: Quarterly Returns



U.S. Fixed Income: One-Year Returns



U.S. Treasury Yield Curves



Sources: Bloomberg, Credit Suisse

GLOBAL FIXED INCOME

Global fixed income flat on a hedged basis

- Returns were muted and U.S. dollar strength eroded returns for unhedged U.S. investors in both 4Q and 2021.
- Yen was a notable underperformer in developed markets, falling 10% for the year.

Emerging market debt posted negative returns

- Emerging market debt indices underperformed most other fixed income sectors in 2021.
- Currencies fared the worst vs. the U.S. dollar; the Turkish lira sank 44% on spiking inflation.

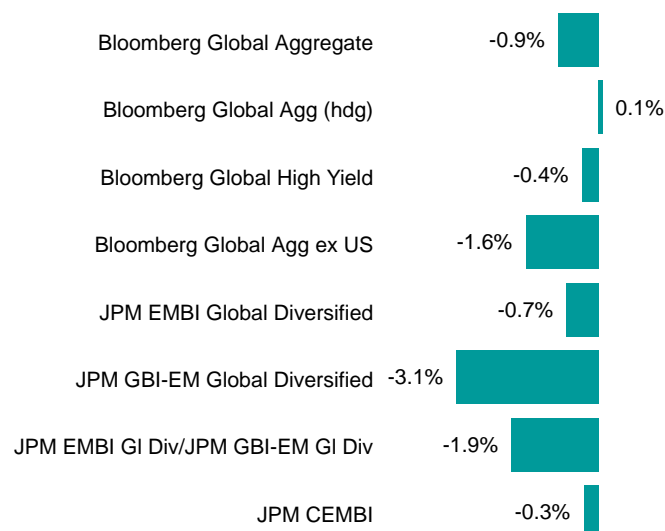
Global outlook may shift lower with regional variance

- Moderating and differentiated outlook for various regions reflects certain DM and EM economies shifting to tightening balanced by others managing legacy issues.

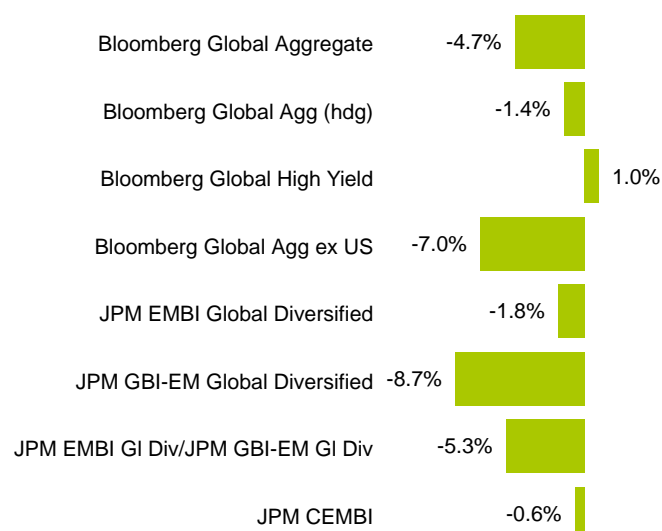
Central bank policy is mixed

- The U.K. has led the way with interest rate hikes as the BOE expects inflation to peak in April 2022.
- Europe and Japan continue to have below-target inflation and are expected to maintain relatively accommodating monetary policy.
- EM central banks, having moved early to battle inflation, may be moving to a more late-cycle posture.

Global Fixed Income: Quarterly Returns



Global Fixed Income: One-Year Returns



Change in 10-Year Global Government Bond Yields

3Q21 to 4Q21



Sources: Bloomberg, JP Morgan

Investment Manager Asset Allocation

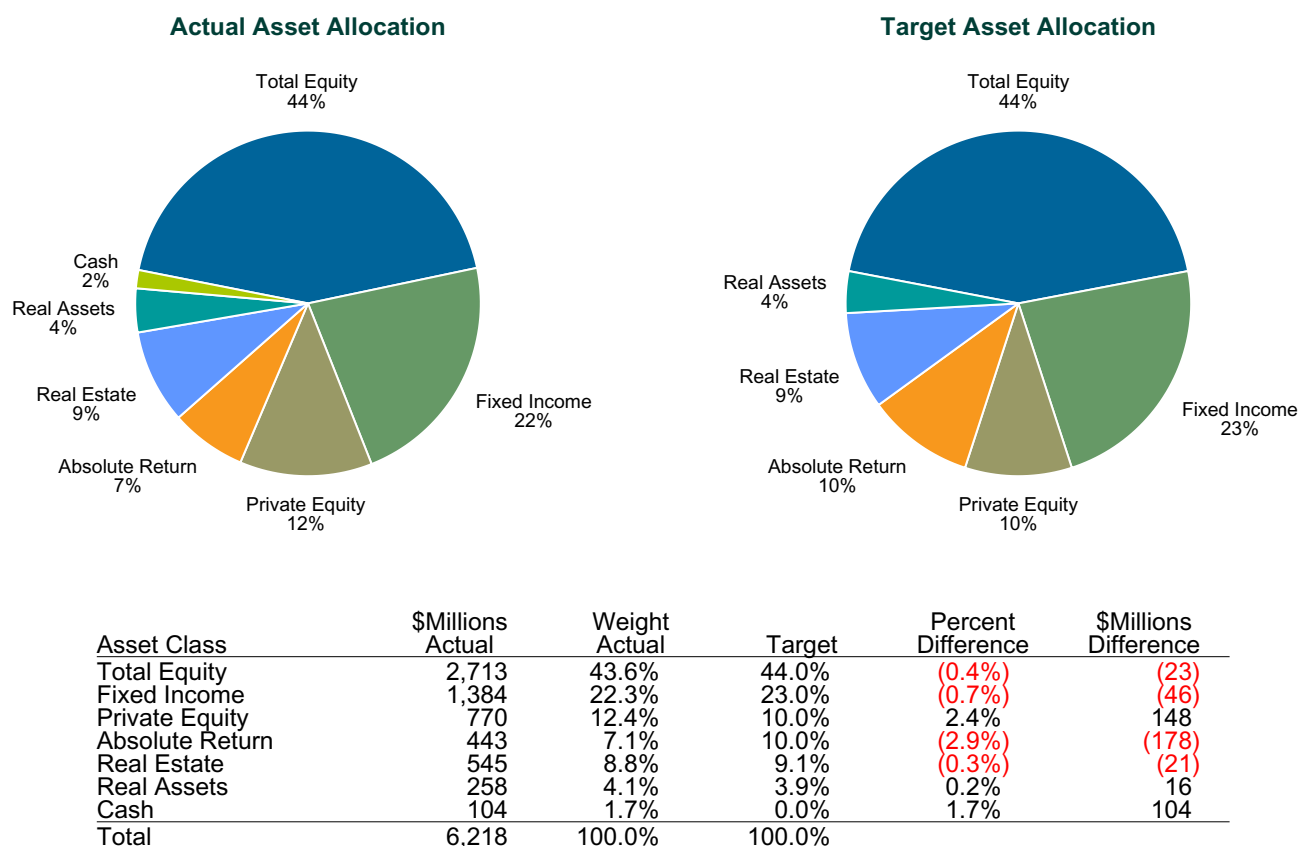
The table below contrasts the distribution of assets across the Fund's investment managers as of December 31, 2021, with the distribution as of September 30, 2021.

Asset Distribution Across Investment Managers

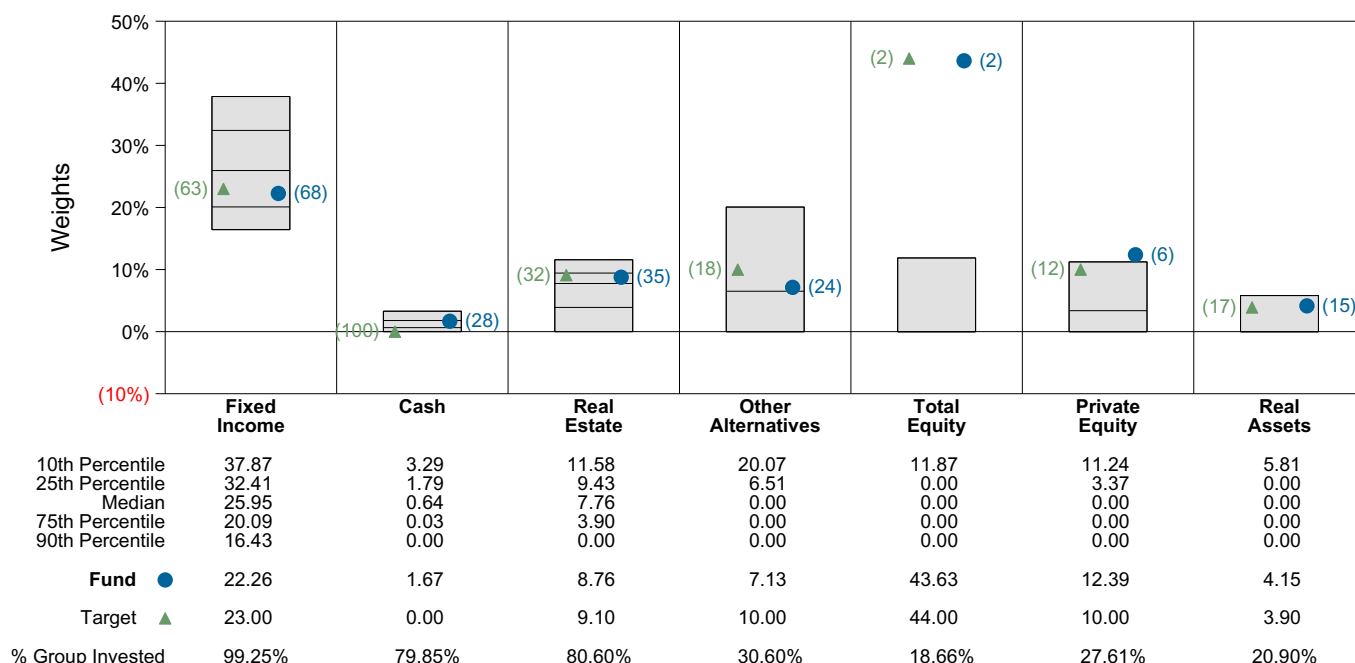
	December 31, 2021		September 30, 2021	
	Market Value	Weight	Market Value	Weight
Total Domestic Equity	\$1,225,055,592	19.70%	\$1,227,007,328	20.36%
BlackRock Russell 1000 Value	162,342,754	2.61%	157,204,438	2.61%
DFA Large Cap Value	160,098,792	2.57%	155,476,187	2.58%
Northern Trust Global	329,597,979	5.30%	329,818,153	5.47%
Polen Capital Management	155,925,522	2.51%	161,511,450	2.68%
Earnest Partners LLC	124,222,736	2.00%	122,106,245	2.03%
DFA Small Cap Value	198,175,261	3.19%	204,467,879	3.39%
CastleArk Management	94,692,549	1.52%	96,422,976	1.60%
Total Global Equity	\$514,044,092	8.27%	\$485,210,271	8.05%
BlackRock Global Alpha Tilts	310,576,017	4.99%	294,733,721	4.89%
MFS Investment Management	203,468,075	3.27%	190,476,550	3.16%
Total International Equity	\$973,838,505	15.66%	\$962,901,640	15.98%
AQR Emerging Markets	94,625,993	1.52%	95,786,113	1.59%
Brandes Investment Partners	386,359,448	6.21%	385,472,498	6.40%
William Blair & Company	294,789,424	4.74%	287,385,597	4.77%
DFA International Small Cap	198,063,639	3.19%	194,257,432	3.22%
Total Fixed Income	\$1,384,433,408	22.26%	\$1,383,740,549	22.96%
BlackRock US Debt Idx Fd	-	-	495,398,367	8.22%
BlackRock US Govt Bond	424,668,206	6.83%	-	-
Reams Asset Management	516,683,840	8.31%	444,888,631	7.38%
Loomis, Sayles & Company, L.P.	443,081,362	7.13%	443,453,551	7.36%
Total Private Equity	\$770,114,625	12.39%	\$738,881,640	12.26%
Abbott Capital Management 2010	29,880,063	0.48%	30,906,489	0.51%
Abbott Capital Management 2011	61,089,194	0.98%	61,603,196	1.02%
Abbott Capital Management 2012	51,626,793	0.83%	52,494,116	0.87%
Abbott Capital Management 2013	50,204,822	0.81%	49,934,970	0.83%
Abbott Capital Management 2014	54,745,588	0.88%	55,458,521	0.92%
Abbott Capital Management 2015	38,092,584	0.61%	37,535,606	0.62%
Abbott Capital Management 2016	28,579,416	0.46%	25,872,586	0.43%
Abbott Capital Management 2018	17,222,563	0.28%	14,263,040	0.24%
Abbott Capital Management 2019	13,385,148	0.22%	9,973,914	0.17%
Abbott Capital Management 2020	11,889,608	0.19%	6,599,065	0.11%
Abbott Capital Management 2021	2,982,156	0.05%	2,781,391	0.05%
Mesirow V	63,691,304	1.02%	70,607,892	1.17%
Mesirow VI	94,498,955	1.52%	95,783,484	1.59%
Mesirow VII	114,916,758	1.85%	102,789,594	1.71%
Mesirow VIII	35,825,430	0.58%	23,044,301	0.38%
NB Secondary Opp Fund III	9,092,478	0.15%	9,565,790	0.16%
NB Secondary Opp Fund IV	19,525,286	0.31%	19,897,800	0.33%
Private Advisors VI	26,546,578	0.43%	26,203,341	0.43%
Private Advisors VII	15,765,520	0.25%	16,208,483	0.27%
Private Advisors VIII	13,462,488	0.22%	12,569,382	0.21%
Private Advisors IX	17,091,893	0.27%	14,788,679	0.25%
Absolute Return	\$443,410,582	7.13%	\$423,977,407	7.04%
UBS A & Q	443,410,582	7.13%	423,977,407	7.04%
Real Assets	\$258,013,600	4.15%	\$246,493,503	4.09%
Principal DRA	258,013,600	4.15%	246,493,503	4.09%
Total Real Estate	\$545,009,761	8.76%	\$500,028,779	8.30%
Real Estate	545,009,761	8.76%	500,028,779	8.30%
Total Cash	\$104,133,681	1.67%	\$58,048,665	0.96%
Cash	104,133,681	1.67%	58,048,665	0.96%
Total Fund	\$6,218,053,846	100.0%	\$6,026,289,783	100.0%

Actual vs Target Asset Allocation As of December 31, 2021

The top left chart shows the Fund's asset allocation as of December 31, 2021. The top right chart shows the Fund's target asset allocation as outlined in the investment policy statement. The bottom chart ranks the fund's asset allocation and the target allocation versus the Callan Public Fund Sponsor Database.



