



City of Milwaukee  
Employees' Retirement System

**Bernard J. Allen**  
Executive Director

**David M. Silber, CFA, CAIA**  
Chief Investment Officer

**Melody Johnson**  
Deputy Director

May 31, 2024

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, June 6, 2024 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](http://www.cmers.com)) prior to the meeting.*

The agenda is as follows:

- I. Approval of UBS Hedge Fund Solutions and CMERS Low Beta LLC Contract Amendment.

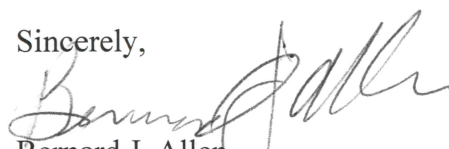
Please be advised that the Investment Committee may vote to convene in closed session on the following item (II.) as provided in Section 19.85(1)(e), Wisconsin State Statutes, to deliberate or negotiate the purchasing of public properties, the investing of public funds, or conducting other specified public business, whenever competitive or bargaining reasons require a closed session. The Investment Committee may then vote to reconvene in open session following the closed session.

- II. Callan Real Estate Presentation.
- III. Approval of Harrison Street Core Property Fund Data Center Allocation Proposal.

Please be advised that the Annuity and Pension Board may vote to convene in closed session on the following item (IV.), as provided in Section 19.85(1)(g), Wisconsin State Statutes, to confer with legal counsel concerning strategy to be adopted by the body with respect to litigation in which it is or is likely to become involved. The Board may then vote to reconvene in open session following the closed session.

- IV. Approval of Action Regarding Stock Loan Settlement.
- V. Brandes Investment Partners Due Diligence Report.
- VI. Chief Investment Officer Report.
- VII. Informational.
  - a. CMERS 1<sup>st</sup> Quarter 2024 Performance Update.
  - b. Callan 4<sup>th</sup> Quarter 2023 Performance Report.
  - c. Callan 1<sup>st</sup> Quarter 2024 Performance Report.

Sincerely,



Bernard J. Allen  
Executive Director

BJA:jmw

# Memorandum

**To:** CMERS Investment Committee

**From:** Erich Sauer, CFA, CAIA

**Date:** June 6, 2024

**Re:** UBS Hedge Fund Solutions Contract Amendment

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Attached you will find a contract amendment from UBS Hedge Fund Solutions (UBS), which manages one of CMERS' custom Hedge Fund of Fund vehicles. As UBS explains in the attached investor letter, the firm recently underwent an internal reorganization that changed the legal structure of the entity that manages our account. This has no impact on the day-to-day operations of the business unit that manages our investments.

Our standard practice when one of our managers undergoes a reorganization like this is to formalize it with a contact amendment. That amendment is attached, followed by a redline that outlines the changes. The only new change is to reflect the corporate reorganization mentioned previously. You will also see several guideline changes in the redline. Those have already been approved by the CMERS Investment Committee at past meetings, and are only showing up in the redline because UBS has taken this opportunity to "restate" the IMA to reflect them. Since those guidelines are already in effect, you are not being asked to approve them at his meeting. UBS has also amended and restated the side letter to reflect the corporate change. The updated side letter and redline are included as well.

**UBS Hedge Fund Solutions LLC**  
600 Washington Boulevard  
Stamford, Connecticut 06901  
United States

February 23, 2024

Re: **Merger of UBS Hedge Fund Solutions LLC with and into UBS Asset Management (Americas)**

Dear Investor:

We trust that 2024 is off to a good start. We are writing to notify you of a forthcoming internal reorganization of certain businesses within UBS's Asset Management Division. The purpose of the restructuring is to streamline the legal entities within UBS's Asset Management Division. Currently, UBS Hedge Fund Solutions LLC ("UBS HFS") is a wholly-owned subsidiary of UBS Asset Management (Americas) Inc. (CRD# 106838/SEC# 801-34910). It is expected that, during the first quarter of 2024, UBS Asset Management (Americas) Inc. will be converted from a Delaware corporation into a Delaware limited liability company and renamed UBS Asset Management (Americas) LLC ("UBS AM Americas"). In connection with such reorganization, it is also anticipated that UBS HFS and UBS AM Americas will consummate a statutory merger pursuant to which UBS HFS will merge with and into UBS AM Americas effective on or about April 1, 2024 (the "Merger").

Upon completion of the Merger, UBS AM Americas (doing business as UBS Hedge Fund Solutions) will thereafter serve as the investment manager or investment adviser of all funds and accounts currently managed or advised by UBS HFS. Please note that UBS HFS will continue to operate as a distinct business unit within UBS AM Americas, and the Merger is not expected to have a material impact on the day-to-day operations of UBS HFS as it exists today or UBS HFS personnel responsible for managing the fund in which you are currently invested.

Enclosed is a draft supplement to the confidential memorandum of the UBS HFS-managed fund in which you are currently invested (the "Draft OM Supplement"). The Draft OM Supplement describes the relevant material disclosure updates following the consummation of the Merger and will only be effective upon the consummation of the Merger (at which time a final supplement will be distributed to you). In the event that the Merger is not consummated, we intend to provide you with a separate notification and the Draft OM Supplement should be disregarded.

Please contact your UBS representative if you have any questions regarding this letter or the Draft OM Supplement. Thank you for your continued support and partnership.

Very truly yours,

**UBS Hedge Fund Solutions LLC**

## SECOND AMENDED AND RESTATED INVESTMENT MANAGEMENT AGREEMENT

SECOND AMENDED AND RESTATED INVESTMENT MANAGEMENT AGREEMENT (this "Agreement") to be effective as of the [•] day of March 2024, among CMERS Low Beta LLC, a limited liability company organized under the laws of the State of Delaware, United States (the "Fund") and UBS Asset Management (Americas) LLC, a limited liability company organized under the laws of the State of Delaware, United States (doing business as UBS Hedge Fund Solutions) (the "Investment Manager").

WHEREAS, the Fund has been organized for the purpose of pursuing the "Investment Program" set forth in Appendix A by seeking appreciation in the value of its assets principally through the allocation of assets among a select group of investment funds and/or managed accounts without limited liability (the "Portfolio Funds") to which alternative asset managers (the "Submanagers") provide investment advisory services;

WHEREAS, the Fund may also invest assets directly in Financial Instruments (as defined below) in order to obtain indirect exposure to a Portfolio Fund, to hedge, for short term cash management, to engage in overlay trades or for other purposes when consistent with the Investment Program;

WHEREAS, the Fund and the Investment Manager (f/k/a UBS Alternative and Quantitative Investments LLC and UBS Hedge Fund Solutions LLC thereafter) entered into an Investment Management Agreement effective as of December 18, 2014 (the "Original Agreement");

WHEREAS, the Fund and the Investment Manager entered into an Amended and Restated Investment Management Agreement effective as of July 31, 2016 (the "Amended and Restated Agreement"), thereby amending and restating the Original Agreement;

WHEREAS, the Fund desires to amend and restate the Amended and Restated Agreement and any amendments thereto to continue to avail itself of the experience, sources of information, advice and assistance available to the Investment Manager and to have the Investment Manager perform for it various investment management services under the terms hereof;

WHEREAS, the Investment Manager has received a copy of the Limited Liability Company Agreement of the Fund, as amended (the "Fund Agreement"), the confidential memorandum of the Fund, as revised or supplemented (the "Memorandum") and any resolutions or minutes of meetings (together, the "Resolutions") of the management board of the Fund (the "Management Board") relating to the offering of shares of the Fund (the Fund Agreement, the Resolutions and the Memorandum, collectively, the "Fund Documents"), each as in effect as of the date of this Agreement; and

WHEREAS, the Investment Manager is willing to continue to perform such services under the terms and conditions set forth herein and in accordance with the Fund Documents;

NOW, THEREFORE, in consideration of the mutual covenants herein contained and for other good and valuable consideration, the receipt of which is hereby acknowledged, the parties hereto agree as follows:

1. Appointment of Investment Manager. The Investment Manager shall act as investment manager to the Fund for the purpose of selecting Submanagers and Portfolio Funds with which the Fund will invest its assets in accordance with the Investment Program and shall be responsible for all investment decisions for the Fund. The Investment Manager undertakes to give the Fund the benefit of its best judgment, efforts and facilities in rendering its services.

2. Authority of Investment Manager. In connection with its obligations hereunder, the Investment Manager shall have the authority for and in the name of the Fund, subject to Section 5 of this Agreement, without limitation, to engage in the following activities:

(a) Submanagers and Portfolio Funds.

(i) Provide research and analysis and direct the formulation of investment policies and strategies for the Fund utilizing a multi-asset, multiple Submanager approach whereby the assets of the Fund shall from time to time be committed by the Investment Manager to Submanagers and/or the Portfolio Funds employing various investment strategies which may involve the purchase and sale of Financial Instruments (as defined in the Fund Agreement);

(ii) Identify Submanagers, determine the amount of Fund assets to be allocated to each Submanager for investment in Portfolio Funds and/or managed accounts and invest the Fund's assets with such Submanagers through investments in such Portfolio Funds and/or managed accounts, either directly or through derivative instruments, which investments shall be subject in each case to the terms and conditions of the documents governing such Portfolio Funds or managed accounts; and

(iii) At its option, select as Submanagers and allocate assets in the aggregate of up to 20% of the Fund's net asset value ("NAV") at the time such investment is made, to Portfolio Funds and managed accounts for which UBS AG ("UBS") and its branches or affiliates, including the Investment Manager, serve as Submanager, *provided, however*, that investments in investment funds managed by the Investment Manager or its affiliates that allocate capital to investment funds managed by third-party investment managers (the "Platform"), and cash management provided by affiliates of the Investment Manager through one or more investment funds on the Platform (or otherwise), shall not be included in the foregoing limitation.

(b) Direct Investments.

(i) Invest and re-invest and otherwise enter into, directly or indirectly, on margin or otherwise, in Financial Instruments;

(ii) Provide research and analysis and direct the formulation of investment policies and strategies for the Fund;

(iii) Acquire a long position or a short position with respect to any Financial Instrument and make purchases or sales increasing, decreasing or liquidating such position or changing from a long position to a short position or from a short position to a long position, without any limitation as to the frequency of the fluctuation in such positions or as to the frequency of the changes in the nature of such positions;

(iv) Purchase Financial Instruments and hold them for investment and to make such representations to the seller of such Financial Instruments, and to other persons, that the Investment Manager may deem proper in such circumstances, including, without limitation, the representation that such Financial Instruments are purchased by the Fund for investment and not with a view to their sale or other disposition;

(v) Structure Financial Instruments on behalf of the Fund and for other accounts to whom the Investment Manager or any of its affiliates provide investment services ("Other Clients"), which may involve creating a new Financial Instrument, as opposed to trading a Financial Instrument available in the market;

(vi) Enter into contracts or other arrangements with investors (including affiliates of the Investment Manager), including, without limitation, total return swaps, structured notes or other derivative instruments, and such investors' investment returns would be based in whole or in part on the investment returns of the Fund;

(vii) Engage in such other lawful transactions in Financial Instruments as the Investment Manager may from time to time determine;

(viii) Invest the cash balances of the Fund in short-term investments deemed appropriate by the Investment Manager;

(ix) Enter into any hedging arrangements;

(x) Enter into contracts for or in connection with investments in Financial Instruments; and

(xi) Invest in other pooled investment vehicles for any purpose, which investments shall be subject, in each case, to the terms and conditions of the respective governing document for such vehicle.

(c) Other Authority.