Asset Class Weights vs Callan Public Fund Sponsor Database

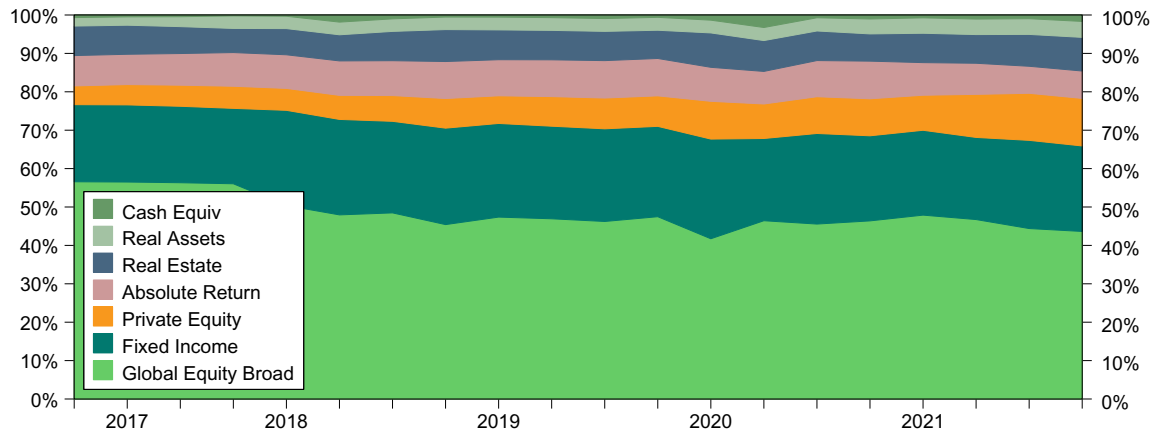


* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmgb Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal Blended Benchmark.

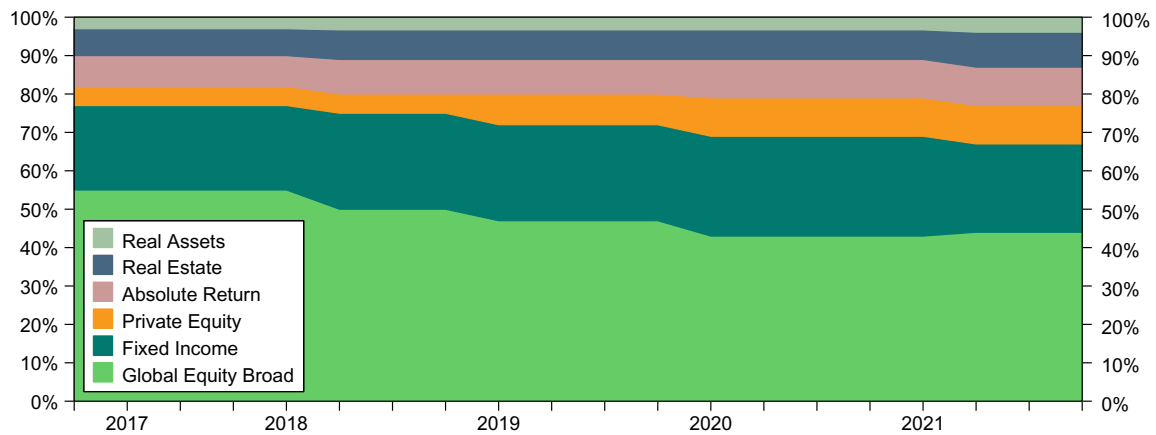
Actual vs Target Historical Asset Allocation

The Historical asset allocation for a fund is by far the largest factor explaining its performance. The charts below show the fund's historical actual asset allocation, the fund's historical target asset allocation, and the historical asset allocation of the average fund in the Callan Public Fund Sponsor Database.

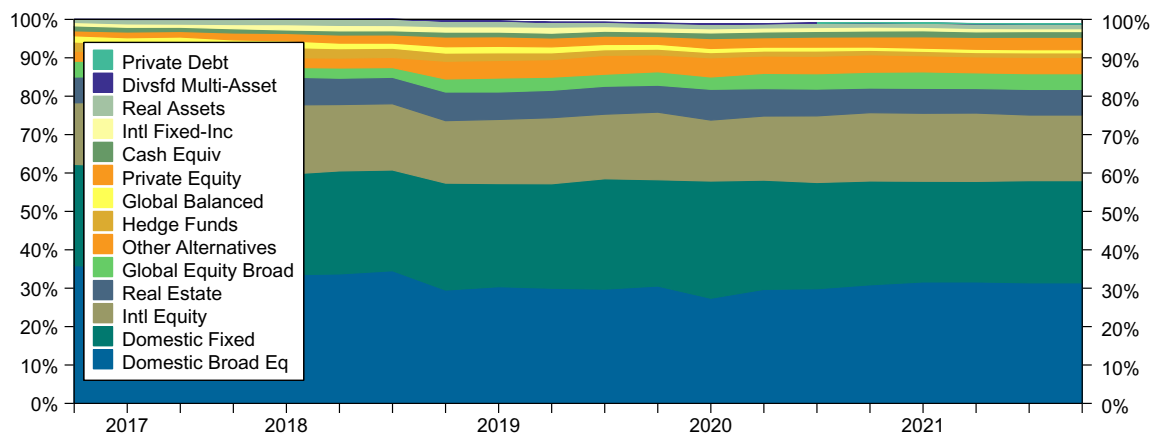
Actual Historical Asset Allocation



Target Historical Asset Allocation



Average Callan Public Fund Sponsor Database Historical Asset Allocation



* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal Blended Benchmark.

Total Fund Period Ended December 31, 2021

Investment Philosophy

The Public Fund Sponsor Database consists of public employee pension total funds including both Callan Associates client and surveyed non-client funds. Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal Blended Benchmark.

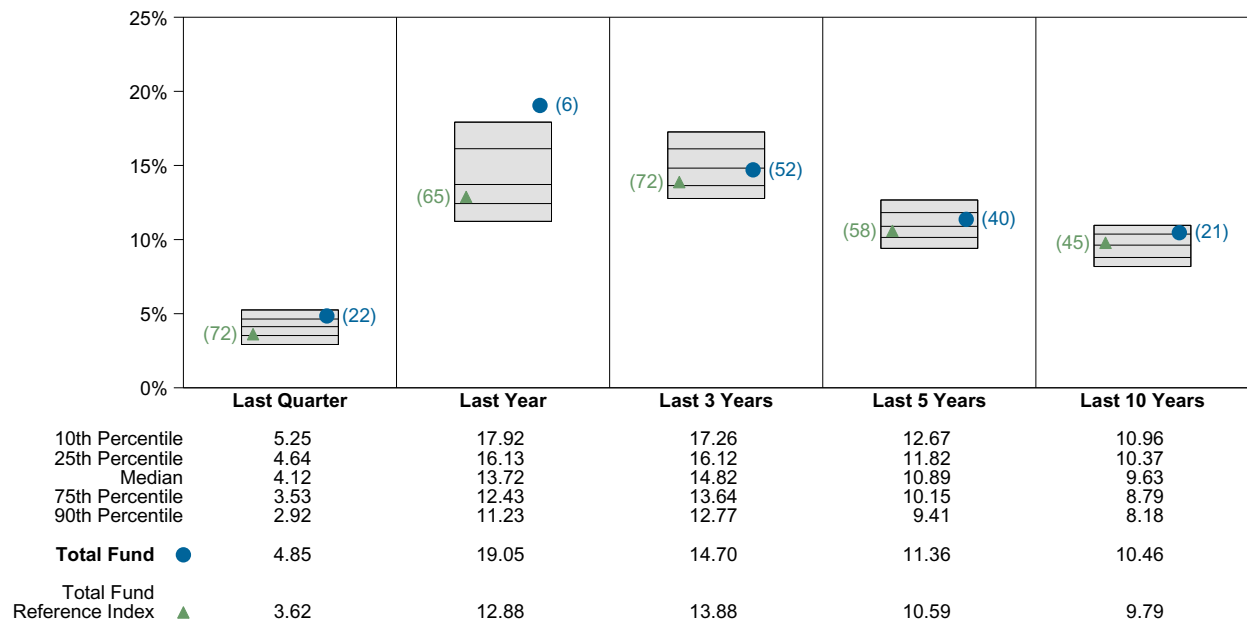
Quarterly Summary and Highlights

- Total Fund's portfolio posted a 4.85% return for the quarter placing it in the 22 percentile of the Callan Public Fund Sponsor Database group for the quarter and in the 6 percentile for the last year.
- Total Fund's portfolio outperformed the Total Fund Reference Index by 1.23% for the quarter and outperformed the Total Fund Reference Index for the year by 6.17%.

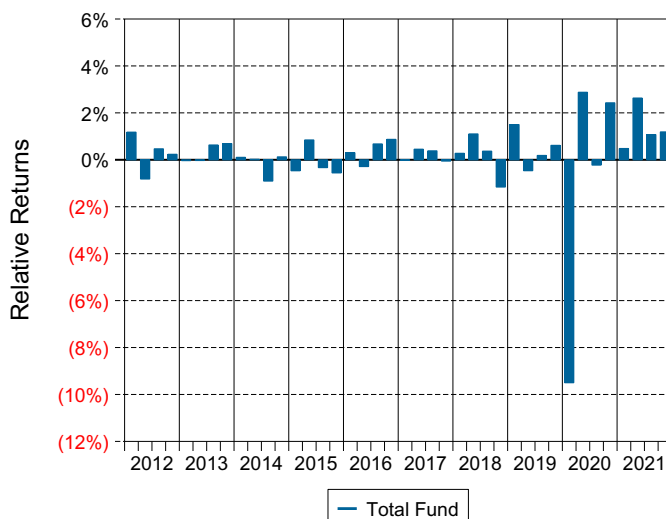
Quarterly Asset Growth

Beginning Market Value	\$6,026,289,783
Net New Investment	\$-100,902,017
Investment Gains/(Losses)	\$292,666,080
Ending Market Value	\$6,218,053,846

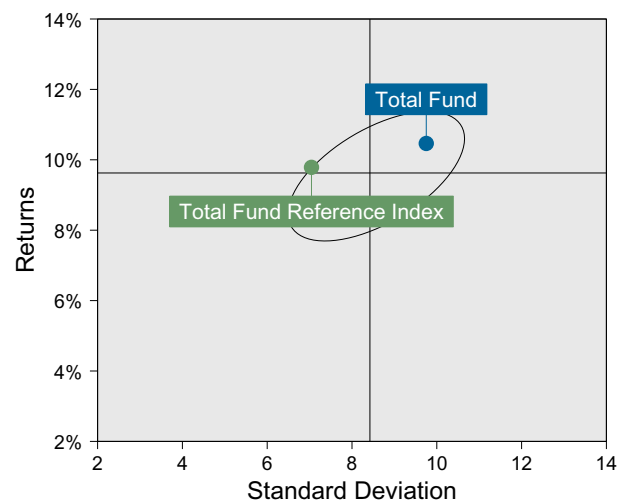
Performance vs Callan Public Fund Sponsor Database (Gross)



Relative Return vs Total Fund Reference Index



Callan Public Fund Sponsor Database (Gross) Annualized Ten Year Risk vs Return

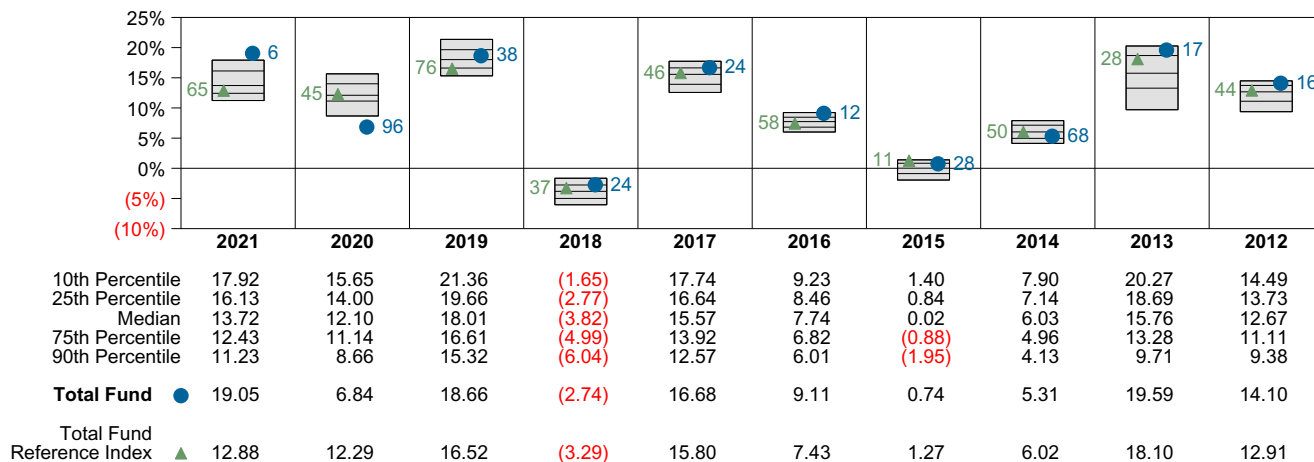


Total Fund Return Analysis Summary

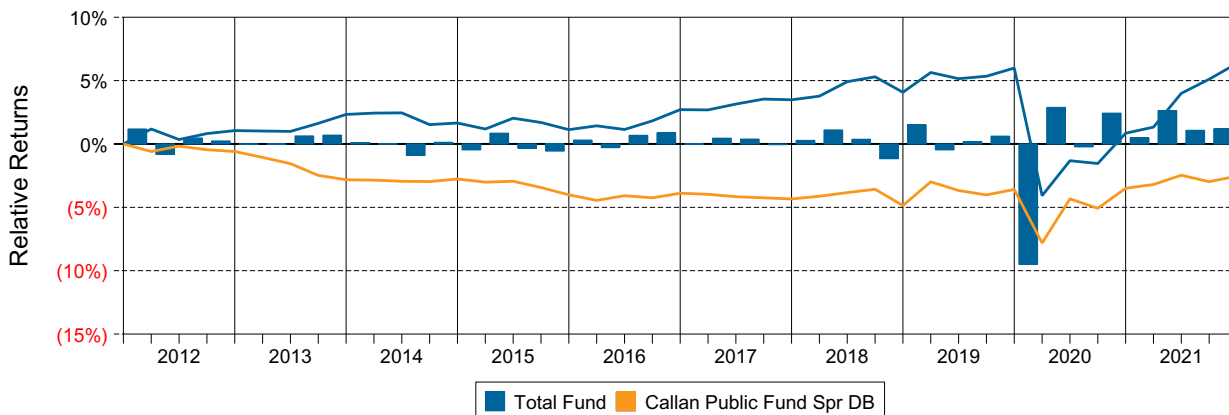
Return Analysis

The graphs below analyze the manager's return on both a risk-adjusted and unadjusted basis. The first chart illustrates the manager's ranking over different periods versus the appropriate style group. The second chart shows the historical quarterly and cumulative manager returns versus the appropriate market benchmark. The last chart illustrates the manager's ranking relative to their style using various risk-adjusted return measures.