(i) Open, maintain and close bank accounts and brokerage accounts, including custodial accounts and escrow accounts, in the name of the Fund;

(ii) Lend, either with or without security, any Financial Instruments, assets or other properties of the Fund, including by entering into repurchase or reverse purchase agreements and, from time to time, without limit as to the amount, borrow or raise funds, and secure the payment of obligations of the Fund by mortgage upon, or pledge or hypothecation of, all or any part of the property of the Fund;

(iii) Borrow or raise funds in a manner consistent with the Investment Program, in the name and on behalf of the Fund, and, from time to time, without limitation as to amount or manner and time of repayment, issue, accept, endorse and execute promissory notes, drafts, bills of exchange, warrants, bonds, debentures and other negotiable or non-negotiable instruments and evidences of indebtedness and secure the payment of such or other obligations by mortgage upon, or hypothecation or pledge of, all or part of the property of the Fund, whether at the time owned or thereafter acquired, to, without limitation, (aa) meet redemptions and (bb) otherwise conduct the Fund's trading activities;

(iv) Establish and utilize any subsidiary, special purpose vehicle or structure to address, without limitation, legal or regulatory constraints, transfer risk, obtain counterparty credit, obtain financing or employ leverage in a more efficient manner, invest in a more tax efficient manner and/or facilitate participation in certain types of investments (each such subsidiary, special purpose vehicle or structure, a "Fund Subsidiary") and cause the Fund to act as guarantor for one or more Fund Subsidiaries;

(v) Possess, transfer, mortgage, pledge or otherwise deal in, and exercise all rights, powers, privileges and other incidents of ownership or possession with respect to, Financial Instruments and other property and assets held or owned by the Fund;

(vi) Organize one or more corporations or other entities formed to hold record title, as nominee for the Fund (whether alone or together with the Other Clients), to hold Financial Instruments or assets of the Fund;

(vii) Enter into joint venture arrangements and co-invest with third parties;

(viii) Open, maintain, and close accounts, including margin and custodial accounts, with brokers, including brokers affiliated with the Investment Manager, which power shall include the authority to issue all instructions and authorizations to brokers regarding the Financial Instruments and/or money therein; pay, or authorize the payment and reimbursement of, brokerage commissions that may be in excess of the lowest rates available that are paid to brokers who execute transactions for the account of the Fund and who supply or pay for (or rebate a portion of the Fund's brokerage commissions to the Fund for payment of) the cost of brokerage, research, products or services as described in the Fund Documents, that are of benefit to the Fund or the Other Clients, *provided*

that such higher brokerage commissions are reasonable in relation to the value of the product and/or service provided while taking into account various factors, including, among others, a broker's or dealer's willingness to commit capital, its financial stability, its systems, facilities and recordkeeping and its experience in handling similar transactions (based on size, market conditions and type of security, among others). In connection with the foregoing, the Fund acknowledges and authorizes the use of "soft dollars" outside of the parameters of Section 28(e) of the U.S. Securities Exchange Act of 1934, as amended;

(ix) Combine purchase or sale orders on behalf of the Fund with orders for Other Clients and allocate the Financial Instruments or other assets so purchased or sold as described in the Fund Documents;

(x) Enter into arrangements with brokers to open "average price" accounts wherein orders placed during a trading day are placed on behalf of the Fund and Other Clients and are allocated among such accounts using an average price;

(xi) Cause the Fund to engage in agency, cross, agency cross and principal transactions to the extent permitted by applicable securities laws;

(xii) Supply the administrator and auditor of, and other service providers to, the Fund with such information and instructions as may be necessary to enable such person or persons to perform their duties in accordance with the applicable agreements;

(xiii) Engage subadvisers, including, without limitation, affiliates of the Investment Manager, to assist with managing the Fund's portfolio of investments or with investments generally;

(xiv) Engage personnel, whether part-time or full-time, and attorneys, independent accountants, or such other persons as the Investment Manager may deem necessary or advisable;

(xv) To perform any actions requested or permitted to be taken by the Fund, including, without limitation, acting under delegated authority from the Fund as to matters agreed upon under this Agreement or otherwise;

(xvi) Authorize any employee or other agent of the Investment Manager or any employee or other agent of the Fund to act for and on behalf of the Fund in all matters incidental to the foregoing; and

(xvii) Do any and all acts on behalf of the Fund as it may deem necessary or advisable in connection with the maintenance and administration of the Fund, and exercise all rights of the Fund, with respect to its interest in any person, including, without limitation, the voting of Financial Instruments, participation in arrangements with creditors, the institution and settlement or compromise of suits and administrative proceedings and other like or similar matters.



3. Periodic Reports. The Investment Manager shall submit such periodic reports to the Fund regarding the Investment Manager's activities hereunder as the Fund may reasonably request, and a representative of the Investment Manager shall be available to meet with, and attend meetings of, the Management Board.

4. Status of Investment Manager. The Investment Manager shall for all purposes be an independent contractor of the Fund, and nothing in this Agreement shall be construed as making the Fund a partner or co-venturer with the Investment Manager or any of its affiliates or clients. The Investment Manager shall have no authority to act for, represent, bind or obligate the Fund except as specifically provided for in this Agreement.

5. Limitations on Authority.

(a) All actions or inactions by the Investment Manager pursuant to the authority it is granted under this Agreement shall at all times conform to and be in accordance with the requirements imposed by:

(i) any provisions of applicable law;

(ii) provisions of each of the Fund Documents; *provided, however*, that the Investment Manager shall not be bound by any additional Fund Documents or any supplement or revisions to any of the Fund Documents until it has been given notice thereof in accordance with Section 16 of this Agreement; and

(iii) such policies as may be adopted from time to time by the Management Board, including, without limitation, the policies described in the Memorandum; *provided, however*, that the Investment Manager shall not be bound by any such policies until it has been given notice thereof in accordance with Section 16 of this Agreement.

(b) The Investment Manager may not, directly or indirectly, cause or authorize the Fund to pay any fee to, reimburse any expense of, or make any other payment to, the Investment Manager; any such payment shall require the prior approval of a member of the Management Board who is not employed or otherwise affiliated with the Investment Manager.

6. Fees.

(a) The Fund shall pay a management fee (the "Management Fee") to the Investment Manager on the terms and conditions and in such manner and frequency as set forth in the Memorandum or as set forth in relevant Resolutions. The Management Fee may exceed the expenses borne by the Investment Manager in connection with the management of the Fund. The Management Board and the Investment Manager may agree to waive or impose different fees or otherwise modify the Management Fee with respect to any unitholder.

(b) Payment of the Management Fee, if any, shall be made on the last Business Day (as defined in the Memorandum or the Fund Agreement, as the case may be) of the period in which the Management Fee becomes payable as set forth in the Memorandum.

(c) The Fund hereby agrees that it shall promptly deliver to the Investment Manager copies of any revised or supplemented Memorandum or newly adopted Resolutions affecting the Management Fee, if any, payable to the Investment Manager; *provided* that failure to deliver such copies shall not affect the Investment Manager's right to receive such Management Fee. The Management Fee shall not be changed without the prior consent of the Investment Manager.

(d) For purposes of this Agreement, Resolutions shall be deemed to be delivered to the Investment Manager if an employee of the Investment Manager is serving as a member of the Management Board at the time such Resolutions are adopted and such member of the Management Board either (i) attends the meeting of the Management Board at which such Resolutions are passed, (ii) executes such Resolutions or (iii) sends his/her apologies for being unable to attend a meeting of the Management Board; otherwise, such Resolutions shall be deemed to be delivered when delivered in accordance with Section 16 of this Agreement or as otherwise agreed by the parties hereto.

7. Expenses of the Fund; Reimbursement by the Fund.

(a) In addition to the fees and disbursements referred to in other sections of this Agreement, the Fund shall bear responsibility for the Fund Expenses (as defined in the Memorandum or the Resolutions, as the case may be) as provided for in the Memorandum or as set forth in relevant Resolutions.

(b) Expenses incurred by the Fund (other than those paid for through the use of "soft dollars" as permitted under this Agreement and the Memorandum) for products and services which benefit the Fund and Other Clients, generally shall be allocated to the Fund and such Other Clients in accordance with their use of such products and services or on a *pro rata* basis in accordance with the NAV of each of the Fund and the Other Clients.

(c) The Investment Manager may retain, in connection with its responsibilities hereunder, the services of others to assist in the investment advice to be given to the Fund, including, without limitation, any affiliate of the Investment Manager, but payment for any such services shall be assumed by the Investment Manager and the Fund shall not have any liability therefor; *provided, however*, that the Investment Manager, in its discretion, may retain the services of independent third party professionals, including, without limitation, attorneys, accountants and consultants, to advise and assist it in connection with the performance of its activities on behalf of the Fund hereunder, and the Fund shall bear full responsibility therefor and for the reasonable expense of any fees and disbursements arising therefrom.

8. RESERVED.

9. Exculpation; Indemnification.

(a) Except as provided by applicable law, including U.S. federal securities law, none of the Investment Manager or its affiliates or any of their respective shareholders, members, partners, affiliates, directors, officers or employees or the legal representatives of any of them (each, together with the Investment Manager, an "Indemnified Party") shall be liable to any Member or the Fund for any loss, cost or expense, arising from any mistake of judgment or any action or inaction of such persons that did not constitute gross negligence, willful misconduct or bad faith in the performance of the Investment Manager's obligations or duties hereunder, or for any loss, cost or expense due to any mistake of judgment, action or inaction or due to the negligence, willful misconduct or bad faith of any broker or other agent of the Investment Manager, *provided* that the selection, engagement or retention of such broker or other agent by the Investment Manager did not involve gross negligence, willful misconduct or bad faith. Each Indemnified Party may consult with legal counsel and accountants in respect of the affairs of the Fund and shall be fully protected and justified in any action or inaction which is taken in accordance with the advice or opinion of such legal counsel or accountants, *provided* that the selection of such legal counsel or accountants did not involve gross negligence, willful misconduct or bad faith. For the avoidance of doubt, the term "Indemnified Party" shall include, without limitation, a subadviser affiliated with the Investment Manager.

(b) The Fund shall indemnify and hold harmless each Indemnified Party from and against any loss, cost or expense suffered or sustained by it by reason of the fact that it is or was an Indemnified Party, including, without limitation, any judgment, award, settlement, reasonable attorneys' fees and other costs or expenses incurred in connection with the defense of any actual or threatened action, suit, proceeding or claim, *provided* that such loss, cost or expense resulted from a mistake of judgment on the part of an Indemnified Party, or from an action or inaction that did not constitute gross negligence, willful misconduct or bad faith on the part of an Indemnified Party, or for any loss, cost or expense due to any mistake of judgment, action or inaction or due to the negligence, willful misconduct or bad faith of any broker or other agent of an Indemnified Party, *provided* that the selection, engagement or retention of such broker or other agent by the Indemnified Party did not involve gross negligence, willful misconduct or bad faith; *provided, further*, that such loss, cost or expense did not result solely from any action brought by any Indemnified Party against any other Indemnified Party. The Fund shall, in the discretion of the Management Board, advance to any Indemnified Party reasonable attorneys' fees and other costs and expenses incurred in connection with the defense of any action or proceeding that arises out of such conduct or alleged conduct. In the event that such an advance is made by the Fund, the Indemnified Party must agree to reimburse the Fund for such fees, costs and expenses to the extent that it is finally determined that it, he or she was not entitled to indemnification in respect thereof.

(c) The Fund agrees that if any subadviser is engaged by the Investment Manager pursuant to the authority granted to the Investment Manager in Section 2, then such subadviser shall be entitled to receive the benefits of the exculpation and indemnification provisions provided for under this Section 9 as an Indemnified Party.

(d) Notwithstanding any of the foregoing to the contrary, this Section 9 shall not be construed to relieve any Indemnified Party of any liability to the extent that such liability may not be waived, modified or limited under applicable law (including liability under federal securities laws which, under certain circumstances, impose liability even on persons acting in good faith), but shall be construed so as to effectuate these exculpation and indemnification provisions to the fullest extent permitted by law.