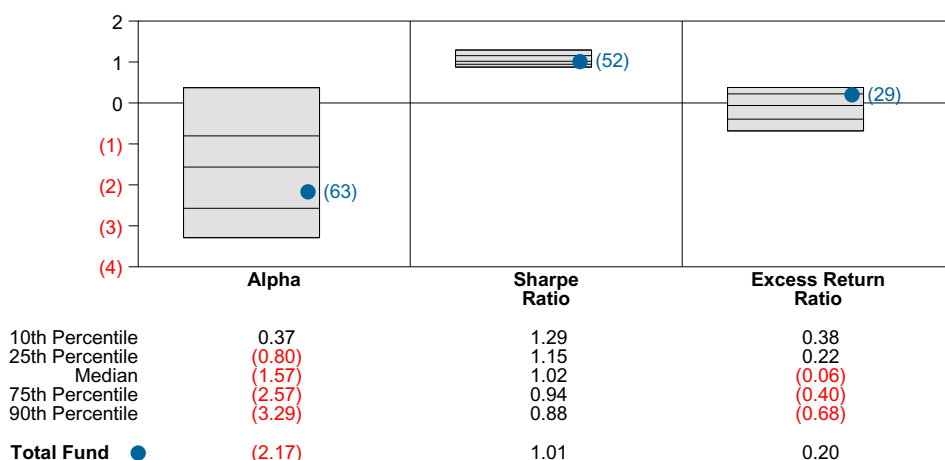
Performance vs Callan Public Fund Sponsor Database (Gross)



Cumulative and Quarterly Relative Return vs Total Fund Reference Index



Risk Adjusted Return Measures vs Total Fund Reference Index Rankings Against Callan Public Fund Sponsor Database (Gross) Ten Years Ended December 31, 2021



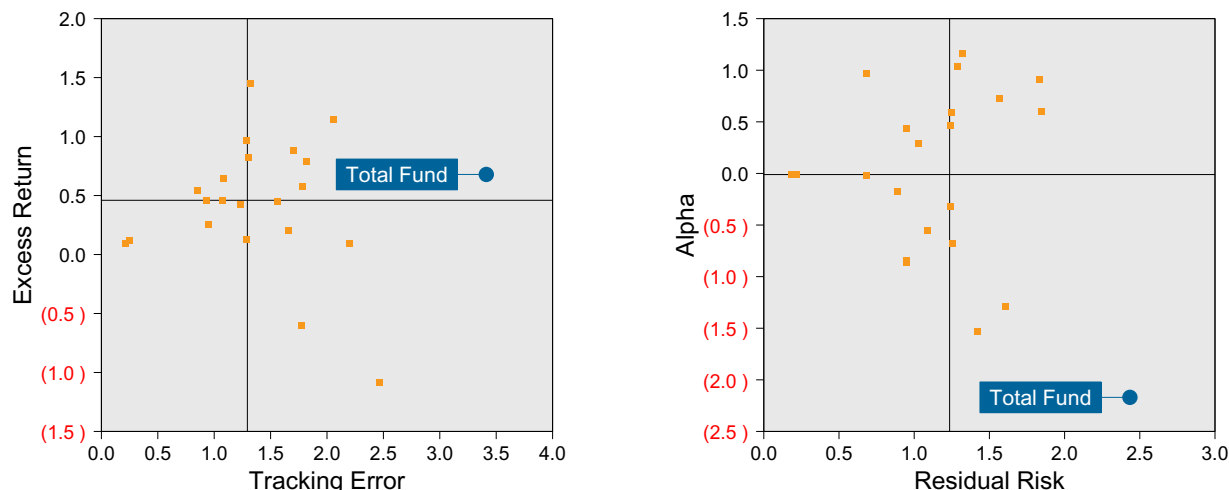
Total Fund

Total Fund vs Target Risk Analysis

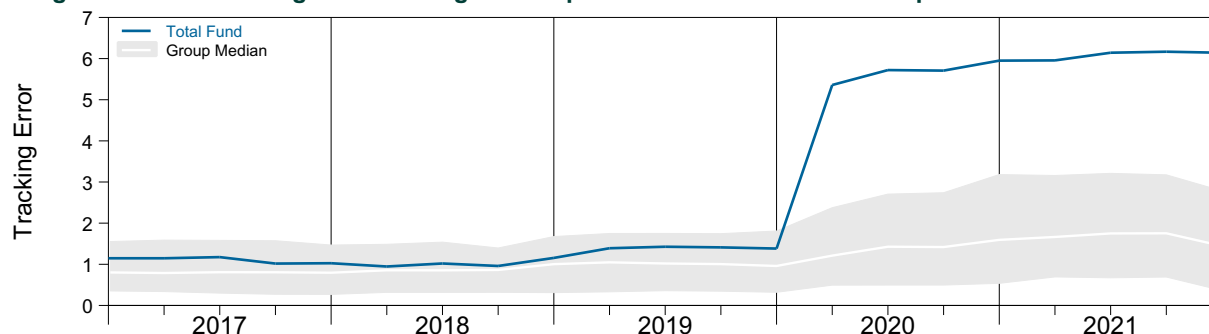
Risk Analysis

The graphs below analyze the performance and risk of the fund relative to the appropriate target mix. This relative performance is compared to a peer group of funds wherein each member fund is measured against its own target mix. The first scatter chart illustrates the relationship, called Excess Return Ratio, between excess return and tracking error relative to the target. The second scatter chart displays the relationship, sometimes called Information Ratio, between alpha (market-risk or "beta" adjusted return) and residual risk (non-market or "unsystematic" risk). The third chart shows tracking error patterns over time compared to the range of tracking error patterns for the peer group. The last two charts show the ranking of the fund's risk statistics versus the peer group.

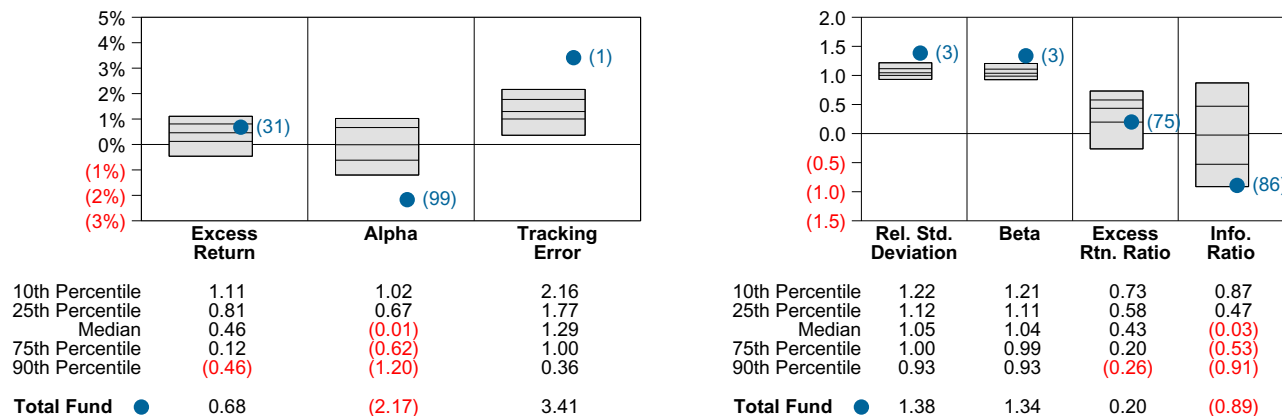
Risk Analysis vs Callan Public Fund Sponsor Database Ten Years Ended December 31, 2021



Rolling 12 Quarter Tracking Error vs Targets Compared to Callan Public Fund Sponsor Database



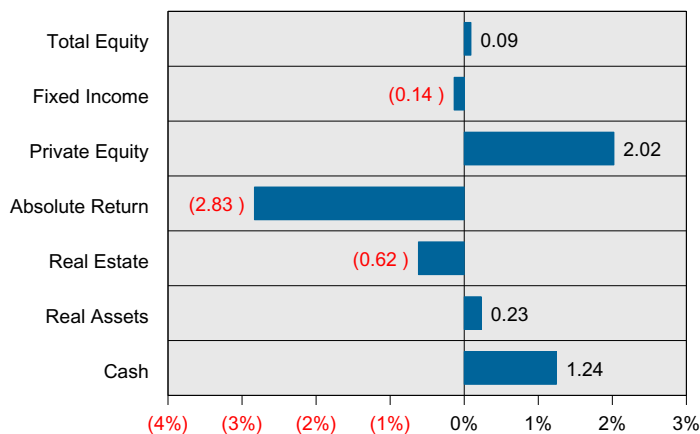
Risk Statistics Rankings vs Targets Rankings Against Callan Public Fund Sponsor Database Ten Years Ended December 31, 2021



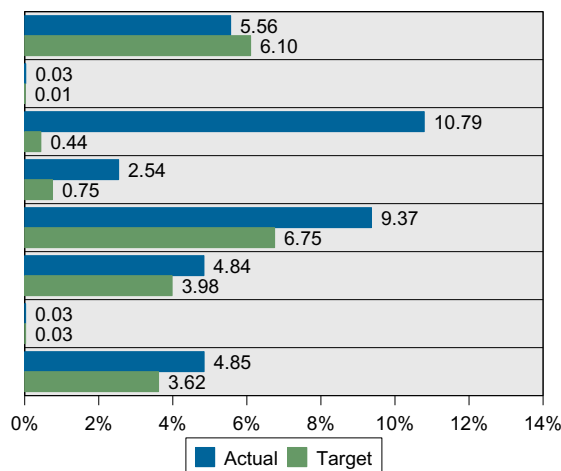
Quarterly Total Fund Relative Attribution - December 31, 2021

The following analysis approaches Total Fund Attribution from the perspective of relative return. Relative return attribution separates and quantifies the sources of total fund excess return relative to its target. This excess return is separated into two relative attribution effects: Asset Allocation Effect and Manager Selection Effect. The Asset Allocation Effect represents the excess return due to the actual total fund asset allocation differing from the target asset allocation. Manager Selection Effect represents the total fund impact of the individual managers excess returns relative to their benchmarks.

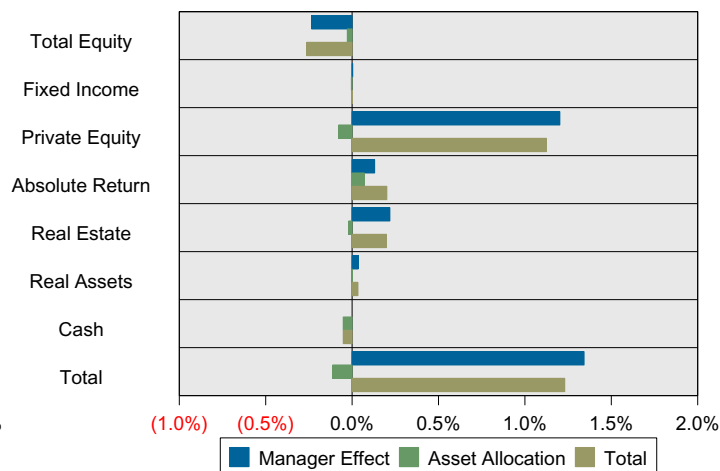
Asset Class Under or Overweighting



Actual vs Target Returns



Relative Attribution by Asset Class



Relative Attribution Effects for Quarter ended December 31, 2021

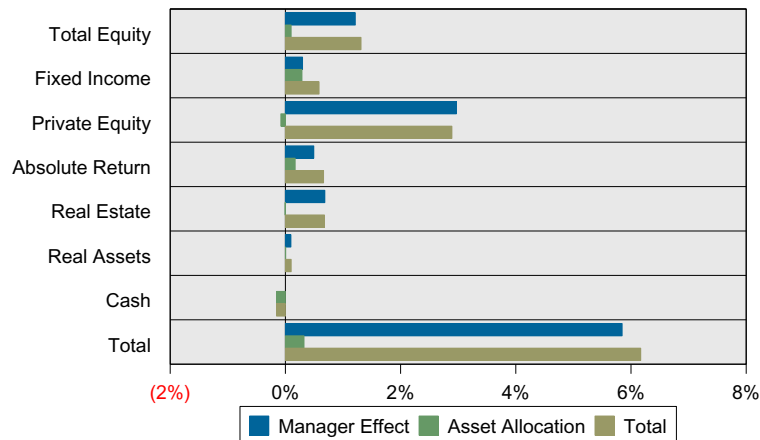
Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	44%	44%	5.56%	6.10%	(0.23%)	(0.03%)	(0.26%)
Fixed Income	23%	23%	0.03%	0.01%	0.00%	(0.00%)	(0.00%)
Private Equity	12%	10%	10.79%	0.44%	1.20%	(0.08%)	1.12%
Absolute Return	7%	10%	2.54%	0.75%	0.13%	0.07%	0.20%
Real Estate	8%	9%	9.37%	6.75%	0.22%	(0.02%)	0.20%
Real Assets	4%	4%	4.84%	3.98%	0.04%	(0.00%)	0.03%
Cash	1%	0%	0.03%	0.03%	0.00%	(0.05%)	(0.05%)
Total			4.85%	3.62%	+ 1.34%	+ (0.11%)	1.23%

* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal Blended Benchmark.

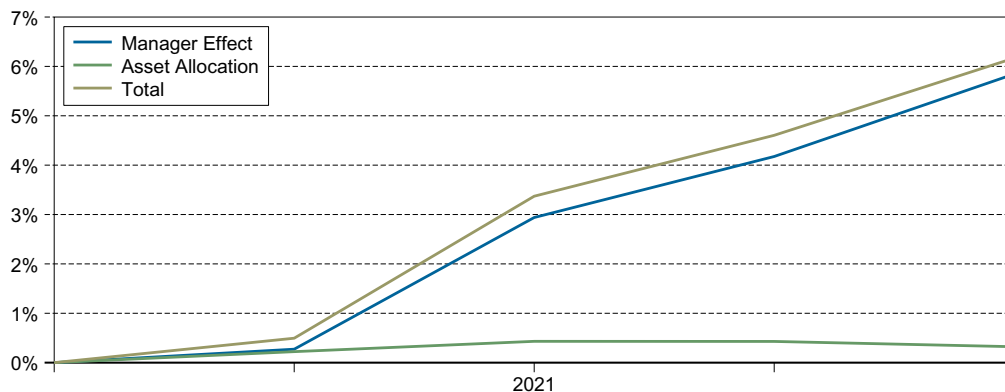
Cumulative Total Fund Relative Attribution - December 31, 2021

The charts below accumulate the Total Fund Attribution Analysis (shown earlier) over multiple periods to examine the cumulative sources of excess total fund performance relative to target. These cumulative results quantify the longer-term sources of total fund excess return relative to target by asset class. These relative attribution effects separate the cumulative sources of total fund excess return into Asset Allocation Effect and Manager Selection Effect.

One Year Relative Attribution Effects



Cumulative Relative Attribution Effects



One Year Relative Attribution Effects

Asset Class	Effective Actual Weight	Effective Target Weight	Actual Return	Target Return	Manager Effect	Asset Allocation	Total Relative Return
Total Equity	46%	44%	20.92%	18.22%	1.21%	0.10%	1.31%
Fixed Income	22%	24%	(0.36%)	(1.54%)	0.30%	0.29%	0.58%
Private Equity	10%	10%	67.66%	34.08%	2.97%	(0.08%)	2.89%
Absolute Return	8%	10%	8.87%	3.05%	0.49%	0.17%	0.66%
Real Estate	8%	9%	23.85%	14.83%	0.68%	(0.01%)	0.68%
Real Assets	4%	4%	18.26%	15.87%	0.10%	0.01%	0.10%
Cash	1%	0%	0.22%	0.22%	0.00%	(0.15%)	(0.15%)
Total			19.05%	12.88%	+ 5.85%	+ 0.32%	6.17%

* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal Blended Benchmark.

Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods ended December 31, 2021. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns and Rankings for Periods Ended December 31, 2021

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
Total Domestic Equity	8.20%	73	28.12%	12	24.43%	65	17.02%	54	8.77%	(7/98)
Russell 3000 Index	9.28%	37	25.66%	51	25.79%	25	17.97%	25	8.52%	(7/98)
Pub Pln- Dom Equity	8.95%		25.73%		24.88%		17.13%		-	
BlackRock Russell 1000 Value	7.80%	53	25.18%	78	17.91%	62	-	74	11.22%	(3/17)
Russell 1000 Value Index	7.77%	53	25.16%	78	17.64%	64	11.16%	74	10.60%	(3/17)
Callan Large Cap Value	8.08%		28.30%		18.87%		12.36%		-	
DFA Large Cap Value	6.92%	75	27.52%	64	16.74%	81	-	74	10.07%	(11/17)
Russell 1000 Value Index	7.77%	53	25.16%	78	17.64%	64	11.16%	74	11.29%	(11/17)
Callan Large Cap Value	8.08%		28.30%		18.87%		12.36%		-	
Northern Trust Global	11.02%	28	28.69%	50	26.09%	45	18.50%	38	11.37%	(8/88)
S&P 500 Index	11.03%	28	28.71%	50	26.07%	46	18.47%	38	11.32%	(8/88)
Callan Large Cap Core	9.90%		28.75%		25.58%		18.02%		-	
Polen Capital Management	5.28%	82	24.84%	43	32.81%	36	26.69%	14	20.34%	(7/12)
S&P 500 Index	11.03%	21	28.71%	21	26.07%	96	18.47%	98	16.38%	(7/12)
Callan Large Cap Growth	8.74%		24.26%		31.56%		24.42%		-	
Earnest Partners LLC	11.56%	1	26.09%	47	28.50%	23	19.28%	28	12.73%	(5/05)
Russell MidCap Index	6.44%	62	22.58%	59	23.29%	50	15.10%	52	11.11%	(5/05)
Callan Mid Capitalization	7.84%		25.31%		23.31%		15.11%		-	
DFA Small Cap Value	6.68%	55	40.61%	13	20.15%	40	9.73%	54	12.20%	(11/96)
Russell 2000 Value Index	4.36%	90	28.27%	65	17.99%	71	9.07%	61	9.88%	(11/96)
Callan Small Cap Value	6.78%		32.26%		19.13%		9.99%		-	
CastleArk Management	4.94%	22	12.30%	43	26.18%	60	20.79%	46	15.37%	(9/13)
Russell 2000 Growth Index	0.01%	63	2.83%	81	21.17%	92	14.53%	96	12.37%	(9/13)
Callan Small Cap Growth	2.03%		10.76%		27.70%		20.43%		-	
Total Global Equity	7.64%	29	19.03%	55	22.82%	39	17.44%	33	11.03%	(4/10)
MSCI World	7.77%	26	21.82%	26	21.70%	48	15.03%	53	10.92%	(4/10)
Callan Global Equity	6.04%		19.50%		21.52%		15.42%		-	
BlackRock Global Alpha Tilts	7.12%	37	18.73%	57	20.63%	58	15.19%	51	15.72%	(3/16)
MSCI ACWI Gross	6.77%	41	19.04%	55	20.97%	55	14.97%	54	15.64%	(3/16)
Callan Global Equity	6.04%		19.50%		21.52%		15.42%		-	
MFS Investment Management	8.49%	15	19.56%	50	26.20%	20	20.83%	12	15.19%	(12/12)
MSCI ACWI Gross	6.77%	41	19.04%	55	20.97%	55	14.97%	54	12.13%	(12/12)
Callan Global Equity	6.04%		19.50%		21.52%		15.42%		-	
Total International Equity	1.20%	58	13.08%	14	15.11%	55	10.09%	75	7.49%	(5/96)
MSCI EAFE	2.69%	16	11.26%	22	13.54%	78	9.55%	87	5.09%	(5/96)
Pub Pln- Intl Equity	1.43%		9.04%		15.21%		11.03%		-	
AQR Emerging Markets	(1.02%)	58	1.23%	36	13.00%	44	9.82%	70	9.40%	(8/16)
MSCI EM Gross	(1.24%)	62	(2.22%)	55	11.33%	66	10.27%	62	9.36%	(8/16)
Callan Emerging Broad	(0.67%)		(0.71%)		12.73%		10.86%		-	
Brandes Investment Partners	0.23%	85	14.42%	17	9.20%	96	6.72%	93	7.85%	(2/98)
MSCI EAFE	2.69%	41	11.26%	52	13.54%	66	9.55%	62	5.19%	(2/98)
Callan NonUS Eq	2.30%		11.41%		15.48%		10.93%		-	
William Blair & Company	2.63%	43	13.27%	30	25.12%	2	16.45%	6	9.45%	(12/03)
MSCI ACWIxUS Gross	1.88%	56	8.29%	72	13.70%	65	10.12%	58	7.39%	(12/03)
Callan NonUS Eq	2.30%		11.41%		15.48%		10.93%		-	
DFA International Small Cap	2.09%	16	16.47%	15	12.85%	87	7.12%	91	5.35%	(5/06)
Blended Benchmark	0.07%	58	10.10%	73	15.62%	55	11.04%	59	4.88%	(5/06)
Callan Intl Small Cap	0.46%		12.92%		16.17%		11.26%		-	

Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods ended December 31, 2021. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns and Rankings for Periods Ended December 31, 2021

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
Total Fixed Income	0.03%	51	(0.36%)	42	3.04%	99	2.80%	96	7.01%	(12/87)
Bimbg Aggregate	0.01%	52	(1.54%)	90	4.79%	76	3.57%	76	6.06%	(12/87)
Pub Pln- Dom Fixed	0.03%		(0.59%)		5.60%		4.26%		-	
Reams Asset Management	0.41%	7	(1.23%)	91	8.02%	1	5.89%	2	5.79%	(1/01)
Bimbg Aggregate	0.01%	65	(1.54%)	97	4.79%	94	3.57%	98	4.52%	(1/01)
Callan Core Plus FI	0.06%		(0.24%)		6.12%		4.63%		-	
Loomis, Sayles & Company, L.P.	(0.08%)	79	2.13%	5	7.78%	2	5.86%	2	8.76%	(12/87)
Bimbg Aggregate	0.01%	65	(1.54%)	97	4.79%	94	3.57%	98	6.06%	(12/87)
Callan Core Plus FI	0.06%		(0.24%)		6.12%		4.63%		-	
Total Private Equity	10.79%		67.66%		33.67%		27.75%		15.22%	(6/10)
Russell 3000 (1 Qtr in Arrears) + 3%	0.64%		34.93%		19.39%		20.09%		-	
Abbott Capital Management 2010	15.49%		65.55%		33.89%		29.59%		3.44%	(6/10)
Abbott Capital Management 2011	15.19%		76.29%		39.65%		32.49%		7.89%	(6/11)
Abbott Capital Management 2012	14.51%		72.85%		38.03%		31.01%		15.88%	(7/12)
Abbott Capital Management 2013	13.70%		70.21%		38.43%		31.56%		17.09%	(5/13)
Abbott Capital Management 2014	15.78%		75.52%		38.53%		29.90%		16.61%	(4/14)
Abbott Capital Management 2015	11.17%		75.81%		33.15%		23.43%		17.82%	(4/15)
Abbott Capital Management 2016	11.17%		71.04%		30.83%		19.36%		16.34%	(3/16)
Abbott Capital Management 2018	11.53%		47.06%		24.63%		-		19.94%	(7/18)
Abbott Capital Management 2019	7.62%		57.22%		-		-		31.53%	(1/20)
Abbott Capital Management 2020	0.23%		65.36%		-		-		65.36%	(1/21)
Abbott Capital Management 2021	7.22%		-		-		-		11.36%	(2/21)
Mesirow V	5.01%		78.52%		36.08%		29.19%		19.20%	(6/10)
Mesirow VI	9.18%		88.26%		43.95%		33.18%		18.54%	(7/13)
Mesirow VII	11.80%		60.27%		24.47%		-		4.30%	(6/17)
Mesirow VIII	2.13%		10.14%		-		-		(2.98%)	(9/20)
NB Secondary Opp Fund III	2.35%		30.34%		15.08%		16.48%		13.48%	(12/13)
NB Secondary Opp Fund IV	7.67%		48.73%		25.13%		-		27.13%	(4/17)
Private Advisors VI	15.35%		83.78%		36.21%		26.92%		15.89%	(4/15)
Private Advisors VII	10.51%		52.55%		20.83%		15.21%		15.21%	(1/17)
Private Advisors VIII	9.47%		47.25%		17.81%		-		19.91%	(8/18)
Private Advisors IX	8.62%		37.25%		-		-		31.74%	(2/20)
Absolute Return	2.54%		8.87%		1.82%		2.59%		3.48%	(6/14)
UBS A & Q	2.54%	4	8.08%	43	9.92%	16	7.26%	17	6.03%	(12/14)
1-month LIBOR + 4%	1.01%	35	4.10%	73	4.95%	63	5.20%	45	4.95%	(12/14)
Callan Abs Rtn Hedge FoF	(0.69%)		5.60%		7.06%		4.76%		-	
Real Assets	4.84%		18.26%		12.63%		7.81%		7.67%	(1/16)
Principal DRA	4.84%	10	18.26%	42	12.63%	15	7.81%	14	7.67%	(1/16)
Principal Blended Benchmark (1)	3.98%	20	15.87%	45	10.75%	30	6.82%	15	6.81%	(1/16)
Callan Alternative Inv DB	0.69%		13.42%		7.02%		4.28%		-	
Total Real Estate	9.37%		23.85%		9.85%		9.58%		6.97%	(7/86)
Real Estate	9.37%	2	23.85%	8	9.85%	16	9.58%	12	6.97%	(7/86)
Blended Benchmark (2)	6.75%	10	14.83%	55	6.84%	62	7.07%	63	-	
Callan Tot Real Est DB	4.46%		15.72%		7.52%		7.70%		-	
Total Fund	4.85%	22	19.05%	6	14.70%	52	11.36%	40	9.74%	(1/79)
Total Fund Reference Index*	3.62%	72	12.88%	65	13.88%	72	10.59%	58	-	
Callan Public Fund Spr DB	4.12%		13.72%		14.82%		10.89%		-	

* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Bimbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal Blended Benchmark.

(1) Current Principal Blended Benchmark = 35% Bloomberg US Treasury US TIPS Idx, 15% Bloomberg Commodity Idx, 20% S&P Global Infrastructure Idx, 20% S&P Global Natural Resources Idx and 10% FTSE EPRA/NAREIT Developed Market Idx.

(2) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI 1 Qtr Arrears) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.

Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	2021		2020		2019		2018		2017	
Total Domestic Equity	28.12%	12	16.35%	75	29.24%	75	(5.80%)	49	20.91%	41
Russell 3000 Index	25.66%	51	20.89%	25	31.02%	29	(5.24%)	34	21.13%	40
Pub Pln- Dom Equity	25.73%		18.62%		30.26%		(5.83%)		20.51%	
BlackRock Russell 1000 Value	25.18%	78	3.28%	46	26.79%	46	(8.12%)	43	-	
Russell 1000 Value Index	25.16%	78	2.80%	52	26.54%	50	(8.27%)	45	13.66%	91
Callan Large Cap Value	28.30%		3.04%		26.52%		(8.70%)		17.12%	
DFA Large Cap Value	27.52%	64	(1.56%)	90	26.71%	47	(12.40%)	84	-	
Russell 1000 Value Index	25.16%	78	2.80%	52	26.54%	50	(8.27%)	45	13.66%	91
Callan Large Cap Value	28.30%		3.04%		26.52%		(8.70%)		17.12%	
Northern Trust Global	28.69%	50	18.42%	53	31.54%	39	(4.34%)	33	21.87%	48
S&P 500 Index	28.71%	50	18.40%	53	31.49%	39	(4.38%)	33	21.83%	49
Callan Large Cap Core	28.75%		19.19%		30.50%		(5.33%)		21.72%	
Polen Capital Management	24.84%	43	35.13%	55	38.85%	11	9.14%	4	27.67%	65
S&P 500 Index	28.71%	21	18.40%	98	31.49%	76	(4.38%)	91	21.83%	98
Callan Large Cap Growth	24.26%		35.55%		34.55%		0.51%		28.84%	
Earnest Partners LLC	26.09%	47	21.61%	41	38.38%	12	(9.80%)	45	26.16%	23
Russell MidCap Index	22.58%	59	17.10%	48	30.54%	52	(9.06%)	41	18.52%	55
Callan Mid Capitalization	25.31%		16.17%		31.00%		(10.60%)		19.58%	
DFA Small Cap Value	40.61%	13	3.85%	44	18.79%	90	(14.84%)	53	7.68%	64
Russell 2000 Value Index	28.27%	65	4.63%	36	22.39%	64	(12.86%)	23	7.84%	63
Callan Small Cap Value	32.26%		2.65%		24.34%		(14.79%)		9.18%	
CastleArk Management	12.30%	43	45.10%	46	23.28%	86	3.29%	15	23.93%	61
Russell 2000 Growth Index	2.83%	81	34.63%	73	28.48%	54	(9.31%)	84	22.17%	72
Callan Small Cap Growth	10.76%		44.48%		30.25%		(2.91%)		26.16%	
Total Global Equity	19.03%	55	18.78%	43	31.05%	27	(8.18%)	40	31.31%	16
MSCI World	21.82%	26	15.90%	55	27.67%	49	(8.71%)	44	22.40%	75
Callan Global Equity	19.50%		17.13%		27.49%		(9.52%)		25.31%	
BlackRock Global Alpha Tilts	18.73%	57	16.53%	52	26.86%	53	(11.20%)	67	30.12%	22
MSCI ACWI Gross	19.04%	55	16.82%	51	27.30%	51	(8.93%)	46	24.62%	57
Callan Global Equity	19.50%		17.13%		27.49%		(9.52%)		25.31%	
MFS Investment Management	19.56%	50	22.42%	32	37.31%	4	(3.75%)	11	33.16%	12
MSCI ACWI Gross	19.04%	55	16.82%	51	27.30%	51	(8.93%)	46	24.62%	57
Callan Global Equity	19.50%		17.13%		27.49%		(9.52%)		25.31%	
Total International Equity	13.08%	14	10.84%	73	21.68%	75	(15.19%)	68	25.03%	94
MSCI EAFE	11.26%	22	7.82%	90	22.01%	64	(13.79%)	42	25.03%	94
Pub Pln- Intl Equity	9.04%		13.20%		22.93%		(14.04%)		29.11%	
AQR Emerging Markets	1.23%	36	18.26%	49	20.54%	63	(18.31%)	86	35.53%	73
MSCI EM Gross	(2.22%)	55	18.69%	44	18.90%	71	(14.24%)	28	37.75%	58
Callan Emerging Broad	(0.71%)		18.17%		22.12%		(15.34%)		39.31%	
Brandes Investment Partners	14.42%	17	(1.30%)	96	15.31%	98	(8.79%)	6	16.53%	99
MSCI EAFE	11.26%	52	7.82%	66	22.01%	66	(13.79%)	36	25.03%	74
Callan NonUS Eq	11.41%		11.48%		23.78%		(15.13%)		28.08%	
William Blair & Company	13.27%	30	31.44%	6	31.58%	9	(16.86%)	73	31.45%	22
MSCI ACWIxUS Gross	8.29%	72	11.13%	51	22.13%	64	(13.77%)	35	27.77%	55
Callan NonUS Eq	11.41%		11.48%		23.78%		(15.13%)		28.08%	
DFA International Small Cap	16.47%	15	1.47%	89	21.62%	81	(23.31%)	91	27.98%	92
Blended Benchmark	10.10%	73	12.34%	45	24.96%	50	(17.89%)	30	33.01%	74
Callan Intl Small Cap	12.92%		11.08%		24.96%		(19.67%)		35.22%	

Investment Manager Returns and Peer Group Rankings

The table below details the rates of return and peer group rankings for the Fund's investment managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

	2021		2020		2019		2018		2017	
Total Fixed Income	(0.36%)	42	(1.82%)	98	11.82%	5	(0.33%)	71	5.28%	29
Blmbg Aggregate	(1.54%)	90	7.51%	66	8.72%	58	0.01%	57	3.54%	76
Pub Pln- Dom Fixed	(0.59%)		8.37%		8.97%		0.11%		4.46%	
Reams Asset Management	(1.23%)	91	17.28%	2	8.82%	92	1.91%	1	3.62%	95
Blmbg Aggregate	(1.54%)	97	7.51%	91	8.72%	93	0.01%	30	3.54%	95
Callan Core Plus FI	(0.24%)		9.25%		10.03%		(0.24%)		4.90%	
Loomis, Sayles & Company, L.P.	2.13%	5	7.14%	92	14.42%	1	(2.11%)	98	8.50%	1
Blmbg Aggregate	(1.54%)	97	7.51%	91	8.72%	93	0.01%	30	3.54%	95
Callan Core Plus FI	(0.24%)		9.25%		10.03%		(0.24%)		4.90%	
Total Private Equity	67.66%		22.14%		16.63%		21.48%		17.27%	
Russell 3000 (1 Qtr in Arrears) + 3%	34.93%		18.77%		6.19%		20.60%		21.71%	
Abbott Capital Management 2010	65.55%		24.43%		16.52%		26.90%		19.98%	
Abbott Capital Management 2011	76.29%		29.13%		19.64%		25.70%		19.24%	
Abbott Capital Management 2012	72.85%		29.04%		17.91%		24.39%		17.97%	
Abbott Capital Management 2013	70.21%		28.65%		21.13%		25.17%		18.71%	
Abbott Capital Management 2014	75.52%		26.51%		19.74%		22.58%		13.50%	
Abbott Capital Management 2015	75.81%		16.62%		15.14%		13.57%		6.87%	
Abbott Capital Management 2016	71.04%		20.02%		9.08%		9.43%		(1.13%)	
Abbott Capital Management 2018	47.06%		22.73%		7.26%		-		-	
Abbott Capital Management 2019	57.22%		10.04%		-		-		-	
Abbott Capital Management 2020	65.36%		-		-		-		-	
Mesirow V	78.52%		21.39%		16.29%		18.01%		21.00%	
Mesirow VI	88.26%		29.10%		22.73%		24.87%		12.50%	
Mesirow VII	60.27%		16.43%		3.33%		(7.82%)		-	
Mesirow VIII	10.14%		-		-		-		-	
NB Secondary Opp Fund III	30.34%		4.23%		12.18%		16.65%		20.63%	
NB Secondary Opp Fund IV	48.73%		14.80%		14.76%		68.26%		-	
Private Advisors VI	83.78%		16.54%		17.98%		15.19%		13.15%	
Private Advisors VII	52.55%		3.97%		11.23%		19.02%		(3.33%)	
Private Advisors VIII	47.25%		15.78%		(4.08%)		-		-	
Private Advisors IX	37.25%		-		-		-		-	
Absolute Return	8.87%		(14.04%)		12.79%		1.61%		5.96%	
UBS A & Q	8.08%	43	12.18%	11	9.53%	4	2.65%	12	4.16%	67
1-month LIBOR + 4%	4.10%	73	4.49%	45	6.26%	31	6.07%	2	5.11%	50
Callan Abs Rtn Hedge FoF	5.60%		4.03%		4.71%		0.58%		5.10%	
Real Assets	18.26%		4.69%		15.39%		(7.47%)		10.15%	
Principal DRA	18.26%	42	4.69%	25	15.39%	15	(7.47%)	51	10.15%	16
Principal Blended Benchmark (1)	15.87%	45	2.08%	35	14.86%	17	(7.27%)	49	10.38%	15
Callan Alternative Inv DB	13.42%		(0.43%)		7.87%		(7.42%)		4.75%	
Total Real Estate	23.85%		0.76%		6.21%		9.18%		9.20%	
Real Estate	23.85%	8	0.76%	53	6.21%	65	9.18%	40	9.20%	41
Blended Benchmark (2)	14.83%	55	0.89%	52	5.26%	72	7.89%	51	6.93%	59
Callan Tot Real Est DB	15.72%		1.25%		7.74%		7.95%		7.88%	
Total Fund	19.05%	6	6.84%	96	18.66%	38	(2.74%)	24	16.68%	24
Total Fund Reference Index*	12.88%	65	12.29%	45	16.52%	76	(3.29%)	37	15.80%	46
Callan Public Fund Spr DB	13.72%		12.10%		18.01%		(3.82%)		15.57%	

* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal Blended Benchmark.

(1) Current Principal Blended Benchmark = 35% Bloomberg US Treasury US TIPS Idx, 15% Bloomberg Commodity Idx, 20% S&P Global Infrastructure Idx, 20% S&P Global Natural Resources Idx and 10% FTSE EPRA/NAREIT Developed Market Idx.

(2) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI 1 Qtr Arrears) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended December 31, 2021. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

Returns for Periods Ended December 31, 2021

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
Net of Fee Returns					
Total Domestic Equity Net	8.15%	27.88%	24.16%	16.72%	15.47%
Russell 3000 Index	9.28%	25.66%	25.79%	17.97%	16.30%
BlackRock Russell 1000 Value	7.80%	25.17%	17.89%	-	-
Russell 1000 Value Index	7.77%	25.16%	17.64%	11.16%	12.97%
DFA Large Cap Value	6.87%	27.35%	16.50%	-	-
Russell 1000 Value Index	7.77%	25.16%	17.64%	11.16%	12.97%
Northern Trust Global	11.02%	28.68%	26.08%	18.48%	16.58%
S&P 500 Index	11.03%	28.71%	26.07%	18.47%	16.55%
Polen Capital Management	5.18%	24.34%	32.27%	26.13%	-
S&P 500 Index	11.03%	28.71%	26.07%	18.47%	16.55%
Earnest Partners LLC	11.56%	25.59%	27.88%	18.68%	16.40%
Russell MidCap Index	6.44%	22.58%	23.29%	15.10%	14.91%
DFA Small Cap Value	6.60%	40.38%	19.97%	9.39%	13.02%
Russell 2000 Value Index	4.36%	28.27%	17.99%	9.07%	12.03%
CastleArk Management	4.76%	11.55%	25.33%	19.99%	-
Russell 2000 Growth Index	0.01%	2.83%	21.17%	14.53%	14.14%
Total Global Equity Net	7.59%	18.80%	22.48%	17.08%	12.97%
MSCI World	7.77%	21.82%	21.70%	15.03%	12.70%
BlackRock Global Alpha Tilts	7.10%	18.67%	20.44%	15.06%	-
MFS Investment Management	8.37%	19.05%	25.66%	20.32%	-
MSCI ACWI Gross	6.77%	19.04%	20.97%	14.97%	12.44%
Total International Equity Net	1.08%	12.57%	14.55%	9.56%	8.91%
MSCI EAFE Index	2.69%	11.26%	13.54%	9.55%	8.03%
AQR Emerging Markets	(1.21%)	0.47%	12.16%	9.01%	-
MSCI EM Gross	(1.24%)	(2.22%)	11.33%	10.27%	5.87%
Brandes Investment Partners	0.14%	14.00%	8.78%	6.30%	7.03%
MSCI EAFE Index	2.69%	11.26%	13.54%	9.55%	8.03%
William Blair & Company	2.52%	12.77%	24.57%	15.95%	11.66%
MSCI ACWI ex-US Index	1.88%	8.29%	13.70%	10.12%	7.78%
DFA International Small Cap	1.96%	15.89%	12.23%	6.77%	9.13%
Blended Benchmark	0.07%	10.10%	15.62%	11.04%	10.80%
Total Fixed Income Net	0.00%	(0.45%)	2.93%	2.67%	2.93%
Bimbg Aggregate	0.01%	(1.54%)	4.79%	3.57%	2.90%
Reams Asset Management	0.37%	(1.36%)	7.87%	5.73%	4.33%
Loomis, Sayles & Company, L.P.	(0.12%)	1.98%	7.62%	5.72%	5.82%
Bimbg Aggregate	0.01%	(1.54%)	4.79%	3.57%	2.90%
Total Private Equity	10.79%	67.66%	33.67%	27.75%	18.39%
Russell 3000 (1 Qtr in Arrears) + 3%	0.64%	34.93%	19.39%	20.09%	-
Abbott Capital Management 2010	15.49%	65.55%	33.89%	29.59%	18.38%
Abbott Capital Management 2011	15.19%	76.29%	39.65%	32.49%	17.87%
Abbott Capital Management 2012	14.51%	72.85%	38.03%	31.01%	-
Abbott Capital Management 2013	13.70%	70.21%	38.43%	31.56%	-
Abbott Capital Management 2014	15.78%	75.52%	38.53%	29.90%	-
Abbott Capital Management 2015	11.17%	75.81%	33.15%	23.43%	-
Abbott Capital Management 2016	11.17%	71.04%	30.83%	19.36%	-
Abbott Capital Management 2018	11.53%	47.06%	24.63%	-	-
Abbott Capital Management 2019	7.62%	57.22%	-	-	-
Abbott Capital Management 2020	0.23%	65.36%	-	-	-
Abbott Capital Management 2021	7.22%	-	-	-	-
Mesirow V	5.01%	78.52%	36.08%	29.19%	21.65%
Mesirow IV	9.18%	88.26%	43.95%	33.18%	-
Mesirow VII	11.80%	60.27%	24.47%	-	-
Mesirow VIII	2.13%	10.14%	-	-	-
NB Secondary Opp Fund III	2.35%	30.34%	15.08%	16.48%	-
NB Secondary Opp Fund IV	7.67%	48.73%	25.13%	-	-
Private Advisors VI	15.35%	83.78%	36.21%	26.92%	-
Private Advisors VII	10.51%	52.55%	20.83%	15.21%	-
Private Advisors VIII	9.47%	47.25%	17.81%	-	-
Private Advisors IX	8.62%	37.25%	-	-	-
Absolute Return	2.54%	8.77%	1.64%	2.48%	-
UBS A & Q	2.54%	8.08%	9.92%	7.26%	-
1-month LIBOR + 4%	1.01%	4.10%	4.95%	5.20%	4.73%
Real Assets	4.67%	17.51%	11.97%	7.43%	-
Principal DRA	4.67%	17.51%	11.97%	7.43%	-
Principal Blended Benchmark (1)	3.98%	15.87%	10.75%	6.82%	-
Total Real Estate	9.28%	23.45%	9.50%	9.27%	10.59%
Real Estate	9.28%	23.45%	9.50%	9.27%	10.59%
Blended Benchmark (2)	6.75%	14.83%	6.84%	7.07%	9.18%
Total Fund Net	4.79%	18.80%	14.43%	11.08%	10.17%
Total Fund Reference Index	3.62%	12.88%	13.88%	10.59%	9.79%

*Net returns are simulated with the use of fee schedules through March 31, 2019. Actual fees paid are used thereafter.

Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods. Negative returns are shown in red, positive returns in black. Returns for one year or greater are annualized. The first set of returns for each asset class represents the composite returns for all the fund's accounts for that asset class.