10. Activities of the Investment Manager and Others. The Investment Manager and its affiliates may engage, simultaneously with their investment management activities on behalf of the Fund in other businesses, in transactions on behalf of other investment funds and accounts which involve the same Portfolio Funds in which the Fund may invest and the same Financial Instruments in which the Fund or Portfolio Funds may invest, and may render investment management services to other investment funds and accounts in which the Fund will have no interest and that have similar or dissimilar investment objectives to those of the Fund and/or which may or may not follow investment programs similar to the Fund. The Investment Manager and its affiliates shall not by reason of such engaging in other businesses or through the rendering of services for others be deemed to be acting in conflict with the interests of the Fund even if such activities may be in competition with the Fund and/or may involve substantial time and resources of the Investment Manager and its personnel. Notwithstanding the foregoing, the Investment Manager and its personnel shall devote as much time to the activities of the Fund as they deem necessary and appropriate. In addition, each unitholder, member, partner, director, officer, employee or legal representative of the Investment Manager or its affiliates, in its individual capacity, may engage in Financial Instrument transactions which may be different than, and contrary to, transactions engaged in by the Investment Manager on behalf of the Fund. The Investment Manager, its affiliates, and their respective shareholders, members, partners, directors, officers or employees or the legal representatives of any of them, in their individual capacities, may be members, partners, Management Board members, officers or employees of the Fund but shall not be deemed to have interests which are in conflict with the interests of the Fund. Generally, it is the policy of the Investment Manager to allocate, to the extent possible, investment opportunities to the Fund over a period of time on a fair and equitable basis relative to its Other Clients. In cases where an investment opportunity may be limited, priority may be granted to the Fund or Other Clients, for example and without limitation, where the Fund or Other Clients, as the case may be, are below their respective minimum investment allocations, have been waiting to invest in a Portfolio Fund for more than a month or are making an initial investment in a Portfolio Fund. In circumstances when it is unsuitable, impractical or undesirable for trades or investment opportunities (e.g., private placements, options or swaps) and/or their related hedge positions to be allocated among the Fund and Other Clients as described above, the Investment Manager shall allocate such trades and investment opportunities among the Fund and Other Clients in a manner that the Investment Manager in its discretion determines is fair and equitable.

11. Custody. Custody and prime brokerage arrangements may be established with banks and broker-dealers, including broker-dealers which are affiliates of the Investment Manager. The Investment Manager shall not be liable for any act or omission of any custodian or prime broker appointed by the Fund. Any compensation to a custodian for its services to the Fund shall be the obligation of the Fund and not the Investment Manager.

12. Term. This Agreement shall remain in effect through a term concluding December 31, 2024 and shall be automatically extended for additional one-year terms thereafter, except that it may be terminated by the Investment Manager, on the one hand, or by the Fund, on the other hand, upon at least 90 days' prior written notice to the other party. To the extent the Investment Manager makes any investments or transacts any business whatsoever on behalf of, or in the name of, the Fund on a date after its termination date, such actions must be approved by the Management Board. If this Agreement is terminated by either party, the Investment Manager shall be entitled to receive the Management Fee earned or accrued through the date of termination.

13. Limitations on Use of Name.

(a) The Fund shall not distribute or circulate any sales literature or promotional or other material which contains any reference to "UBS", "Asset Management (Americas)", "Hedge Fund Solutions" or "O'Connor" without the prior approval of the Investment Manager. The Fund shall submit in draft form all such materials requiring approval of the Investment Manager, allowing sufficient time for review by the Investment Manager and its counsel prior to any deadline for printing. The Fund also agrees to indemnify and hold harmless each Indemnified Party from and against any and all losses, costs or expenses, joint or several, including, without limitation, attorneys' fees and disbursements, which may arise out of the Fund's use or misuse of the term "UBS", "Asset Management (Americas)", "Hedge Fund Solutions" or "O'Connor," or out of any breach of or failure to comply with this Section 13.

(b) If the Investment Manager or any successor to its business shall cease to furnish services to the Fund under this Agreement or similar contractual arrangement, for any reason whatsoever, the Fund, at its expense:

(i) as promptly as practicable, shall take all necessary action to cause the Fund Documents to be amended to eliminate any reference to "UBS", "Asset Management (Americas)", "Hedge Fund Solutions" or "O'Connor" or any name, mark or logo type derived from it or similar to it or indicating that the Fund is managed by or otherwise associated with the Investment Manager; and

(ii) within 60 days after the termination of this Agreement or such similar contractual arrangement, shall cease to use in any other manner, including, without limitation, use in any sales literature or promotional material, the name "UBS", "Asset Management (Americas)", "Hedge Fund Solutions" or "O'Connor" or any name, mark or logo type derived from it or similar to it or indicating that the Fund is managed by or otherwise associated with the Investment Manager.

14. Intellectual Property.

(a) The Fund agrees that all work product resulting from the services performed by the Investment Manager related to the services provided to the Fund hereunder, which the Investment Manager or its employees or consultants made, make, conceived or conceive (either solely or jointly with others) in connection with and during the term of this Agreement (collectively, "New Materials") shall be deemed to be created and prepared as, and shall therefore constitute, a "work made for hire" by the Investment Manager as the "author" and owner to the extent permitted by United States copyright law. To the extent (if any) that any New Materials may be deemed not to constitute a "work made for hire," the Fund hereby agrees that this Agreement shall automatically constitute an irrevocable assignment from the Fund to the Investment Manager for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, of all rights, title and interest to such New Materials. The Investment Manager shall exclusively own, and is perpetually and irrevocably entitled to, all right, title and interest now or hereafter provided by law in and to the New Materials throughout the universe in perpetuity in any and all media whether now known or hereafter developed (including, without limitation, any and all registrations, applications, copyright rights, renewals, extensions, restorations and reversions, patent rights, trade secret rights, trademark rights and all other proprietary and intellectual property rights in or relating to the New Materials), as well as the right to collect all royalties and income generated therefrom and the right to sue, counterclaim and recover for all past, present and future violations thereof.

15. Arm's-Length Agreement. The Fund and the Investment Manager represent, warrant and agree to the other that this Agreement constitutes an arm's-length agreement between the Fund and the Investment Manager. The Management Board represents that it has reviewed and understands the compensation arrangement and its risks and approves the Fund entering into this Agreement.

16. Miscellaneous.

(a) Notices. Any notice, consent or other communication made or given in connection with this Agreement shall be in writing and shall be deemed to have been duly given when delivered by hand, email or facsimile or five days after mailed by certified mail, return receipt requested, or on the next Business Day (in the place of delivery) if sent by recognized overnight courier service for next-Business Day delivery as follows:

If to the Fund, to:

CMERS Low Beta LLC  
c/o UBS Asset Management (Americas) LLC (d/b/a UBS Hedge  
Fund Solutions)  
600 Washington Boulevard, 9th Floor  
Stamford, CT 06901

Attention: Edward M. Burman  
Email address: edward.burman@ubs.com

If to the Investment Manager, to:

UBS Asset Management (Americas) LLC (d/b/a UBS Hedge Fund Solutions)  
600 Washington Boulevard, 9th Floor  
Stamford, CT 06901

Attention: Edward M. Burman  
Email address: edward.burman@ubs.com

Either party hereto may, from time to time, by notice in writing served upon the other as aforesaid, designate a different mailing address or a different or additional person to which all such notices or demands thereafter are to be addressed.

(b) Entire Agreement. This Agreement amends and restates the Amended and Restated Agreement and contains all of the terms agreed upon or made by the parties relating to the subject matter of this Agreement, and supersedes all prior and contemporaneous agreements, negotiations, correspondence, undertakings and communications of the parties, oral or written, respecting such subject matter.

(c) Severability. Each section of this Agreement and any and every provision therein shall be severable from every other section of this Agreement and any and every provision thereof, and the invalidity or unenforceability of any section or provision by any court shall not affect the validity of any other section or provision of this Agreement and such remaining provisions shall remain and continue to be in full force and effect.

(d) Amendments. This Agreement may not be amended unless such amendment is in writing and signed by the parties sought to be bound. Except as provided herein, no alteration or variation of the terms of this Agreement shall be valid unless made in writing and signed by the parties hereto, and no oral understanding or agreement not incorporated herein shall be binding on any of the parties hereto.

(e) Waivers. No delay on the part of any party in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any waiver on the part of any party of any right, power or privilege hereunder, nor any single or partial exercise of any right, power or privilege hereunder, preclude any other or further exercise thereof or the exercise of any other right, power or privilege hereunder.

(f) Binding Effect; Assignment. This Agreement shall be binding upon and inure to the benefit of each of the Fund, the Investment Manager, each Indemnified Party and their respective successors and permitted assignees. No party to this Agreement may assign (as such term is defined under the Investment Advisers Act of 1940, as amended) all or any portion of its rights, obligations or liabilities under this Agreement without the prior written consent of the other parties to this Agreement.

(g) Governing Law; Consent to Jurisdiction. Notwithstanding the place where this Agreement may be executed by any of the parties thereto, the parties expressly agree that all terms and provisions hereof, as well as all claims in contract, tort, equity or otherwise among the parties, shall be governed by, and construed in accordance with, the internal laws of the State of New York applicable to contracts made between residents of that State,

entered into and wholly performed, and to transactions wholly consummated, within that State. Each party also consents to the exclusive jurisdiction of the federal and state courts of the State of New York, located in the City of New York, for the resolution of any dispute involving the construction, interpretation or enforcement of this Agreement or any other claims in contract, tort, equity or otherwise among the parties.

(h) Force Majeure. No party to this Agreement shall be liable for damages resulting from delayed or defective performance when such delays arise out of causes beyond the control and without the fault or negligence of the offending party. Such causes may include, without limitation, acts of God or of the public enemy, acts of the State in its sovereign capacity, fires, floods, power failure, disabling strikes, epidemics, quarantine restrictions and freight embargoes.

(i) Titles or Headings. Titles or headings are not part of this Agreement, are for convenience of reference only, and shall have no effect on the construction or legal effect of this Agreement.

(j) Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

(k) Additional Documents. The Investment Manager and the Fund shall execute such additional documents and perform such further acts as may be reasonable and necessary to carry out the provisions of this Agreement.

(l) Cumulative Remedies. The rights and remedies provided herein are cumulative and are not exclusive of any rights or remedies which any party may otherwise have at law or in equity.

(m) Survival. The provisions of Sections 6, 7, 9, 12, 13, 14 and 16 hereof shall survive the termination of this Agreement.

(n) Construction. All pronouns shall be deemed to refer to the masculine, feminine, neuter, singular or plural as the identity of the person or persons' firm or company may require in the context thereof.



IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date first written above.

CMERS LOW BETA LLC

By: \_\_\_\_\_

Name:

Title:

By: \_\_\_\_\_

Name:

Title:

UBS ASSET MANAGEMENT (AMERICAS) LLC  
(D/B/A UBS HEDGE FUND SOLUTIONS)

By: \_\_\_\_\_

Name:

Title:

By: \_\_\_\_\_

Name:

Title:

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date first written above.

EMPLOYEES' RETIREMENT SYSTEM

By: \_\_\_\_\_

By: \_\_\_\_\_

## INVESTMENT PROGRAM

### Investment Objectives

Generally, 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.

Investment guidelines and restrictions represent initial guidelines only and may be modified in the future as agreed by all parties involved after initial implementation as Fund preferences evolve.

### Investment Guidelines

The Fund acknowledges that Investment Objectives represent initial guidelines only and may be modified in the future as agreed by all parties involved (the "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 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.
- Direct Trading: (0-5%)
- 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 commonalities 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.

**For additional strategy descriptions please refer to the Memorandum. Please be advised that the Investment Manager typically reviews and revises strategy classifications on an annual basis.**

**Note that target percentages are not intended to be guarantees or assurances that the Fund's portfolio will be within such target ranges at all times. They are intended as goals the Fund seeks to achieve and apply only after the Fund has completed (i) its investment build up phase expected to be up to one year or (ii) a rebalancing of the portfolio after a liquidity request.**

#### Investments in Portfolio Funds Managed by Affiliates of the Investment Manager

The Investment Manager will select and utilize its affiliates to source, implement, subadvise, and/or manage direct trades made on behalf of the Fund, for example, UBS O'Connor. Except with respect to the implementation of a Direct Trading Strategy, 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. The Investment Manager will not charge the Fund additional management fees or performance fees within the CBs, MAs, SPVs, or in any vehicle through which the Investment Manager implements its Direct Trading strategies.

## 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 20% 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 20% limitation. The Investment Manager may increase the 20% limitation with consent of investors on an investor-by-investor basis.
- An investor gate can cause a position to fall into multiple liquidity buckets. For example, a 1/8<sup>th</sup> 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; provided, however, that the Investment Manager will limit the Fund's exposure to co-investments and direct trading, in aggregate, to not more than 5% of the NAV of the Fund at the time of any investment to obtain such exposure.

## 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.

### Guideline Monitoring

Investment guidelines as agreed in this document will be additionally signed-off and monitored by UBS Risk Control. In the event of a limit violation, the Investment Manager will contact the Fund to identify the issue(s) and agree on an appropriate plan of action to resolve the issue(s) in a timely manner.

SECOND AMENDED AND RESTATED INVESTMENT MANAGEMENT AGREEMENT

SECOND AMENDED AND RESTATED INVESTMENT MANAGEMENT AGREEMENT (this "Agreement") to be effective as of the ~~31<sup>st</sup>~~ day of ~~July 2016~~ March 2024, among CMERS Low Beta LLC, a limited liability company organized under the laws of the State of Delaware, United States (the "Fund") and UBS ~~Hedge Fund Solutions~~ Asset Management (Americas) LLC, a limited liability company organized under the laws of the State of Delaware, United States (doing business as UBS Hedge Fund Solutions) (the "Investment Manager").

WHEREAS, the Fund has been organized for the purpose of pursuing the "Investment Program" set forth in Appendix A by seeking appreciation in the value of its assets principally through the allocation of assets among a select group of investment funds and/or managed accounts without limited liability (the "Portfolio Funds") to which alternative asset managers (the "Submanagers") provide investment advisory services;

WHEREAS, the Fund may also invest assets directly in Financial Instruments (as defined below) in order to obtain indirect exposure to a Portfolio Fund, to hedge, for short term cash management, to engage in overlay trades or for other purposes when consistent with the Investment Program;

WHEREAS, the Fund and the Investment Manager (f/k/a UBS Alternative and Quantitative Investments LLC and UBS Hedge Fund Solutions LLC thereafter) entered into an Investment Management Agreement effective as of December 18, 2014 (the "Original Agreement");

WHEREAS, the Fund and the Investment Manager entered into an Amended and Restated Investment Management Agreement effective as of July 31, 2016 (the "Amended and Restated Agreement"), thereby amending and restating the Original Agreement;

WHEREAS, the Fund desires to amend and ~~restate the Original~~ restate the Amended and Restated Agreement and any amendments thereto to continue to avail itself of the experience, sources of information, advice and assistance available to the Investment Manager and to have the Investment Manager perform for it various investment management services under the terms hereof;

WHEREAS, the Investment Manager has received a copy of the Limited Liability Company Agreement of the Fund, as amended (the "Fund Agreement"), the confidential memorandum of the Fund, as revised or supplemented (the "Memorandum") and any resolutions or minutes of meetings (together, the "Resolutions") of the management board of the Fund (the "Management Board") relating to the offering of shares of the Fund (the Fund Agreement, the Resolutions and the Memorandum, collectively, the "Fund Documents"), each as in effect as of the date of this Agreement; and

WHEREAS, the Investment Manager is willing to continue to perform such services under the terms and conditions set forth herein and in accordance with the Fund Documents;

NOW, THEREFORE, in consideration of the mutual covenants herein contained and for other good and valuable consideration, the receipt of which is hereby acknowledged, the parties hereto agree as follows:

1. Appointment of Investment Manager. The Investment Manager shall act as investment manager to the Fund for the purpose of selecting Submanagers and Portfolio Funds with which the Fund will invest its assets in accordance with the Investment Program and shall be responsible for all investment decisions for the Fund. The Investment Manager undertakes to give the Fund the benefit of its best judgment, efforts and facilities in rendering its services.

2. Authority of Investment Manager. In connection with its obligations hereunder, the Investment Manager shall have the authority for and in the name of the Fund, subject to Section 5 of this Agreement, without limitation, to engage in the following activities:

(a) Submanagers and Portfolio Funds.

(i) Provide research and analysis and direct the formulation of investment policies and strategies for the Fund utilizing a multi-asset, multiple Submanager approach whereby the assets of the Fund shall from time to time be committed by the Investment Manager to Submanagers and/or the Portfolio Funds employing various investment strategies which may involve the purchase and sale of Financial Instruments (as defined in the Fund Agreement);

(ii) Identify Submanagers, determine the amount of Fund assets to be allocated to each Submanager for investment in Portfolio Funds and/or managed accounts and invest the Fund's assets with such Submanagers through investments in such Portfolio Funds and/or managed accounts, either directly or through derivative instruments, which investments shall be subject in each case to the terms and conditions of the documents governing such Portfolio Funds or managed accounts; and

(iii) At its option, select as Submanagers and allocate assets in the aggregate of up to 20% of the Fund's net asset value ("NAV") at the time such investment is made, to Portfolio Funds and managed accounts for which UBS AG ("UBS") and its branches or affiliates, including the Investment Manager, serve as Submanager, *provided, however*, that investments in investment funds managed by the Investment Manager or its affiliates that allocate capital to investment funds managed by third-party investment managers (the "Platform"), and cash management provided by affiliates of the Investment Manager through one or more investment funds on the Platform (or otherwise), shall not be included in the foregoing limitation.

(b) Direct Investments.

(i) Invest and re-invest and otherwise enter into, directly or indirectly, on margin or otherwise, in Financial Instruments;



(ii) Provide research and analysis and direct the formulation of investment policies and strategies for the Fund;

(iii) Acquire a long position or a short position with respect to any Financial Instrument and make purchases or sales increasing, decreasing or liquidating such position or changing from a long position to a short position or from a short position to a long position, without any limitation as to the frequency of the fluctuation in such positions or as to the frequency of the changes in the nature of such positions;

(iv) Purchase Financial Instruments and hold them for investment and to make such representations to the seller of such Financial Instruments, and to other persons, that the Investment Manager may deem proper in such circumstances, including, without limitation, the representation that such Financial Instruments are purchased by the Fund for investment and not with a view to their sale or other disposition;

(v) Structure Financial Instruments on behalf of the Fund and for other accounts to whom the Investment Manager or any of its affiliates provide investment services ("Other Clients"), which may involve creating a new Financial Instrument, as opposed to trading a Financial Instrument available in the market;

(vi) Enter into contracts or other arrangements with investors (including affiliates of the Investment Manager), including, without limitation, total return swaps, structured notes or other derivative instruments, and such investors' investment returns would be based in whole or in part on the investment returns of the Fund;

(vii) Engage in such other lawful transactions in Financial Instruments as the Investment Manager may from time to time determine;

(viii) Invest the cash balances of the Fund in short-term investments deemed appropriate by the Investment Manager;

(ix) Enter into any hedging arrangements;

(x) Enter into contracts for or in connection with investments in Financial Instruments; and

(xi) Invest in other pooled investment vehicles for any purpose, which investments shall be subject, in each case, to the terms and conditions of the respective governing document for such vehicle.

(c) Other Authority.

(i) Open, maintain and close bank accounts and brokerage accounts, including custodial accounts and escrow accounts, in the name of the Fund;

(ii) Lend, either with or without security, any Financial Instruments, assets or other properties of the Fund, including by entering into repurchase or reverse purchase agreements and, from time to time, without limit as to the amount, borrow or raise funds, and secure the payment of obligations of the Fund by mortgage upon, or pledge or hypothecation of, all or any part of the property of the Fund;

(iii) Borrow or raise funds in a manner consistent with the Investment Program, in the name and on behalf of the Fund, and, from time to time, without limitation as to amount or manner and time of repayment, issue, accept, endorse and execute promissory notes, drafts, bills of exchange, warrants, bonds, debentures and other negotiable or non-negotiable instruments and evidences of indebtedness and secure the payment of such or other obligations by mortgage upon, or hypothecation or pledge of, all or part of the property of the Fund, whether at the time owned or thereafter acquired, to, without limitation, (aa) meet redemptions and (bb) otherwise conduct the Fund's trading activities;

(iv) Establish and utilize any subsidiary, special purpose vehicle or structure to address, without limitation, legal or regulatory constraints, transfer risk, obtain counterparty credit, obtain financing or employ leverage in a more efficient manner, invest in a more tax efficient manner and/or facilitate participation in certain types of investments (each such subsidiary, special purpose vehicle or structure, a "Fund Subsidiary") and cause the Fund to act as guarantor for one or more Fund Subsidiaries;

(v) Possess, transfer, mortgage, pledge or otherwise deal in, and exercise all rights, powers, privileges and other incidents of ownership or possession with respect to, Financial Instruments and other property and assets held or owned by the Fund;

(vi) Organize one or more corporations or other entities formed to hold record title, as nominee for the Fund (whether alone or together with the Other Clients), to hold Financial Instruments or assets of the Fund;

(vii) Enter into joint venture arrangements and co-invest with third parties;

(viii) Open, maintain, and close accounts, including margin and custodial accounts, with brokers, including brokers affiliated with the Investment Manager, which power shall include the authority to issue all instructions and authorizations to brokers regarding the Financial Instruments and/or money therein; pay, or authorize the payment and reimbursement of, brokerage commissions that may be in excess of the lowest rates available that are paid to

brokers who execute transactions for the account of the Fund and who supply or pay for (or rebate a portion of the Fund's brokerage commissions to the Fund for payment of) the cost of brokerage, research, products or services as described in the Fund Documents, that are of benefit to the Fund or the Other Clients, *provided* that such higher brokerage commissions are reasonable in relation to the value of the product and/or service provided while taking into account various factors, including, among others, a broker's or dealer's willingness to commit capital, its financial stability, its systems, facilities and recordkeeping and its experience in handling similar transactions (based on size, market conditions and type of security, among others). In connection with the foregoing, the Fund acknowledges and authorizes the use of "soft dollars" outside of the parameters of Section 28(e) of the U.S. Securities Exchange Act of 1934, as amended;

(ix) Combine purchase or sale orders on behalf of the Fund with orders for Other Clients and allocate the Financial Instruments or other assets so purchased or sold as described in the Fund Documents;

(x) Enter into arrangements with brokers to open "average price" accounts wherein orders placed during a trading day are placed on behalf of the Fund and Other Clients and are allocated among such accounts using an average price;

(xi) Cause the Fund to engage in agency, cross, agency cross and principal transactions to the extent permitted by applicable securities laws;

(xii) Supply the administrator and auditor of, and other service providers to, the Fund with such information and instructions as may be necessary to enable such person or persons to perform their duties in accordance with the applicable agreements;

(xiii) Engage subadvisers, including, without limitation, affiliates of the Investment Manager, to assist with managing the Fund's portfolio of investments or with investments generally;

(xiv) Engage personnel, whether part-time or full-time, and attorneys, independent accountants, or such other persons as the Investment Manager may deem necessary or advisable;

(xv) To perform any actions requested or permitted to be taken by the Fund, including, without limitation, acting under delegated authority from the Fund as to matters agreed upon under this Agreement or otherwise;

(xvi) Authorize any employee or other agent of the Investment Manager or any employee or other agent of the Fund to act for and on behalf of the Fund in all matters incidental to the foregoing; and

(xvii) Do any and all acts on behalf of the Fund as it may deem necessary or advisable in connection with the maintenance and administration of the Fund,

and exercise all rights of the Fund, with respect to its interest in any person, including, without limitation, the voting of Financial Instruments, participation in arrangements with creditors, the institution and settlement or compromise of suits and administrative proceedings and other like or similar matters.

3. Periodic Reports. The Investment Manager shall submit such periodic reports to the Fund regarding the Investment Manager's activities hereunder as the Fund may reasonably request, and a representative of the Investment Manager shall be available to meet with, and attend meetings of, the Management Board.

4. Status of Investment Manager. The Investment Manager shall for all purposes be an independent contractor of the Fund, and nothing in this Agreement shall be construed as making the Fund a partner or co-venturer with the Investment Manager or any of its affiliates or clients. The Investment Manager shall have no authority to act for, represent, bind or obligate the Fund except as specifically provided for in this Agreement.

5. Limitations on Authority.

(a) All actions or inactions by the Investment Manager pursuant to the authority it is granted under this Agreement shall at all times conform to and be in accordance with the requirements imposed by:

(i) any provisions of applicable law;

(ii) provisions of each of the Fund Documents; *provided, however*, that the Investment Manager shall not be bound by any additional Fund Documents or any supplement or revisions to any of the Fund Documents until it has been given notice thereof in accordance with Section 16 of this Agreement; and

(iii) such policies as may be adopted from time to time by the Management Board, including, without limitation, the policies described in the Memorandum; *provided, however*, that the Investment Manager shall not be bound by any such policies until it has been given notice thereof in accordance with Section 16 of this Agreement.