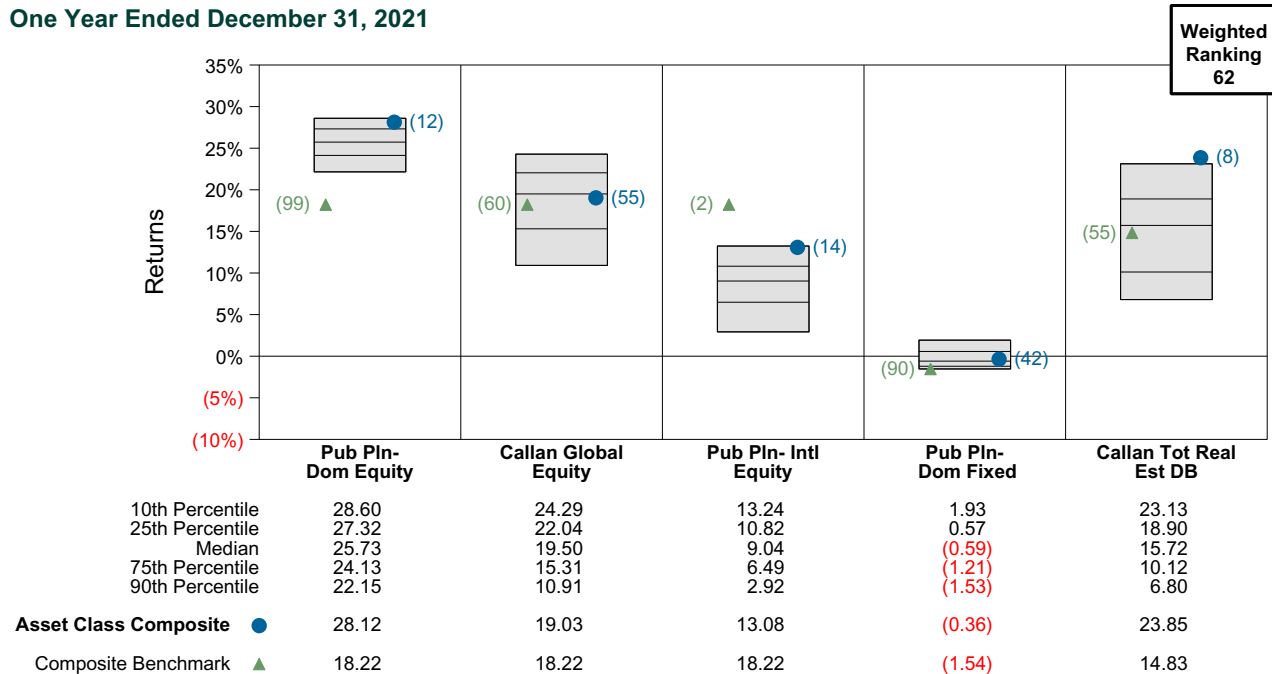
	2021	2020	2019	2018	2017
Net of Fee Returns					
Total Domestic Equity Net	27.88%	16.09%	28.94%	(6.10%)	20.53%
Russell 3000 Index	25.66%	20.89%	31.02%	(5.24%)	21.13%
BlackRock Russell 1000 Value	25.17%	3.27%	26.77%	(8.13%)	-
Russell 1000 Value Index	25.16%	2.80%	26.54%	(8.27%)	13.66%
DFA Large Cap Value	27.35%	(1.78%)	26.42%	(12.60%)	-
Russell 1000 Value Index	25.16%	2.80%	26.54%	(8.27%)	13.66%
Northern Trust Global	28.68%	18.41%	31.53%	(4.37%)	21.83%
S&P 500 Index	28.71%	18.40%	31.49%	(4.38%)	21.83%
Polen Capital Management	24.34%	34.59%	38.27%	8.60%	27.05%
S&P 500 Index	28.71%	18.40%	31.49%	(4.38%)	21.83%
Earnest Partners LLC	25.59%	20.96%	37.65%	(10.29%)	25.50%
Russell MidCap Index	22.58%	17.10%	30.54%	(9.06%)	18.52%
DFA Small Cap Value	40.38%	3.74%	18.58%	(15.30%)	7.10%
Russell 2000 Value Index	28.27%	4.63%	22.39%	(12.86%)	7.84%
CastleArk Management	11.55%	44.12%	22.47%	2.60%	23.12%
Russell 2000 Growth Index	2.83%	34.63%	28.48%	(9.31%)	22.17%
Total Global Equity Net	18.80%	18.48%	30.55%	(8.51%)	30.85%
MSCI World	21.82%	15.90%	27.67%	(8.71%)	22.40%
BlackRock Global Alpha Tilts	18.67%	16.39%	26.48%	(11.24%)	30.06%
MFS Investment Management	19.05%	21.88%	36.74%	(4.16%)	32.62%
MSCI ACWI Gross	19.04%	16.82%	27.30%	(8.93%)	24.62%
Total International Equity Net	12.57%	10.28%	21.08%	(15.60%)	24.44%
MSCI EAFE Index	11.26%	7.82%	22.01%	(13.79%)	25.03%
AQR Emerging Markets	0.47%	17.38%	19.64%	(18.93%)	34.55%
MSCI EM Gross	(2.22%)	18.69%	18.90%	(14.24%)	37.75%
Brandes Investment Partners	14.00%	(1.69%)	14.86%	(9.17%)	16.06%
MSCI EAFE Index	11.26%	7.82%	22.01%	(13.79%)	25.03%
William Blair & Company	12.77%	30.84%	31.01%	(17.20%)	30.94%
MSCI ACWI ex-US Index	8.29%	11.13%	22.13%	(13.77%)	27.77%
DFA International Small Cap	15.89%	0.81%	21.00%	(23.31%)	27.98%
Blended Benchmark	10.10%	12.34%	24.96%	(17.89%)	33.01%
Total Fixed Income Net	(0.45%)	(1.91%)	11.68%	(0.47%)	5.09%
Bimbg Aggregate	(1.54%)	7.51%	8.72%	0.01%	3.54%
Reams Asset Management	(1.36%)	17.11%	8.65%	1.76%	3.46%
Loomis, Sayles & Company, L.P.	1.98%	6.99%	14.25%	(2.24%)	8.36%
Bimbg Aggregate	(1.54%)	7.51%	8.72%	0.01%	3.54%
Total Private Equity	67.66%	22.14%	16.63%	21.48%	17.27%
Russell 3000 (1 Qtr in Arrears) + 3%	34.93%	18.77%	6.19%	20.60%	21.71%
Abbott Capital Management 2010	65.55%	24.43%	16.52%	26.90%	19.98%
Abbott Capital Management 2011	76.29%	29.13%	19.64%	25.70%	19.24%
Abbott Capital Management 2012	72.85%	29.04%	17.91%	24.39%	17.97%
Abbott Capital Management 2013	70.21%	28.65%	21.13%	25.17%	18.71%
Abbott Capital Management 2014	75.52%	26.51%	19.74%	22.58%	13.50%
Abbott Capital Management 2015	75.81%	16.62%	15.14%	13.57%	6.87%
Abbott Capital Management 2016	71.04%	20.02%	9.08%	9.43%	(1.13%)
Abbott Capital Management 2018	47.06%	22.73%	7.26%	-	-
Abbott Capital Management 2019	57.22%	10.04%	-	-	-
Abbott Capital Management 2020	65.36%	-	-	-	-
Mesirow V	78.52%	21.39%	16.29%	18.01%	21.00%
Mesirow IV	88.26%	29.10%	22.73%	24.87%	12.50%
Mesirow VII	60.27%	16.43%	3.33%	(7.82%)	-
Mesirow VIII	10.14%	-	-	-	-
NB Secondary Opp Fund III	30.34%	4.23%	12.18%	16.65%	20.63%
NB Secondary Opp Fund IV	48.73%	14.80%	14.76%	68.26%	-
Private Advisors VI	83.78%	16.54%	17.98%	15.19%	13.15%
Private Advisors VII	52.55%	3.97%	11.23%	19.02%	(3.33%)
Private Advisors VIII	47.25%	15.78%	(4.08%)	-	-
Private Advisors IX	37.25%	-	-	-	-
Absolute Return	8.77%	(14.21%)	12.52%	1.61%	5.96%
UBS A & Q	8.08%	12.18%	9.53%	2.65%	4.16%
1-month LIBOR + 4%	4.10%	4.49%	6.26%	6.07%	5.11%
Real Assets	17.51%	4.02%	14.84%	(7.47%)	10.15%
Principal DRA	17.51%	4.02%	14.84%	(7.47%)	10.15%
Principal Blended Benchmark (1)	15.87%	2.08%	14.86%	(7.27%)	10.38%
Total Real Estate	23.45%	0.39%	5.95%	8.94%	8.89%
Real Estate	23.45%	0.39%	5.95%	8.94%	8.89%
Blended Benchmark (2)	14.83%	0.89%	5.26%	7.89%	6.93%
Total Fund Net	18.80%	6.59%	18.34%	(3.01%)	16.36%
Total Fund Reference Index	12.88%	12.29%	16.52%	(3.29%)	15.80%

*Net returns are simulated with the use of fee schedules through March 31, 2019. Actual fees paid are used thereafter.

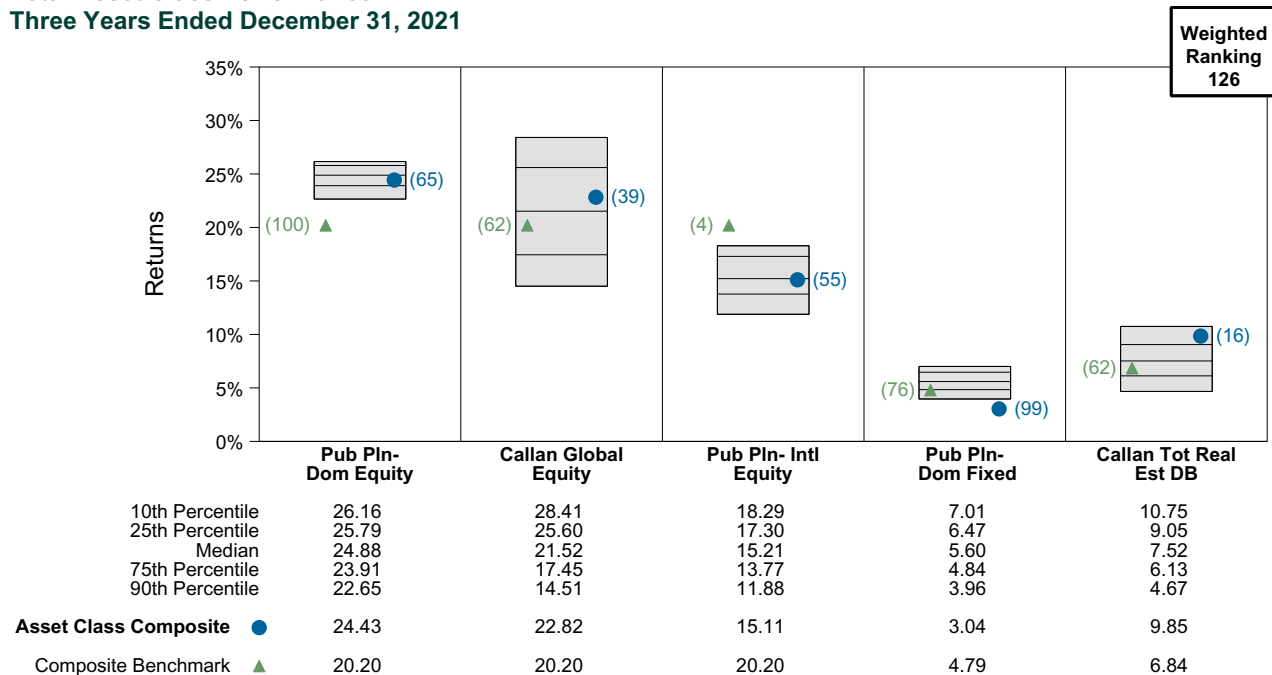
Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

Total Asset Class Performance One Year Ended December 31, 2021



Total Asset Class Performance Three Years Ended December 31, 2021

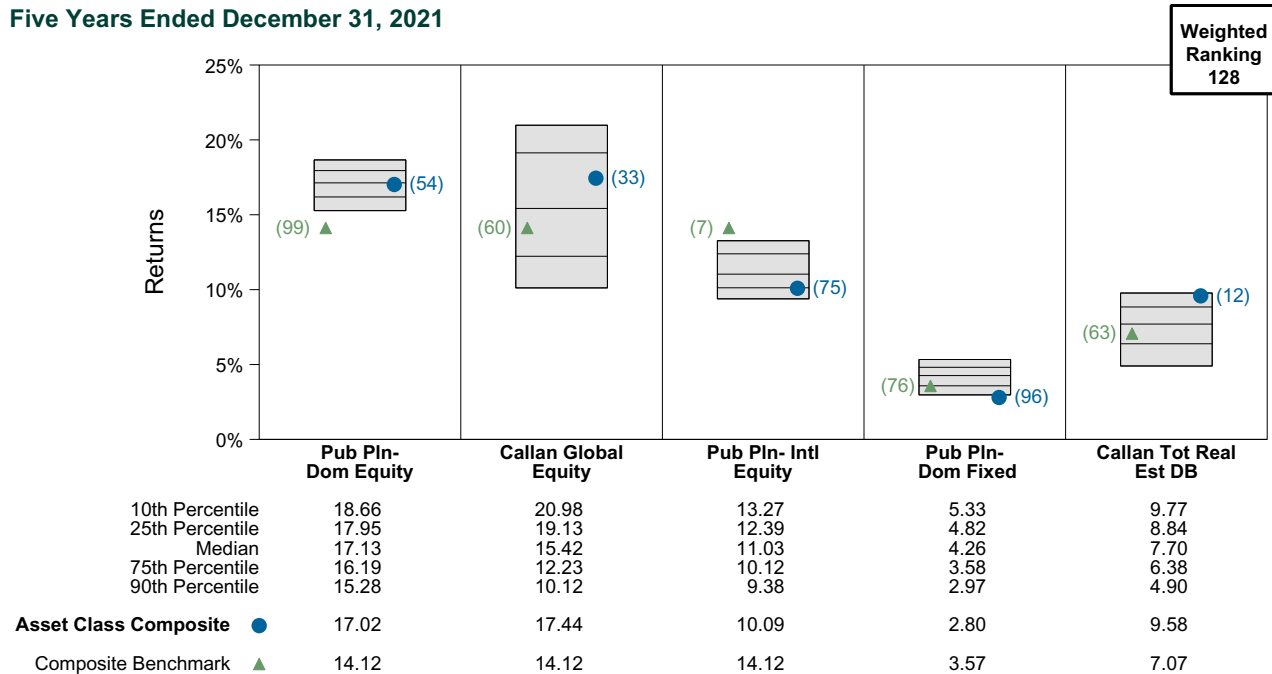


* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal Blended Benchmark.

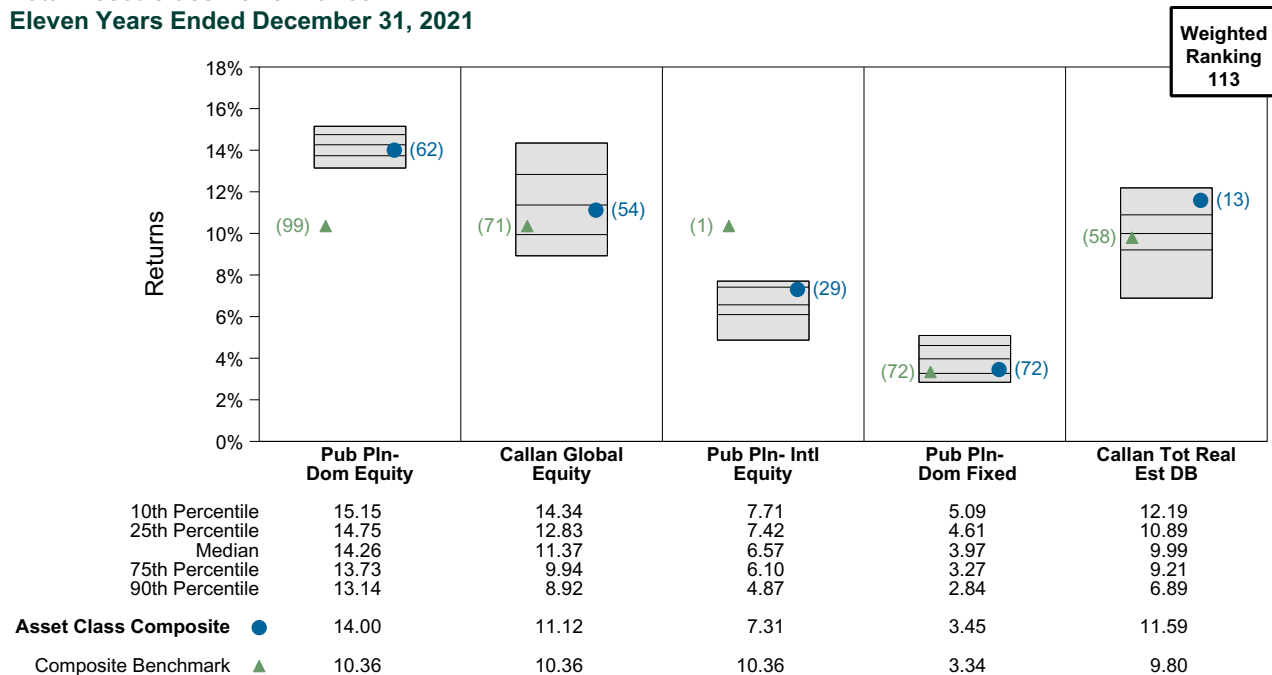
Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases. In the upper right corner of each graph is the weighted average of the rankings across the different asset classes. The weights of the fund's actual asset allocation are used to make this calculation. The weighted average ranking can be viewed as a measure of the fund's overall success in picking managers and structuring asset classes.