(b) The Investment Manager may not, directly or indirectly, cause or authorize the Fund to pay any fee to, reimburse any expense of, or make any other payment to, the Investment Manager; any such payment shall require the prior approval of a member of the Management Board who is not employed or otherwise affiliated with the Investment Manager.

6. Fees.

(a) The Fund shall pay a management fee (the "Management Fee") to the Investment Manager on the terms and conditions and in such manner and frequency as set forth in the Memorandum or as set forth in relevant Resolutions. The Management Fee may exceed the expenses borne by the Investment Manager in connection with the management of the Fund. The Management Board and the Investment Manager may agree to waive or impose different fees or otherwise modify the Management Fee with respect to any unitholder.

(b) Payment of the Management Fee, if any, shall be made on the last Business Day (as defined in the Memorandum or the Fund Agreement, as the case may be) of the period in which the Management Fee becomes payable as set forth in the Memorandum.

(c) The Fund hereby agrees that it shall promptly deliver to the Investment Manager copies of any revised or supplemented Memorandum or newly adopted Resolutions affecting the Management Fee, if any, payable to the Investment Manager; *provided* that failure to deliver such copies shall not affect the Investment Manager's right to receive such Management Fee. The Management Fee shall not be changed without the prior consent of the Investment Manager.

(d) For purposes of this Agreement, Resolutions shall be deemed to be delivered to the Investment Manager if an employee of the Investment Manager is serving as a member of the Management Board at the time such Resolutions are adopted and such member of the Management Board either (i) attends the meeting of the Management Board at which such Resolutions are passed, (ii) executes such Resolutions or (iii) sends his/her apologies for being unable to attend a meeting of the Management Board; otherwise, such Resolutions shall be deemed to be delivered when delivered in accordance with Section 16 of this Agreement or as otherwise agreed by the parties hereto.

7. Expenses of the Fund; Reimbursement by the Fund.

(a) In addition to the fees and disbursements referred to in other sections of this Agreement, the Fund shall bear responsibility for the Fund Expenses (as defined in the Memorandum or the Resolutions, as the case may be) as provided for in the Memorandum or as set forth in relevant Resolutions.

(b) Expenses incurred by the Fund (other than those paid for through the use of "soft dollars" as permitted under this Agreement and the Memorandum) for products and services which benefit the Fund and Other Clients, generally shall be allocated to the Fund and such Other Clients in accordance with their use of such products and services or on a *pro rata* basis in accordance with the NAV of each of the Fund and the Other Clients.

(c) The Investment Manager may retain, in connection with its responsibilities hereunder, the services of others to assist in the investment advice to be given to the Fund, including, without limitation, any affiliate of the Investment Manager, but payment for any such services shall be assumed by the Investment Manager and the Fund shall not have any liability therefor; *provided, however*, that the Investment Manager, in its discretion, may retain the services of independent third party professionals, including, without limitation, attorneys,

accountants and consultants, to advise and assist it in connection with the performance of its activities on behalf of the Fund hereunder, and the Fund shall bear full responsibility therefor and for the reasonable expense of any fees and disbursements arising therefrom.

8. RESERVED.

9. Exculpation; Indemnification.

(a) Except as provided by applicable law, including U.S. federal securities law, none of the Investment Manager or its affiliates or any of their respective shareholders, members, partners, affiliates, directors, officers or employees or the legal representatives of any of them (each, together with the Investment Manager, an "Indemnified Party") shall be liable to any Member or the Fund for any loss, cost or expense, arising from any mistake of judgment or any action or inaction of such persons that did not constitute gross negligence, willful misconduct or bad faith in the performance of the Investment Manager's obligations or duties hereunder, or for any loss, cost or expense due to any mistake of judgment, action or inaction or due to the negligence, willful misconduct or bad faith of any broker or other agent of the Investment Manager, *provided* that the selection, engagement or retention of such broker or other agent by the Investment Manager did not involve gross negligence, willful misconduct or bad faith. Each Indemnified Party may consult with legal counsel and accountants in respect of the affairs of the Fund and shall be fully protected and justified in any action or inaction which is taken in accordance with the advice or opinion of such legal counsel or accountants, *provided* that the selection of such legal counsel or accountants did not involve gross negligence, willful misconduct or bad faith. For the avoidance of doubt, the term "Indemnified Party" shall include, without limitation, a subadviser affiliated with the Investment Manager.

(b) The Fund shall indemnify and hold harmless each Indemnified Party from and against any loss, cost or expense suffered or sustained by it by reason of the fact that it is or was an Indemnified Party, including, without limitation, any judgment, award, settlement, reasonable attorneys' fees and other costs or expenses incurred in connection with the defense of any actual or threatened action, suit, proceeding or claim, *provided* that such loss, cost or expense resulted from a mistake of judgment on the part of an Indemnified Party, or from an action or inaction that did not constitute gross negligence, willful misconduct or bad faith on the part of an Indemnified Party, or for any loss, cost or expense due to any mistake of judgment, action or inaction or due to the negligence, willful misconduct or bad faith of any broker or other agent of an Indemnified Party, *provided* that the selection, engagement or retention of such broker or other agent by the Indemnified Party did not involve gross negligence, willful misconduct or bad faith; *provided, further*, that such loss, cost or expense did not result solely from any action brought by any Indemnified Party against any other Indemnified Party. The Fund shall, in the discretion of the Management Board, advance to any Indemnified Party reasonable attorneys' fees and other costs and expenses incurred in connection with the defense of any action or proceeding that arises out of such conduct or alleged conduct. In the event that such an advance is made by the Fund, the Indemnified Party must agree to reimburse the Fund for such fees, costs and expenses to the extent that it is finally determined that it, he or she was not entitled to indemnification in respect thereof.

(c) The Fund agrees that if any subadviser is engaged by the Investment Manager pursuant to the authority granted to the Investment Manager in Section 2, then such subadviser shall be entitled to receive the benefits of the exculpation and indemnification provisions provided for under this Section 9 as an Indemnified Party.

(d) Notwithstanding any of the foregoing to the contrary, this Section 9 shall not be construed to relieve any Indemnified Party of any liability to the extent that such liability may not be waived, modified or limited under applicable law (including liability under federal securities laws which, under certain circumstances, impose liability even on persons acting in good faith), but shall be construed so as to effectuate these exculpation and indemnification provisions to the fullest extent permitted by law.

10. Activities of the Investment Manager and Others. The Investment Manager and its affiliates may engage, simultaneously with their investment management activities on behalf of the Fund in other businesses, in transactions on behalf of other investment funds and accounts which involve the same Portfolio Funds in which the Fund may invest and the same Financial Instruments in which the Fund or Portfolio Funds may invest, and may render investment management services to other investment funds and accounts in which the Fund will have no interest and that have similar or dissimilar investment objectives to those of the Fund and/or which may or may not follow investment programs similar to the Fund. The Investment Manager and its affiliates shall not by reason of such engaging in other businesses or through the rendering of services for others be deemed to be acting in conflict with the interests of the Fund even if such activities may be in competition with the Fund and/or may involve substantial time and resources of the Investment Manager and its personnel. Notwithstanding the foregoing, the Investment Manager and its personnel shall devote as much time to the activities of the Fund as they deem necessary and appropriate. In addition, each unitholder, member, partner, director, officer, employee or legal representative of the Investment Manager or its affiliates, in its individual capacity, may engage in Financial Instrument transactions which may be different than, and contrary to, transactions engaged in by the Investment Manager on behalf of the Fund. The Investment Manager, its affiliates, and their respective shareholders, members, partners, directors, officers or employees or the legal representatives of any of them, in their individual capacities, may be members, partners, Management Board members, officers or employees of the Fund but shall not be deemed to have interests which are in conflict with the interests of the Fund. Generally, it is the policy of the Investment Manager to allocate, to the extent possible, investment opportunities to the Fund over a period of time on a fair and equitable basis relative to its Other Clients. In cases where an investment opportunity may be limited, priority may be granted to the Fund or Other Clients, for example and without limitation, where the Fund or Other Clients, as the case may be, are below their respective minimum investment allocations, have been waiting to invest in a Portfolio Fund for more than a month or are making an initial investment in a Portfolio Fund. In circumstances when it is unsuitable, impractical or undesirable for trades or investment opportunities (e.g., private placements, options or swaps) and/or their related hedge positions to be allocated among the Fund and Other Clients as described above, the Investment Manager shall allocate such trades and investment opportunities among the Fund and Other Clients in a manner that the Investment Manager in its discretion determines is fair and equitable.

11. Custody. Custody and prime brokerage arrangements may be established with banks and broker-dealers, including broker-dealers which are affiliates of the Investment Manager. The Investment Manager shall not be liable for any act or omission of any custodian or prime broker appointed by the Fund. Any compensation to a custodian for its services to the Fund shall be the obligation of the Fund and not the Investment Manager.

12. Term. This Agreement shall remain in effect through a term concluding December 31, ~~2016~~2024 and shall be automatically extended for additional one-year terms thereafter, except that it may be terminated by the Investment Manager, on the one hand, or by the Fund, on the other hand, upon at least 90 days' prior written notice to the other party. To the extent the Investment Manager makes any investments or transacts any business whatsoever on behalf of, or in the name of, the Fund on a date after its termination date, such actions must be approved by the Management Board. If this Agreement is terminated by either party, the Investment Manager shall be entitled to receive the Management Fee earned or accrued through the date of termination.

13. Limitations on Use of Name.

(a) The Fund shall not distribute or circulate any sales literature or promotional or other material which contains any reference to "UBS", "Asset Management (Americas)", "Hedge Fund Solutions" or "O'Connor" without the prior approval of the Investment Manager. The Fund shall submit in draft form all such materials requiring approval of the Investment Manager, allowing sufficient time for review by the Investment Manager and its counsel prior to any deadline for printing. The Fund also agrees to indemnify and hold harmless each Indemnified Party from and against any and all losses, costs or expenses, joint or several, including, without limitation, attorneys' fees and disbursements, which may arise out of the Fund's use or misuse of the term "UBS", "Asset Management (Americas)", "Hedge Fund Solutions" or "O'Connor," or out of any breach of or failure to comply with this Section 13.

(b) If the Investment Manager or any successor to its business shall cease to furnish services to the Fund under this Agreement or similar contractual arrangement, for any reason whatsoever, the Fund, at its expense:

(i) as promptly as practicable, shall take all necessary action to cause the Fund Documents to be amended to eliminate any reference to "UBS", "Asset Management (Americas)", "Hedge Fund Solutions" or "O'Connor" or any name, mark or logo type derived from it or similar to it or indicating that the Fund is managed by or otherwise associated with the Investment Manager; and

(ii) within 60 days after the termination of this Agreement or such similar contractual arrangement, shall cease to use in any other manner, including, without limitation, use in any sales literature or promotional material, the name "UBS", "Asset Management (Americas)", "Hedge Fund Solutions" or "O'Connor" or any name, mark or logo type derived from it or similar to it or indicating that the Fund is managed by or otherwise associated with the Investment Manager.



14. Intellectual Property.

(a) The Fund agrees that all work product resulting from the services performed by the Investment Manager related to the services provided to the Fund hereunder, which the Investment Manager or its employees or consultants made, make, conceived or conceive (either solely or jointly with others) in connection with and during the term of this Agreement (collectively, "New Materials") shall be deemed to be created and prepared as, and shall therefore constitute, a "work made for hire" by the Investment Manager as the "author" and owner to the extent permitted by United States copyright law. To the extent (if any) that any New Materials may be deemed not to constitute a "work made for hire," the Fund hereby agrees that this Agreement shall automatically constitute an irrevocable assignment from the Fund to the Investment Manager for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, of all rights, title and interest to such New Materials. The Investment Manager shall exclusively own, and is perpetually and irrevocably entitled to, all right, title and interest now or hereafter provided by law in and to the New Materials throughout the universe in perpetuity in any and all media whether now known or hereafter developed (including, without limitation, any and all registrations, applications, copyright rights, renewals, extensions, restorations and reversions, patent rights, trade secret rights, trademark rights and all other proprietary and intellectual property rights in or relating to the New Materials), as well as the right to collect all royalties and income generated therefrom and the right to sue, counterclaim and recover for all past, present and future violations thereof.

15. Arm's-Length Agreement. The Fund and the Investment Manager represent, warrant and agree to the other that this Agreement constitutes an arm's-length agreement between the Fund and the Investment Manager. The Management Board represents that it has reviewed and understands the compensation arrangement and its risks and approves the Fund entering into this Agreement.

16. Miscellaneous.

(a) Notices. Any notice, consent or other communication made or given in connection with this Agreement shall be in writing and shall be deemed to have been duly given when delivered by hand, email or facsimile or five days after mailed by certified mail, return receipt requested, or on the next Business Day (in the place of delivery) if sent by recognized overnight courier service for next-Business Day delivery as follows:

If to the Fund, to:

CMERS Low Beta LLC  
c/o UBS ~~Alternative and Quantitative Investments LLC~~ Asset Management (Americas) LLC (d/b/a UBS Hedge Fund Solutions)  
600 Washington Boulevard, 9th Floor  
Stamford, CT 06901

Attention: ~~Michael Kim~~  
~~Facsimile No.: 203-719-1399~~ Edward M. Burman  
Email address: ~~michael.kim~~ edward.burman@ubs.com

If to the Investment Manager, to:

UBS Asset Management (Americas) LLC (d/b/a UBS Hedge Fund Solutions-LLC)  
600 Washington Boulevard, 9th Floor  
Stamford, CT 06901

Attention: Michael Kim  
Faeximile No.: 203-719-1399 Edward M. Burman  
Email address: michael.kimedward.burman@ubs.com

Either party hereto may, from time to time, by notice in writing served upon the other as aforesaid, designate a different mailing address or a different or additional person to which all such notices or demands thereafter are to be addressed.

(b) Entire Agreement. This Agreement amends and restates the ~~Original~~ Amended and Restated Agreement and contains all of the terms agreed upon or made by the parties relating to the subject matter of this Agreement, and supersedes all prior and contemporaneous agreements, negotiations, correspondence, undertakings and communications of the parties, oral or written, respecting such subject matter.

(c) Severability. Each section of this Agreement and any and every provision therein shall be severable from every other section of this Agreement and any and every provision thereof, and the invalidity or unenforceability of any section or provision by any court shall not affect the validity of any other section or provision of this Agreement and such remaining provisions shall remain and continue to be in full force and effect.

(d) Amendments. This Agreement may not be amended unless such amendment is in writing and signed by the parties sought to be bound. Except as provided herein, no alteration or variation of the terms of this Agreement shall be valid unless made in writing and signed by the parties hereto, and no oral understanding or agreement not incorporated herein shall be binding on any of the parties hereto.

(e) Waivers. No delay on the part of any party in exercising any right, power or privilege hereunder shall operate as a waiver thereof, nor shall any waiver on the part of any party of any right, power or privilege hereunder, nor any single or partial exercise of any right, power or privilege hereunder, preclude any other or further exercise thereof or the exercise of any other right, power or privilege hereunder.

(f) Binding Effect; Assignment. This Agreement shall be binding upon and inure to the benefit of each of the Fund, the Investment Manager, each Indemnified Party and their respective successors and permitted assignees. No party to this Agreement may assign (as such term is defined under the Investment Advisers Act of 1940, as amended) all or any portion of its rights, obligations or liabilities under this Agreement without the prior written consent of the other parties to this Agreement.

(g) Governing Law; Consent to Jurisdiction. Notwithstanding the place where this Agreement may be executed by any of the parties thereto, the parties expressly

agree that all terms and provisions hereof, as well as all claims in contract, tort, equity or otherwise among the parties, shall be governed by, and construed in accordance with, the internal laws of the State of New York applicable to contracts made between residents of that State, entered into and wholly performed, and to transactions wholly consummated, within that State. Each party also consents to the exclusive jurisdiction of the federal and state courts of the State of New York, located in the City of New York, for the resolution of any dispute involving the construction, interpretation or enforcement of this Agreement or any other claims in contract, tort, equity or otherwise among the parties.

(h) Force Majeure. No party to this Agreement shall be liable for damages resulting from delayed or defective performance when such delays arise out of causes beyond the control and without the fault or negligence of the offending party. Such causes may include, without limitation, acts of God or of the public enemy, acts of the State in its sovereign capacity, fires, floods, power failure, disabling strikes, epidemics, quarantine restrictions and freight embargoes.

(i) Titles or Headings. Titles or headings are not part of this Agreement, are for convenience of reference only, and shall have no effect on the construction or legal effect of this Agreement.

(j) Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

(k) Additional Documents. The Investment Manager and the Fund shall execute such additional documents and perform such further acts as may be reasonable and necessary to carry out the provisions of this Agreement.

(l) Cumulative Remedies. The rights and remedies provided herein are cumulative and are not exclusive of any rights or remedies which any party may otherwise have at law or in equity.

(m) Survival. The provisions of Sections 6, 7, 9, 12, 13, 14 and 16 hereof shall survive the termination of this Agreement.

(n) Construction. All pronouns shall be deemed to refer to the masculine, feminine, neuter, singular or plural as the identity of the person or persons' firm or company may require in the context thereof.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date first written above.

CMERS LOW BETA LLC

By: \_\_\_\_\_

Name:

Title:

By: \_\_\_\_\_

Name:

Title:

UBS ASSET MANAGEMENT (AMERICAS) LLC  
(D/B/A UBS HEDGE FUND SOLUTIONS ~~LLC~~)

By: \_\_\_\_\_

Name:

Title:

By: \_\_\_\_\_

Name:

Title:

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date first written above.

EMPLOYEES' RETIREMENT SYSTEM

By: \_\_\_\_\_

By: \_\_\_\_\_

## INVESTMENT PROGRAM

### Investment Objectives

Generally, 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.

Investment guidelines and restrictions represent initial guidelines only and may be modified in the future as agreed by all parties involved after initial implementation as Fund preferences evolve.

### Investment Guidelines

The Fund acknowledges that Investment Objectives represent initial guidelines only and may be modified in the future as agreed by all parties involved (the "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 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.
- Direct Trading: (0-5%)
- 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 commonalities 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.

**For additional strategy descriptions please refer to the Memorandum. Please be advised that the Investment Manager typically reviews and revises strategy classifications on an annual basis.**

**Note that target percentages are not intended to be guarantees or assurances that the Fund's Fund's portfolio will be within such target ranges at all times. They are intended as goals the Fund seeks to achieve and apply only after the Fund has completed (i) its investment build up phase expected to be up to one year or (ii) a rebalancing of the portfolio after a liquidity request.**

#### Investments in Portfolio Funds Managed by Affiliates of the Investment Manager

Investments The Investment Manager will select and utilize its affiliates to source, implement, subadvise, and/or manage direct trades made on behalf of the Fund, for example, UBS O'Connor. Except with respect to the implementation of a Direct Trading Strategy, investments in Portfolio Funds managed by affiliates of the Investment Manager will be capped at 20% and would be limited to ~~Customized Baskets~~ customized baskets ("CBs"), ~~Managed Accounts~~ managed accounts ("MAs") or other ~~Special Purpose Vehicles~~ (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~~ 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),~~ SPVs, or in any vehicle through which the Investment Manager implements its Direct Trading strategies.

### 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~~20% 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~~20% limitation. The Investment Manager may increase the 20% limitation with consent of investors on an investor-by-investor basis.
- An investor gate can cause a position to fall into multiple liquidity buckets. For example, a 1/8<sup>th</sup> 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~~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; provided, however, that the Investment Manager will limit the Fund's exposure to co-investments and direct trading, in aggregate, to not more than 5% of the NAV of the Fund at the time of any investment to obtain such exposure.

#### 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.

#### Guideline Monitoring

Investment guidelines as agreed in this document will be additionally signed-off and monitored by UBS Risk Control. In the event of a limit violation, the Investment Manager will contact the Fund to identify the issue(s) and agree on an appropriate plan of action to resolve the issue(s) in a timely manner.

<b>Summary report:</b>	
<b>Litera Compare for Word 11.4.0.111 Document comparison done on 3/17/2024 11:15:06 AM</b>	
<b>Style name:</b> Sidley Default	
<b>Intelligent Table Comparison:</b> Active	
<b>Original DMS:</b> nd://4879-0301-4317/1/2nd A&R IMA - City of Milwaukee.docx	
<b>Modified DMS:</b> nd://4879-0301-4317/2/2nd A&R IMA - City of Milwaukee.docx	
<b>Changes:</b>	
Add	65
Delete	37
<del>Move From</del>	1
Move To	1
Table Insert	0
<del>Table Delete</del>	0
Table moves to	0
<del>Table moves from</del>	0
Embedded Graphics (Visio, ChemDraw, Images etc.)	0
Embedded Excel	0
Format changes	0
<b>Total Changes:</b>	<b>104</b>

March [•], 2024  
City of Milwaukee Employees' Retirement System  
789 North Water Street  
Suite 300  
Milwaukee, WI 53202

To Whom it May Concern:

This amended and restated letter agreement (the "Letter Agreement") is being entered into with respect to an investment by the City of Milwaukee Employees' Retirement System ("CMERS") in Units of CMERS Low Beta LLC (the "Fund"). The Fund and UBS Asset Management (Americas) LLC (d/b/a UBS Hedge Fund Solutions) (the "Investment Manager"), the investment manager of the Fund, on its own behalf and in its capacity as the investment manager of the Fund, hereby agree to the terms set forth below.

Reference is made to that certain letter agreement dated December 18, 2014 (the "Prior Agreement") by and between the Fund and the CMERS. The parties now desire to amend and restate the Prior Agreement as set forth herein.

All capitalized terms used but not defined herein have the meanings set forth in the Fund's Confidential Memorandum dated December 2014 (the "Memorandum") and the Fund's Amended and Restated Limited Liability Company Agreement dated as of December 18, 2014 (the "Agreement," and together with the Memorandum, the "Offering Documents").

Notwithstanding the terms set forth in the Offering Documents, the parties hereto agree as follows:

1. Most-Favored Nation.

(a) If, while CMERS is invested in the Fund, the Investment Manager offers Preferential Fee Terms to a Relevant Client, the Investment Manager shall promptly offer the Preferential Fee Terms to CMERS and CMERS may accept the Preferential Fee Terms by notifying the Investment Manager within 30 days of receiving such notice; provided, that CMERS shall agree to be bound by any obligations, restrictions and other terms that are more restrictive than the obligations, restrictions and other terms imposed on CMERS.

(b) "Preferential Fee Terms" shall mean overall fee terms payable by a Relevant Client to the Investment Manager or its affiliates (including any performance fee, extrapolated from a targeted rate of return), expressed as a percentage of the Relevant Client's net asset value, that are less than the overall fee terms to be payable by the Fund to the Investment Manager, also expressed as a percentage of the Fund's net asset value. The Investment Manager, in its sole and reasonable discretion, shall determine whether a Relevant Client has been offered Preferential Fee Terms.

(c) A "Relevant Client" shall mean any single investor fund focused on a broad based multi-strategy investment program managed by the Investment Manager on a discretionary basis with an initial subscription amount less than or equal to CMERS' initial subscription amount in the Fund. The Investment Manager, in its sole and reasonable discretion, shall determine whether another client is a Relevant Client.

2. Accuracy of the Memorandum. The Investment Manager represents that the Memorandum does not contain any untrue statement of a material fact or omit to state a material fact necessary in order to

make the statements contained therein, taken as a whole in light of the circumstances under which they were made, not misleading.

3. **No Bad Acts/Litigation.** The Fund and the Investment Manager represent and warrant that (a) there are no actions, proceedings or investigations pending or, to the knowledge of the Fund or the Investment Manager, threatened against the Fund, the Investment Manager or any managing member of the Investment Manager, and (b) during the five (5) years prior to the date hereof none of the Investment Manager or any managing member of the Investment Manager has been the subject of any action, proceeding or investigation that claimed or alleged fraud, misrepresentation, or violation of any federal or state securities law, rule or regulation.