Total Asset Class Performance Five Years Ended December 31, 2021



Total Asset Class Performance Eleven Years Ended December 31, 2021

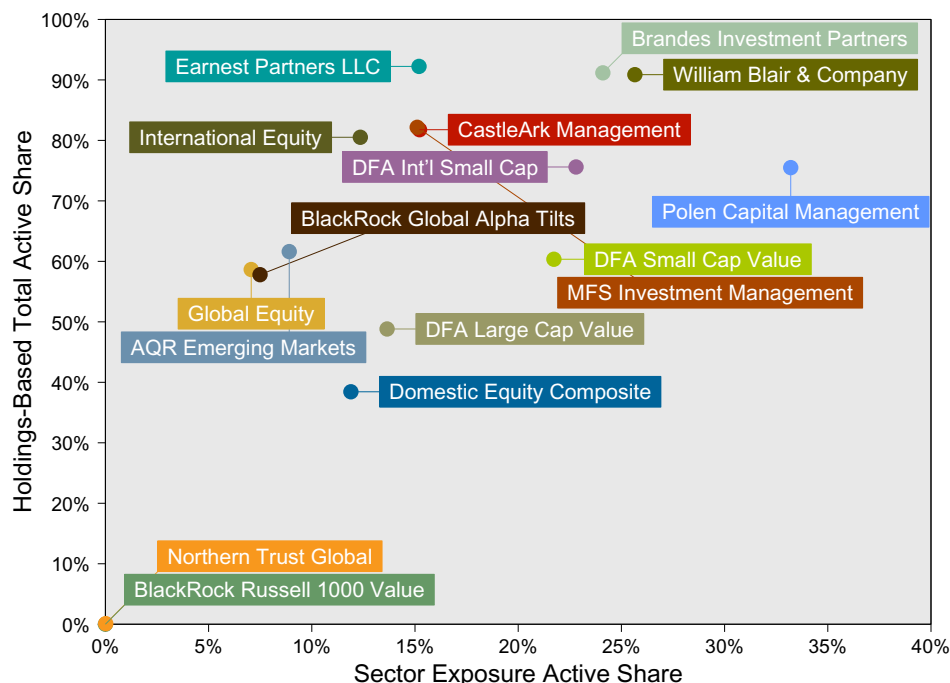


* Current Quarter Target = 44.0% MSCI ACWI IMI, 23.0% Blmbg Aggregate, 10.0% Russell 3000 Index lagged 3 months+2.0%, 10.0% 3-month Treasury Bill+3.0%, 9.1% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.9% Principal Blended Benchmark.

Active Share Structure Analysis For One Quarter Ended December 31, 2021

This analysis compares multiple portfolios and composites in an active share context, illustrating the varying degrees of active risk taken by individual portfolios, and how they combine into active risk profiles for composites and the equity structure. Two sources of active share (active risk) are shown: 1) Total Holdings-Based Active Share based on individual position comparisons to the index (and the subcomponent from holding non-index securities), and 2) Sector Exposure Active Share that quantifies the more macro-level sector differences from the index.

Active Share Analysis Ended December 31, 2021



	Index	Total Act Share	Non-Idx Act Share	Sector Act Share	Number Securities	Security Diverse
Domestic Equity Composite	Russell 3000	38.43%	0.97%	11.89%	1916	114.77
BlackRock Russell 1000 Value	Russell 1000 Value	0.00%	0.00%	0.00%	853	64.89
DFA Large Cap Value	Russell 1000 Value	48.82%	1.26%	13.65%	317	43.86
Northern Trust Global	S&P 500	0.10%	0.00%	0.02%	505	39.65
Polen Capital Management	S&P 500	75.50%	2.23%	33.20%	26	8.35
Earnest Partners LLC	Russell MidCap	92.23%	9.57%	15.19%	58	21.91
DFA Small Cap Value	Russell 2000 Value	60.35%	14.08%	21.73%	973	116.17
CastleArk Management	Russell 2000 Growth	81.77%	15.82%	15.22%	105	33.38
Global Equity	MSCI World	58.65%	7.74%	7.06%	760	54.56
BlackRock Global Alpha Tilts	MSCI ACWI Gross	57.80%	4.67%	7.49%	723	53.62
MFS Investment Management	MSCI ACWI Gross	82.16%	3.63%	15.11%	73	21.13
International Equity	MSCI EAFE	80.51%	27.99%	12.35%	2397	62.91
AQR Emerging Markets	MSCI EM Gross	61.61%	3.46%	8.91%	277	36.46
Brandes Investment Partners	MSCI EAFE	91.17%	14.95%	24.10%	59	20.39
William Blair & Company	MSCI ACWIxUS Gross	90.87%	22.67%	25.65%	283	46.90
DFA Int'l Small Cap	MSCI World ex US Sm Cap	75.60%	9.54%	22.80%	1937	161.95

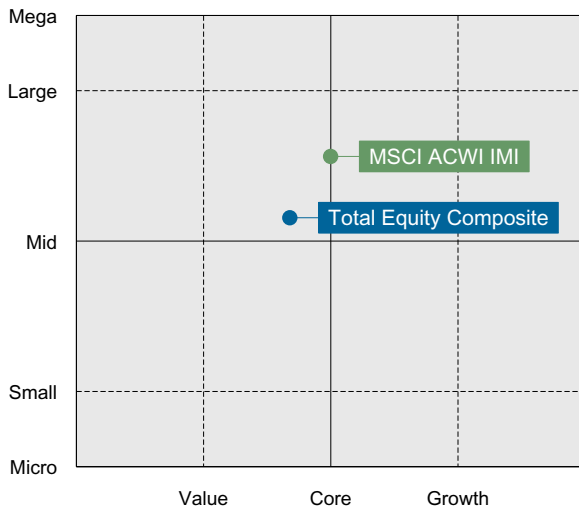
Current Holdings Based Style Analysis

Total Equity Composite

As of December 31, 2021

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each region/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

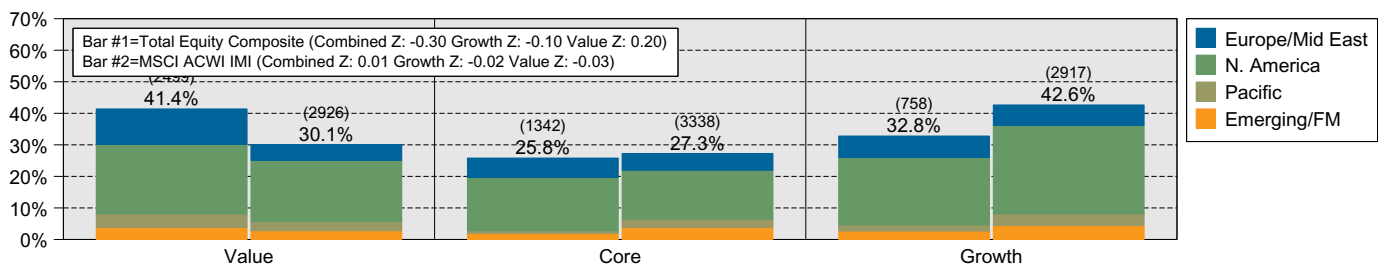
Style Map vs Callan Public Fund Spr DB
Holdings as of December 31, 2021



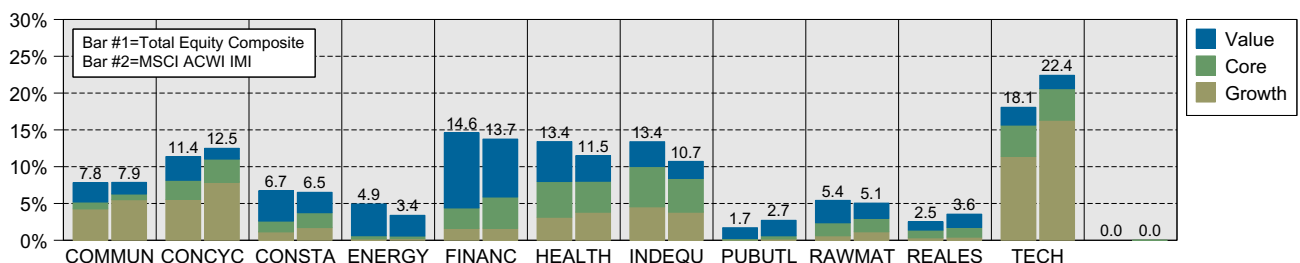
Style Exposure Matrix
Holdings as of December 31, 2021

	Value	Core	Growth	Total
Europe/ Mid East	11.2% (423) 5.0% (491)	6.0% (303) 5.3% (559)	6.7% (175) 6.4% (533)	23.9% (901) 16.8% (1583)
N. America	22.1% (1022) 19.3% (886)	17.0% (667) 15.5% (1151)	21.4% (361) 28.1% (831)	60.6% (2050) 63.0% (2868)
Pacific	4.2% (862) 2.9% (533)	0.8% (249) 2.6% (554)	2.0% (111) 3.6% (518)	7.0% (1222) 9.1% (1605)
Emerging/ FM	3.9% (192) 2.8% (1016)	2.0% (123) 3.9% (1074)	2.7% (111) 4.5% (1035)	8.5% (426) 11.2% (3125)
Total	41.4% (2499) 30.1% (2926)	25.8% (1342) 27.3% (3338)	32.8% (758) 42.6% (2917)	100.0% (4599) 100.0% (9181)

Combined Z-Score Style Distribution
Holdings as of December 31, 2021



Sector Weights Distribution
Holdings as of December 31, 2021



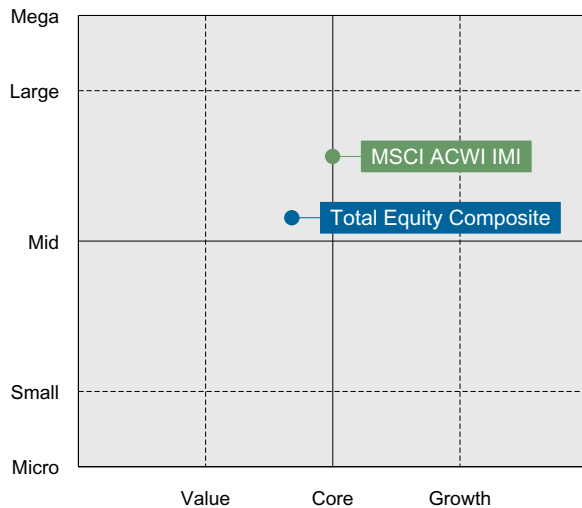
Current Holdings Based Style Analysis

Total Equity Composite

As of December 31, 2021

This page analyzes the current investment style of a portfolio utilizing a detailed holdings-based style analysis to determine actual exposures to various regional and style segments of the international/global equity market. The market is segmented quarterly by region and style. The style segments are determined using the "Combined Z Score", based on the eight fundamental factors used in the MSCI stock style scoring system. The upper-left style map illustrates the current market capitalization and style score of the portfolio relative to indices and/or peers. The upper-right style exposure matrix displays the current portfolio and index weights and stock counts (in parentheses) in each capitalization/style segment of the market. The middle chart illustrates the total exposures and stock counts in the three style segments, with a legend showing the total growth, value, and "combined Z" (growth - value) scores. The bottom chart exhibits the sector weights as well as the style weights within each sector.

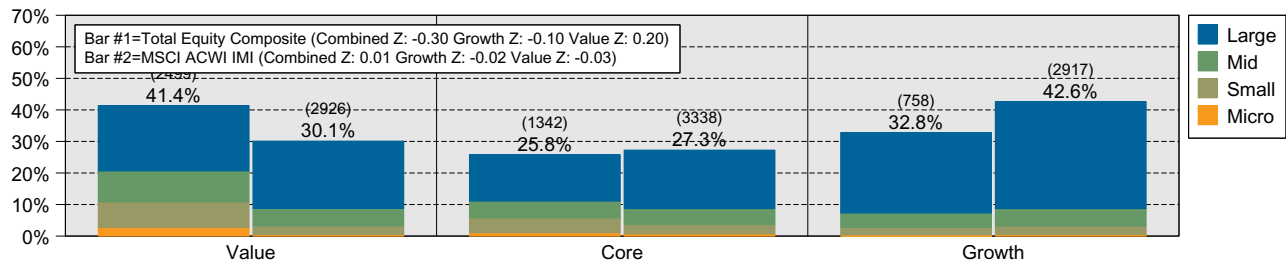
Style Map vs Callan Public Fund Spr DB
Holdings as of December 31, 2021



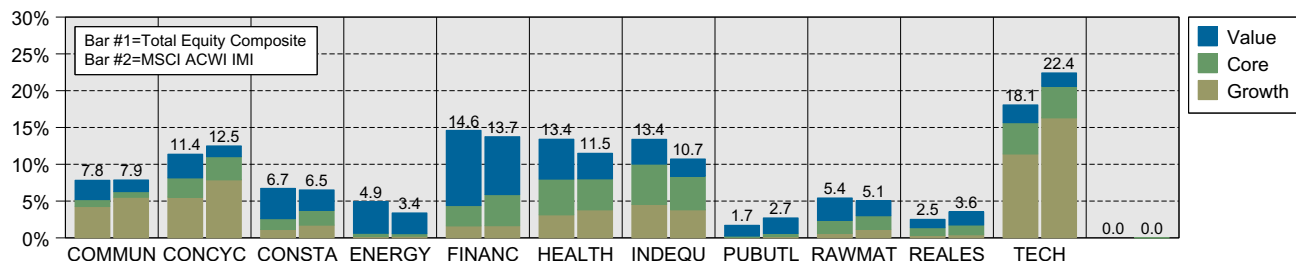
Style Exposure Matrix
Holdings as of December 31, 2021

	Value	Core	Growth	Total
Large	20.8% (226) 21.3% (310)	14.7% (182) 18.5% (266)	25.5% (208) 33.9% (342)	61.0% (616) 73.8% (918)
Mid	9.8% (325) 5.6% (585)	5.3% (267) 5.0% (581)	4.5% (221) 5.5% (669)	19.6% (813) 16.1% (1835)
Small	8.1% (519) 2.6% (1128)	4.7% (399) 3.0% (1379)	2.5% (193) 2.6% (1167)	15.2% (1111) 8.3% (3674)
Micro	2.8% (1429) 0.6% (903)	1.1% (494) 0.7% (1112)	0.3% (136) 0.5% (739)	4.2% (2059) 1.8% (2754)
Total	41.4% (2499) 30.1% (2926)	25.8% (1342) 27.3% (3338)	32.8% (758) 42.6% (2917)	100.0% (4599) 100.0% (9181)

Combined Z-Score Style Distribution
Holdings as of December 31, 2021



Sector Weights Distribution
Holdings as of December 31, 2021

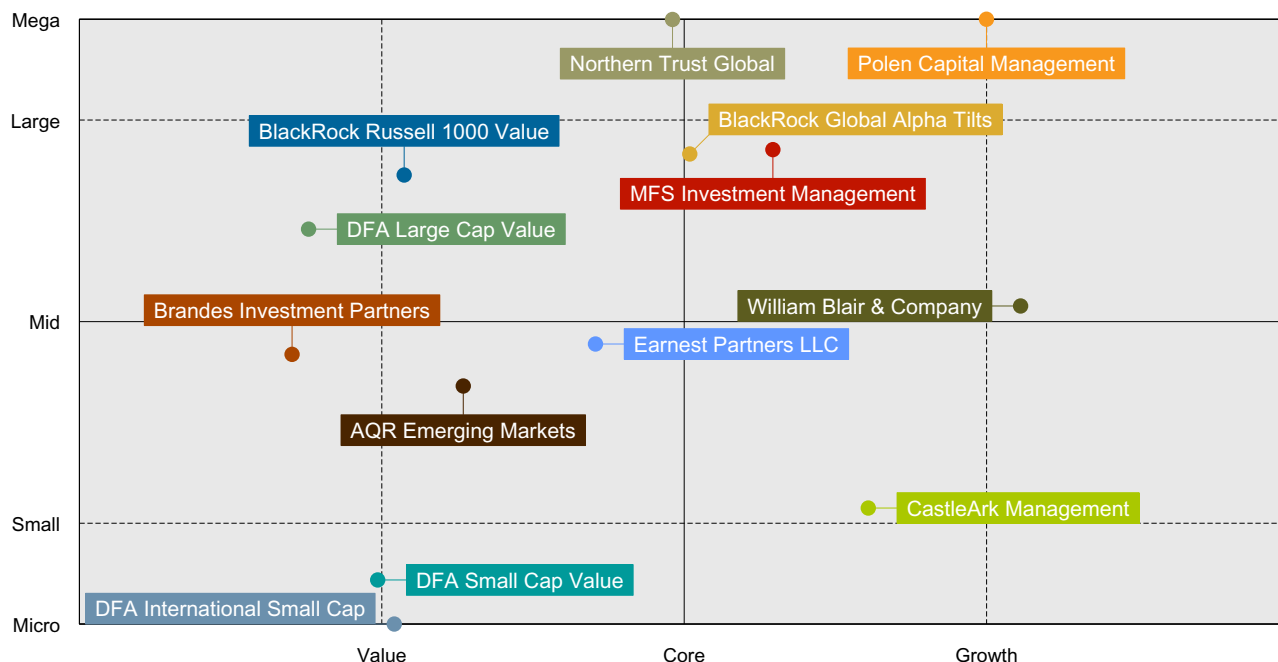


Global Holdings Based Style Analysis For One Quarter Ended December 31, 2021

This page analyzes and compares the investment styles of multiple portfolios using a detailed holdings-based style analysis methodology. The size component of style is measured by the weighted median market capitalization of the holdings. The value/core/growth style dimension is captured by the "Combined Z-Score" of the portfolio. This score is based on eight fundamental factors used in the MSCI stock style scoring system. The table below gives a more detailed breakdown of several relevant style metrics on the portfolios.

Style Map

Holdings for One Quarter Ended December 31, 2021



	Weight %	Wtd Median Mkt Cap	Combined Z-Score	Growth Z-Score	Value Z-Score	Number of Securities	Security Diversification
BlackRock Russell 1000 Value	5.98%	82.01	(0.89)	(0.38)	0.51	853	64.89
DFA Large Cap Value	5.90%	60.49	(1.20)	(0.35)	0.85	317	43.86
Northern Trust Global	12.15%	215.10	(0.03)	(0.02)	0.00	505	39.65
Polen Capital Management	5.75%	271.61	0.98	0.34	(0.64)	26	8.35
Earnest Partners LLC	4.58%	21.52	(0.28)	(0.09)	0.19	58	21.91
DFA Small Cap Value	7.30%	2.84	(0.98)	(0.21)	0.77	973	116.17
CastleArk Management	3.49%	5.44	0.60	0.08	(0.51)	105	33.38
MFS Investment Management	7.50%	92.09	0.29	(0.07)	(0.37)	73	21.13
BlackRock Global Alpha Tilts	11.45%	90.37	0.03	(0.01)	(0.04)	723	53.62
AQR Emerging Markets	3.49%	17.40	(0.70)	(0.18)	0.53	277	36.46
Brandes Investment Partners	14.24%	20.50	(1.25)	(0.36)	0.89	59	20.39
William Blair & Company	10.87%	29.93	1.09	0.36	(0.72)	283	46.90
DFA International Small Cap	7.30%	1.96	(0.92)	(0.21)	0.72	1937	161.95

Quarterly Highlights

The Callan Institute provides research to update clients on the latest industry trends and carefully structured educational programs to enhance the knowledge of industry professionals. Visit www.callan.com/research-library to see all of our publications, and www.callan.com/blog to view our blog. For more information contact Barb Gerraty at 415-274-3093 / institute@callan.com.

New Research from Callan's Experts

2021 Investment Management Fee Study | The purpose of this study, the ninth we have done, is to provide a detailed analysis on institutional investment management fee levels and trends across multiple asset classes and mandate sizes, for both active and passive management.

2021 Nuclear Decommissioning Funding Study | This study offers key insights into the status of nuclear decommissioning funding to make peer comparisons more accurate and relevant.

2021 Private Equity Fees and Terms Study | This study is intended to help institutional investors better evaluate private equity funds, serving as an industry benchmark when comparing a partnership's terms to its peers.

2021 Cost of Doing Business Survey | In this survey, Callan compares the costs of administering and operating funds across all types of tax-exempt and tax-qualified organizations in the U.S. We identify practices to help institutional investors manage expenses.

A Guide to Reinsurance for Institutional Investors | Reinsurance investments are a potential option for institutional investors looking to diversify both equity and rate risks while also offering attractive risk-adjusted returns. Sean Lee examines how insurance-linked securities can be incorporated into institutional investors' portfolios.

2021 ESG Survey | Callan's ninth annual survey assessing the status of environmental, social, and governance (ESG) investing in the U.S. institutional investment market.

Blog Highlights

Rising Rates! Why the Heck Do We Own Bonds? | Investment grade bonds spin off yield and participate in rising rate markets through principal reinvestment, and their return distribution

provides downside protection that counter-balances growth-oriented portfolio investments. Despite frustratingly low expected returns, IG bonds can still contribute meaningfully to the long-term investment goals of most institutional investors.

Understanding Return Forecasts for Public DB Plans | It is important for decision makers to understand that actuaries and investment consultants offer assumptions on expected return that are inherently different: Actuarial discount rates assume a static return over time with no variability, whereas investment consultants estimate a median and a range of expected returns based on expected risk.

Quarterly Periodicals

Private Equity Trends, 3Q21 | A high-level summary of private equity activity in the quarter through all the investment stages

Active vs. Passive Charts, 3Q21 | A comparison of active managers alongside relevant benchmarks over the long term

Market Pulse Flipbook, 3Q21 | A quarterly market reference guide covering trends in the U.S. economy, developments for institutional investors, and the latest data on the capital markets

Capital Markets Review, 3Q21 | Analysis and a broad overview of the economy and public and private market activity each quarter across a wide range of asset classes

Hedge Fund Quarterly, 3Q21 | Commentary on developments for hedge funds and multi-asset class (MAC) strategies

Real Assets Reporter, 3Q21 | A summary of market activity for real assets and private real estate during the quarter

Events

A complete list of all upcoming events can be found on our website: callan.com/events-education.

Please mark your calendar and look forward to upcoming invitations:

2022 DC Survey Results Webinar
February 23, 2022 – 9:30 am (PT)

National Conference
April 25-27, 2022, in San Francisco

For more information about events, please contact Barb Gerraty: 415-274-3093 / gerraty@callan.com

Education: By the Numbers

50+

Unique pieces of research the Institute generates each year

525

Attendees (on average) of the Institute's annual National Conference

3,700

Total attendees of the "Callan College" since 1994

Education

Founded in 1994, the "Callan College" offers educational sessions for industry professionals involved in the investment decision-making process.

Introduction to Investments

March 1-3, 2022 – Virtual

This program familiarizes institutional investor trustees and staff and asset management advisers with basic investment theory, terminology, and practices. Our virtual session is held over three days with virtual modules of 2.5-3 hours, while the in-person session lasts one-and-a-half days. This course is designed for individuals with less than two years of experience with asset-management oversight and/or support responsibilities. Virtual tuition is \$950 per person and includes instruction and digital materials. In-person tuition is \$2,350 per person and includes instruction, all materials, breakfast and lunch on each day, and dinner on the first evening with the instructors.

Additional information including registration can be found at: callan.com/events/ccintro-march/

Introductory Workshop for DC Plan Fiduciaries

March 23, 2022 – San Francisco

This one-day workshop centers on the fundamentals of administering a defined contribution (DC) plan. Designed primarily for ERISA fiduciaries and supporting staff members, attendees will gain a better understanding of the key responsibilities of an ERISA fiduciary and best practices for executing those responsibilities. Additionally, we will cover the basics of capital markets theory and DC investment menu design principles; investment manager evaluation, selection, and monitoring; best practices for evaluating fees; the regulatory and legal landscape; and industry trends. This workshop is complimentary and open to institutional investor clients.

Additional information including dates and registration can be found at: callan.com/events/mar-dc-college/



"Research is the foundation of all we do at Callan, and sharing our best thinking with the investment community is our way of helping to foster dialogue to raise the bar across the industry."

Greg Allen, CEO and Chief Research Officer

List of Callan's Investment Manager Clients

Confidential – For Callan Client Use Only

Callan takes its fiduciary and disclosure responsibilities to clients very seriously. We recognize that there are numerous potential conflicts of interest encountered in the investment consulting industry, and that it is our responsibility to manage those conflicts effectively and in the best interest of our clients. At Callan, we employ a robust process to identify, manage, monitor, and disclose potential conflicts on an ongoing basis.

The list below is an important component of our conflicts management and disclosure process. It identifies those investment managers that pay Callan fees for educational, consulting, software, database, or reporting products and services. We update the list quarterly because we believe that our fund sponsor clients should know the investment managers that do business with Callan, particularly those investment manager clients that the fund sponsor clients may be using or considering using. Please note that if an investment manager receives a product or service on a complimentary basis (e.g., attending an educational event), they are not included in the list below. Callan is committed to ensuring that we do not consider an investment manager's business relationship with Callan, or lack thereof, in performing evaluations for or making suggestions or recommendations to its other clients. Please refer to Callan's ADV Part 2A for a more detailed description of the services and products that Callan makes available to investment manager clients through our Institutional Consulting Group, Independent Adviser Group, and Fund Sponsor Consulting Group. Due to the complex corporate and organizational ownership structures of many investment management firms, parent and affiliate firm relationships are not indicated on our list.

Fund sponsor clients may request a copy of the most currently available list at any time. Fund sponsor clients may also request specific information regarding the fees paid to Callan by particular fund manager clients. Per company policy, information requests regarding fees are handled exclusively by Callan's Compliance department.

Manager Name

abrdn (Aberdeen Standard Investments)
Acadian Asset Management LLC
Adams Street Partners, LLC
AEGON USA Investment Management Inc.
AllianceBernstein
Allianz
Allspring Global Investments (formerly Wells Fargo Asset Mgmt)
American Century Investments
AQR Capital Management
Ares Management LLC
Ariel Investments, LLC
Aristotle Capital Management, LLC
Atlanta Capital Management Co., LLC
Aviva Investors
AXA Investment Managers
Baillie Gifford International, LLC
Baird Advisors
Barings LLC

Manager Name

Baron Capital Management, Inc.
Barrow, Hanley, Mewhinney & Strauss, LLC
BlackRock
BMO Global Asset Management
BNP Paribas Asset Management
BNY Mellon Asset Management
Boston Partners
Brandes Investment Partners, L.P.
Brandywine Global Investment Management, LLC
Brookfield Asset Management
Brown Brothers Harriman & Company
Cambiar Investors, LLC
Capital Group
Carillon Tower Advisers
CastleArk Management, LLC
Causeway Capital Management LLC
Chartwell Investment Partners
ClearBridge Investments, LLC

Manager Name

Cohen & Steers Capital Management, Inc.

Columbia Threadneedle Investments North America

Credit Suisse Asset Management, LLC

Crescent Capital Group LP

D.E. Shaw Investment Management, LLC

DePrince, Race & Zollo, Inc.

Dimensional Fund Advisors L.P.

Doubleline

Duff & Phelps Investment Management Co.

DWS

EARNEST Partners, LLC

Eaton Vance Management

Epoch Investment Partners, Inc.

Fayez Sarofim & Company

Federated Hermes, Inc.

Fidelity Institutional Asset Management

Fiera Capital Corporation

First Hawaiian Bank Wealth Management Division

First Sentier Investors (formerly First State Investments)

Fisher Investments

Franklin Templeton

GAM (USA) Inc.

GCM Grosvenor

GlobeFlex Capital, L.P.

GoldenTree Asset Management, LP

Goldman Sachs

Guggenheim Investments

GW&K Investment Management

Harbor Capital Group Trust

Heitman LLC

Hotchkis & Wiley Capital Management, LLC

Income Research + Management Inc.

Insight Investment

Intech Investment Management LLC

Intercontinental Real Estate Corporation

Invesco

J.P. Morgan

Janus

Jennison Associates LLC

Jobs Peak Advisors

Manager Name

J O Hambro Capital Management Limited

KeyCorp

Lazard Asset Management

LGIM America (formerly Legal & General Inv. Mgmt. America)

Lincoln National Corporation

Longview Partners

Loomis, Sayles & Company, L.P.

Lord Abbett & Company

LSV Asset Management

MacKay Shields LLC

Macquarie Investment Management (MIM)

Manning & Napier Advisors, LLC

Manulife Investment Management

McKinley Capital Management, LLC

Mellon

MetLife Investment Management

MFS Investment Management

MidFirst Bank

Mondrian Investment Partners Limited

Montag & Caldwell, LLC

Morgan Stanley Investment Management

MUFG Union Bank, N.A.

Natixis Investment Managers

Neuberger Berman

Newton Investment Management

Ninety One North America, Inc. (formerly Investec Asset Mgmt.)

Northern Trust Asset Management

Nuveen

P/E Investments

Pacific Investment Management Company

Parametric Portfolio Associates LLC

Partners Group (USA) Inc.

Pathway Capital Management

Peregrine Capital Management, LLC

PFM Asset Management LLC

PGIM Fixed Income

PGIM Quantitative Solutions LLC

PineBridge Investments

Polen Capital Management, LLC

Principal Global Investors

Manager Name
Putnam Investments, LLC
RBC Global Asset Management
Regions Financial Corporation
Richard Bernstein Advisors LLC
Riverbridge Partners LLC
Robeco Institutional Asset Management, US Inc.
Rothschild & Co. Asset Management US
S&P Dow Jones Indices
Schroder Investment Management North America Inc.
Securian Asset Management, Inc.
SLC Management
Smith Graham & Co. Investment Advisors, L.P.
State Street Global Advisors
Stone Harbor Investment Partners L.P.
Strategic Global Advisors, LLC
T. Rowe Price Associates, Inc.
The TCW Group, Inc.

Manager Name
Thompson, Siegel & Walmsley LLC
Thornburg Investment Management, Inc.
Tri-Star Trust Bank
UBS Asset Management
VanEck
Versus Capital Group
Victory Capital Management Inc.
Virtus Investment Partners, Inc.
Vontobel Asset Management
Voya
Waterton Associates LLC
WCM Investment Management
WEDGE Capital Management
Wellington Management Company, LLP
Western Asset Management Company LLC
Westfield Capital Management Company, LP
William Blair & Company LLC