4. **Payment of Directors' Fees.** Any directors' fees or directors' expenses (including the fees and expenses of the Management Board) paid by the Fund shall be reimbursed by the Investment Manager.

5. **Notice of Certain Matters.** The Investment Manager shall notify CMERS as soon as reasonably practicable of (a) any claims for indemnification formally made against the Fund pursuant to Section 2.08 of the Agreement and (b) the commencement of any lawsuit against the Fund, or (c) subpoena, request for information (whether in connection with a formal order naming the Investment Manager, or any of its personnel or otherwise), "Wells Notice," a notice regarding the commencement of any legal or disciplinary proceedings by the Securities and Exchange Commission, the Financial Industry Regulatory Authority Inc., the Commodity Futures Trading Commission and state or attorney-general office or any other regulatory or governmental body involving the Fund or the Investment Manager that could reasonably be expected to have a material adverse effect on the Fund or CMERS' investment.

6. **Anti-Bribery.** The Investment Manager, on behalf of the Fund, and its officers, managers, employees, independent contractors, representatives or agents, covenants that (i) it has and will only use funds for lawful purposes, (ii) it has and will not violate applicable anticorruption laws, including without limitation, the Foreign Corrupt Practices Act ("FCPA"), the United Kingdom Bribery Act of 2010, the OECD Convention on Combatting Bribery of Foreign Public Officials in International Business Transactions and any other applicable anticorruption laws in countries where the Fund engages in investment activities, (iii) it has not and will not, directly or indirectly, give or offer anything of value, including, but not limited to, cash, contributions, gifts, or entertainment, to foreign or domestic government officials or to any private commercial person or entity for the purpose of gaining an improper business advantage in violation of any such applicable anticorruption laws and (iv) it has or will establish sufficient internal controls and procedures to ensure compliance with all applicable anticorruption laws.

7. **Anti-Money Laundering.** The Investment Manager confirms that it interprets its duties to require that it conduct the business of the Fund in compliance with all applicable laws in all material respects, and will cause the Fund not to knowingly make any payments to any persons in violation of the FCPA and the regulations promulgated thereunder, and shall use its commercially reasonable efforts to cause the Fund to comply with the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001, the Trading with the Enemy Act (50 U.S.C. § 1 et seq., as amended), the substantive prohibitions of the anti-boycott laws of the United States, any of the foreign assets control regulations of the United States Treasury Department (31 CFR, Subtitle B, Chapter V, as amended), and any enabling legislation or executive order relating thereto.

8. **Representations and Warranties by the Investment Manager.** The Investment Manager represents and warrants that each of the following statements is true and correct as of the date hereof:

(a) The Units acquired by CMERS pursuant to the Prior Agreement were duly and validly issued interests in the Fund.

(b) The Agreement, a copy of each of which has been furnished to CMERS, has been duly executed and delivered on behalf of the Investment Manager and constitutes the legal, valid and binding obligation of the Investment Manager, enforceable against the Investment Manager in accordance with its terms. This Letter Agreement has been duly executed and delivered on behalf of the Investment Manager and constitutes the legal, valid and binding obligation of the Investment Manager, enforceable against the Investment Manager in accordance with its terms.

(c) The Investment Manager has all requisite power and authority to conduct its business as described in the Agreement.

(d) Neither the execution and delivery of the Agreement and this Letter Agreement nor the consummation of any of the transactions contemplated thereby or hereby, will result in a violation of any order, writ, injunction, decree or award of any court or governmental authority to which the Fund or the Investment Manager may be subject. The execution and delivery by the Investment Manager of the Agreement and this Letter Agreement do not require any filing with, or the approval or consent of, any governmental authority which has not already been made or obtained, except, if deemed necessary or advisable by the Investment Manager, the filings under applicable securities laws.

9. Tax Assistance. The Investment Manager agrees to use commercially reasonable efforts to assist CMERS when Fund assistance is needed to avoid taxation or to reclaim taxes withheld. The Investment Manager will provide CMERS with the opportunity to contest any claim that CMERS is subject to taxation.

10. Closing Documents. The Investment Manager agrees to provide CMERS and CMERS' outside counsel, Reinhart Boerner van Deuren, s.c., to the attention of Jussi P. Snellman, copies of all amendments to the Agreement within 60 days following the execution thereof.

11. Entire Agreement. This Letter Agreement and the Agreement shall constitute the whole and only agreement among the Investment Manager, the Fund and CMERS in relation to the subject matter set forth herein and supersede and extinguish any prior drafts, agreements, undertakings, representations, warranties, promises, assurances and arrangements of any nature whatsoever, whether or not in writing, relating thereto.

12. Governing Law. This Letter Agreement is governed by and shall in all respects be construed and enforced in accordance with the laws of Delaware. The parties hereto each consent to the exclusive jurisdiction of the federal and state courts in the State of Wisconsin with respect to any claims or disputes arising hereunder.

13. Counterparts. This Letter Agreement and any amendments, waivers, consents or supplements hereto may be executed in any number of counterparts and by different parties hereto in separate counterparts, and each of them when so executed and delivered shall be deemed an original, but all such counterparts together shall constitute but one and the same instrument.

[signature page to follow]

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Cassandra Powell  
Title: Management Board Member

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Philip Dickie  
Title: Management Board Member

UBS ASSET MANAGEMENT (AMERICAS) LLC  
(D/B/A UBS HEDGE FUND SOLUTIONS)

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Name:  
Title:

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Name:  
Title:

AGREED AND ACKNOWLEDGED:

CITY OF MILWAUKEE EMPLOYEES' RETIREMENT SYSTEM

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Name:

CMERS LOW BETA, LLC

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Cassandra Powell  
Title: Management Board Member

---

Philip Dickie  
Title: Management Board Member

UBS ASSET MANAGEMENT (AMERICAS) LLC  
(D/B/A UBS HEDGE FUND SOLUTIONS)

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Name:  
Title:

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Name:  
Title:

AGREED AND ACKNOWLEDGED:

CITY OF MILWAUKEE EMPLOYEES' RETIREMENT SYSTEM

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Name:

CMERS LOW BETA, LLC

\_\_\_\_\_  
Cassandra Powell  
Title: Management Board Member

\_\_\_\_\_  
Philip Dickie  
Title: Management Board Member

UBS ASSET MANAGEMENT (AMERICAS) LLC  
(D/B/A UBS HEDGE FUND SOLUTIONS)

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Name:  
Title:

\_\_\_\_\_  
Name:  
Title:

AGREED AND ACKNOWLEDGED:

CITY OF MILWAUKEE EMPLOYEES' RETIREMENT SYSTEM

\_\_\_\_\_  
Name:



CMERS LOW BETA, LLC

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Cassandra Powell  
Title: Management Board Member

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Philip Dickie  
Title: Management Board Member

UBS ASSET MANAGEMENT (AMERICAS) LLC  
(D/B/A UBS HEDGE FUND SOLUTIONS)

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Name:  
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AGREED AND ACKNOWLEDGED:

CITY OF MILWAUKEE EMPLOYEES' RETIREMENT SYSTEM

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Name:

CMERS LOW BETA, LLC

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Cassandra Powell  
Title: Management Board Member

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Philip Dickie  
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Name:



[UBS Asset Management \(Americas\) LLC](#)  
[\(d/b/a UBS Hedge Fund Solutions\)](#)  
[UBS Alternative and Quantitative](#)  
[Investments LLC](#)  
~~677 Washington Boulevard~~  
[600 Washington Boulevard, 9th Floor](#)  
Stamford, CT 06901  
Tel. +1-203-749-1-203 719 3000

[www.ubs.com](http://www.ubs.com)

~~December 18~~ [March \[•\], 2014](#) ~~2014~~ [2024](#)

City of Milwaukee Employees' Retirement System  
789 North Water Street  
Suite 300  
Milwaukee, WI 53202

To Whom it May Concern:

This [amended and restated](#) letter agreement (the "Letter Agreement") is being entered into ~~in connection with, and as an inducement for, respect to~~ an investment by the City of Milwaukee Employees' Retirement System ("CMERS") in Units of CMERS Low Beta LLC (the "Fund"). The Fund and UBS ~~Alternative and Quantitative Investments LLC~~ [\(Asset Management \(Americas\) LLC \(d/b/a UBS Hedge Fund Solutions\)\)](#) (the "Investment Manager"), the investment manager of the Fund, on its own behalf and in its capacity as the investment manager of the Fund, hereby agree to the terms set forth below.

[Reference is made to that certain letter agreement dated December 18, 2014 \(the "Prior Agreement"\) by and between the Fund and the CMERS. The parties now desire to amend and restate the Prior Agreement as set forth herein.](#)

All capitalized terms used but not defined herein have the meanings set forth in the Fund's Confidential Memorandum dated December 2014 (the "Memorandum") and the Fund's Amended and Restated Limited Liability Company Agreement dated as of December 18, 2014 (the "Agreement," and together with the Memorandum, the "Offering Documents").

Notwithstanding the terms set forth in the Offering Documents, the parties hereto agree as follows:

1. Most-Favored Nation.

(a) If, while CMERS is invested in the Fund, the Investment Manager offers Preferential Fee Terms to a Relevant Client, the Investment Manager shall promptly offer the Preferential Fee Terms to CMERS and CMERS may accept the Preferential Fee Terms by notifying the Investment Manager within 30 days of receiving such notice; provided, that CMERS shall agree to be bound by any obligations, restrictions and other terms that are more restrictive than the obligations, restrictions and other terms imposed on CMERS.

(b) "Preferential Fee Terms" shall mean overall fee terms payable by a Relevant Client to the Investment Manager or its affiliates (including any performance fee, extrapolated from a targeted rate of return), expressed as a percentage of the Relevant Client's net asset value, that are less than the overall fee terms to be payable by the Fund to the Investment Manager, also expressed as a percentage of the Fund's net asset value. The Investment Manager, in its sole and reasonable discretion, shall determine whether a Relevant Client has been offered Preferential Fee Terms.

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(c) A “Relevant Client” shall mean any single investor fund focused on a broad based multi-strategy investment program managed by the Investment Manager on a discretionary basis with an initial subscription amount less than or equal to CMERS’ initial subscription amount in the Fund. The Investment Manager, in its sole and reasonable discretion, shall determine whether another client is a Relevant Client.

2. Accuracy of the Memorandum. The Investment Manager represents that the Memorandum does not contain any untrue statement of a material fact or omit to state a material fact necessary in order to make the statements contained therein, taken as a whole in light of the circumstances under which they were made, not misleading.

3. No Bad Acts/Litigation. The Fund and the Investment Manager represent and warrant that (a) there are no actions, proceedings or investigations pending or, to the knowledge of the Fund or the Investment Manager, threatened against the Fund, the Investment Manager or any managing member of the Investment Manager, and (b) during the five (5) years prior to the date hereof none of the Investment Manager or any managing member of the Investment Manager has been the subject of any action, proceeding or investigation that claimed or alleged fraud, misrepresentation, or violation of any federal or state securities law, rule or regulation.

4. Payment of Directors’ Fees. Any directors’ fees or directors’ expenses (including the fees and expenses of the Management Board) paid by the Fund shall be reimbursed by the Investment Manager.

5. Notice of Certain Matters. The Investment Manager shall notify CMERS as soon as reasonably practicable of (a) any claims for indemnification formally made against the Fund pursuant to Section 2.08 of the Agreement and (b) the commencement of any lawsuit against the Fund, or (c) subpoena, request for information (whether in connection with a formal order naming the Investment Manager, or any of its personnel or otherwise), “Wells Notice,” a notice regarding the commencement of any legal or disciplinary proceedings by the Securities and Exchange Commission, the Financial Industry Regulatory Authority Inc., the Commodity Futures Trading Commission and state or attorney-general office or any other regulatory or governmental body involving the Fund or the Investment Manager that could reasonably be expected to have a material adverse effect on the Fund or CMERS’ investment.

6. Anti-Bribery. The Investment Manager, on behalf of the Fund, and its officers, managers, employees, independent contractors, representatives or agents, covenants that (i) it has and will only use funds for lawful purposes, (ii) it has and will not violate applicable anticorruption laws, including without limitation, the Foreign Corrupt Practices Act (“FCPA”), the United Kingdom Bribery Act of 2010, the OECD Convention on Combatting Bribery of Foreign Public Officials in International Business Transactions and any other applicable anticorruption laws in countries where the Fund engages in investment activities, (iii) it has not and will not, directly or indirectly, give or offer anything of value, including, but not limited to, cash, contributions, gifts, or entertainment, to foreign or domestic government officials or to any private commercial person or entity for the purpose of gaining an improper business advantage in violation of any such applicable anticorruption laws and (iv) it has or will establish sufficient internal controls and procedures to ensure compliance with all applicable anticorruption laws.

7. Anti-Money Laundering. The Investment Manager confirms that it interprets its duties to require that it conduct the business of the Fund in compliance with all applicable laws in all material respects, and will cause the Fund not to knowingly make any payments to any persons in violation of the FCPA and the regulations promulgated thereunder, and shall use its commercially reasonable efforts to cause the Fund to comply with the Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism Act of 2001, the Trading with the Enemy Act (50 U.S.C. § 1 et seq., as

amended), the substantive prohibitions of the anti-boycott laws of the United States, any of the foreign assets control regulations of the United States Treasury Department (31 CFR, Subtitle B, Chapter V, as amended), and any enabling legislation or executive order relating thereto.

8. Representations and Warranties by the Investment Manager. The Investment Manager represents and warrants that each of the following statements is true and correct as of the date hereof:

(a) The Units ~~to be~~ acquired by CMERS pursuant to the Prior Agreement ~~represent~~were duly and validly issued interests in the Fund.

(b) The Agreement, a copy of each of which has been furnished to CMERS, has been duly executed and delivered on behalf of the Investment Manager and constitutes the legal, valid and binding obligation of the Investment Manager, enforceable against the Investment Manager in accordance with its terms. This Letter Agreement has been duly executed and delivered on behalf of the Investment Manager and constitutes the legal, valid and binding obligation of the Investment Manager, enforceable against the Investment Manager in accordance with its terms.

(c) The Investment Manager has all requisite power and authority to conduct its business as described in the Agreement.

(d) Neither the execution and delivery of the Agreement and this Letter Agreement nor the consummation of any of the transactions contemplated thereby or hereby, will result in a violation of any order, writ, injunction, decree or award of any court or governmental authority to which the Fund or the Investment Manager may be subject. The execution and delivery by the Investment Manager of the Agreement and this Letter Agreement do not require any filing with, or the approval or consent of, any governmental authority which has not already been made or obtained, except, if deemed necessary or advisable by the Investment Manager, the filings under applicable securities laws.

9. Tax Assistance. The Investment Manager agrees to use commercially reasonable efforts to assist CMERS when Fund assistance is needed to avoid taxation or to reclaim taxes withheld. The Investment Manager will provide CMERS with the opportunity to contest any claim that CMERS is subject to taxation.

10. Closing Documents. The Investment Manager agrees to provide CMERS and CMERS' outside counsel, Reinhart Boerner van Deuren, s.c., to the attention of Jussi P. Snellman, ~~two complete sets of the executed documents (i.e., the Agreement and a signed opinion of counsel to the Investment Manager) by no later than December 31, 2014, and~~ copies of all amendments ~~thereto~~to the Agreement within 60 days following the execution thereof.

11. Entire Agreement. This Letter Agreement and the Agreement shall constitute the whole and only agreement among the Investment Manager, the Fund and CMERS in relation to the subject matter set forth herein and supersede and extinguish any prior drafts, agreements, undertakings, representations, warranties, promises, assurances and arrangements of any nature whatsoever, whether or not in writing, relating thereto.

12. Governing Law. This Letter Agreement is governed by and shall in all respects be construed and enforced in accordance with the laws of Delaware. The parties hereto each consent to the exclusive jurisdiction of the federal and state courts in the State of Wisconsin with respect to any claims or disputes arising hereunder.

13. Counterparts. This Letter Agreement and any amendments, waivers, consents or supplements hereto may be executed in any number of counterparts and by different parties hereto in separate counterparts, and each of them when so executed and delivered shall be deemed an original, but all such counterparts together shall constitute but one and the same instrument.



[signature page to follow]

CMERS LOW BETA, LLC

\_\_\_\_\_  
Cassandra Powell  
Title: Management Board Member

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~~William E.J. Walmsley~~  
Philip Dickie  
Title: Management Board Member

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UBS ~~ALTERNATIVE AND QUANTITATIVE INVESTMENTS~~ ASSET MANAGEMENT (AMERICAS) LLC  
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<b>Summary report:</b>	
<b>Litera Compare for Word 11.4.0.111 Document comparison done on 3/17/2024 11:18:33 AM</b>	
<b>Style name:</b> Sidley Default	
<b>Intelligent Table Comparison:</b> Active	
<b>Original DMS:</b> nd://4877-3211-7933/1/A&R Side Letter - CMERS-UBS.doc	
<b>Modified DMS:</b> nd://4877-3211-7933/2/A&R Side Letter - CMERS-UBS.doc	
<b>Changes:</b>	
Add	32
Delete	29
<del>Move From</del>	1
<u>Move To</u>	1
<u>Table Insert</u>	0
<del>Table Delete</del>	0
<u>Table moves to</u>	0
<del>Table moves from</del>	0
Embedded Graphics (Visio, ChemDraw, Images etc.)	0
Embedded Excel	0
Format changes	0
<b>Total Changes:</b>	<b>63</b>

## Memorandum

**To:** City of Milwaukee Employees' Retirement System  
**From:** Callan LLC  
**Date:** June 2024  
**Subject:** Harrison Street Core Property Fund Data Center Allocation Proposal

### Background

City of Milwaukee Employees' Retirement System ("CMERS") made a \$50 million commitment to the Harrison Street Core Property Fund in 2023 ("the Fund"). The Harrison Street Core Property Fund invests in life sciences, student housing, self-storage, medical office, and senior housing.

### Proposal

The Fund is requesting approval from investors to allow the Fund to add data centers as an allowable investment. Specifically, the Fund would be able to invest up to 20% of its gross market value in data centers. The Fund will primarily target purchasing completed powered shell data centers leased to investment-grade companies. On a selective basis the Fund will participate in de-risked, pre-leased development (i.e., fully leased development, debt in place, power procurement secured, guaranteed maximum price agreed upon. This is similar to Harrison Street's strategy in medical office). Harrison Street believes investing in the sector is consistent with the Fund's investment thesis given the demographic-driven demand and need to serve mission-critical functions. The data center strategy will be focused on pre-leased single-tenant assets, with credit tenants and 10- to 15-year leases. Harrison Street seeks to structure the leases with the data center tenants to be triple net, whereby the tenant pays expenses and capital costs.

This amendment requires that over 50% of investors approve it before Harrison Street can implement the change to the Fund. Harrison Street has requested investor votes by June 30, 2024.

Below is the current Fund diversification alongside the proposed diversification with the new allocation to data centers. Harrison Street plans to build the allocation over time.



Harrison Street has experience investing in data centers in its other real estate products. They started investing in data centers in 2017, have made 31 investments to date, and invested over \$4 billion.

### Opinion

Callan recommends CMERS vote in support of the proposal. The data center allocation is consistent with the themes and strategy of the Fund. Investment in this sector and the approach will further diversify Harrison Street's ability to invest in long-term stable income-producing assets.

# Memorandum

**To:** CMERS Investment Committee  
**From:** Thomas Courtright, CAIA  
**Date:** June 6, 2024  
**Re:** Brandes Due Diligence Meetings: February 26, 2024 (Onsite)  
**Team:** Erich Sauer and Thomas Courtright

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## **Background**

Brandes Investment Partners (Brandes) has managed an international equity large cap value strategy for the Milwaukee Employees' Retirement System (ERS) since January 1998. As of March 31, 2024, Brandes managed approximately \$339 million, or 5.7%, of the ERS' assets, making this strategy the largest single strategy allocation within ERS' public equity asset class.

## **Key Takeaways from the Recent Meeting**

- Firm and strategy assets have shown signs of stabilizing after years of net client outflows. The firm has recently experienced an uptick in consultant search activity as well as some mandate wins, which have contributed to firm and strategy AUM growth since 2022.
- Oliver Murray, a 22-year veteran at Brandes, became Brandes' new CEO effective May 1, 2024. Former CEO Brent Woods moved to an oversight role as President of the firm's general partner. Importantly, Mr. Woods retains his role on the International Large Cap Investment Committee. Callan and Staff do not have any immediate concerns, but we will continue to monitor this transition.
- The firm continues to make payments to founder Charles Brandes in accordance with the 10-year payout included as part of his retirement plan. The firm remains debt-free and profitable.
- Brandes' outsourcing of back- and middle-office functions to SEI Global Services ("SEI") has reduced operating costs and continues to perform in-line with management expectations. Additionally, SEI continues to identify incremental enhancements to back office functions.
- Staff and Callan remain confident in Brandes' abilities and dedication to its value investing philosophy. We will continue to monitor strategy performance, asset flows, CEO transition, any impact from the ownership transition, and the growing use of third-party vendors for key support functions.

## **Firm Summary**

Founded in 1974, Brandes is a limited partnership that is 100% employee-owned by 31 partners. The equity team is located at the firm's headquarters near San Diego, California. Brandes also manages fixed income assets and this team is primarily located in Brookfield, WI. Brandes has additional offices in Dublin, Singapore, and Toronto. Investment management is the firm's sole business. In October of 2019, Brandes finalized the initial transition of several back office functions to an outsourced service provider, SEI. As a result of this transition, Brandes reduced staff across internal operations and trading support areas. The firm had 209 employees as of December 31, 2023. This was up slightly from 191 employees as of June 30, 2022, with the change primarily in accounting, HR, IT, and trading support departments.

Within the investment team, the number of research analysts, 25, was unchanged from ERS' last visit. Staff views the capacity and stability of research analysts as key factors to consider when evaluating the firm's capabilities. Brandes stressed that key departures on the investment team have been few and planned. Analysts are supported by research associates. The research associate position is a four-year program with the potential for high performers to be offered an

analyst position upon completion. The number of associates slowly decreased in the last six years from 19 in 2018 to 12 in 2024. This position is something to monitor over time, but so far the decline seems reasonable given recent circumstances. Brandes explained that over the past few years, the investment team has become more efficient with tools for data collection and evaluation, which allows the firm to run a leaner operation. Part of the recent decline in associate headcount was also attributed to recruitment challenges and the difficulty of integrating new hires into the firm's culture during a period of remote work. These headwinds seem to have abated in the last year as Brandes has landed some of its top applicants. The firm is ramping up recruiting efforts to increase the number of research associates to within the range of 13 to 17. Staff views the recent stability of the analyst team favorably but will monitor the firm's ability to cultivate the next generation of analysts through the research associate pool and other channels.

There had been a gradual shift towards remote work over the years while personnel were traveling, which prepared Brandes for COVID-related remote work requirements. As of December 2023, the firm was employing a hybrid work model where employees are requested to be in the office at least three days each week.

One change in the executive leadership of Brandes occurred in February 2018 when its Chairman, general partner, and largest limited partner, Charles Brandes, announced his retirement from the firm. Although Mr. Brandes was a founder and a key figurehead for the firm, he had not had any portfolio management duties related to ERS' investment for over 10 years. The firm implemented a transition plan that had been drafted years ago to address such succession issues. Mr. Brandes has no participation in the income in the firm. The firm has only one remaining obligation to Mr. Brandes, an annual payment over a 10-year period for 1/10<sup>th</sup> of the shares of the firm Mr. Brandes held at retirement. This payment is variable based on the profitability of the firm. The firm's existing partners had assumed Mr. Brandes' share ownership. The first payment was made in 2019, with the firm having made the subsequent required payments to-date without harming its financial position. Key investment professional turnover has been low in since the 2018 retirement of Mr. Brandes, a signal that the regime change has been received well by long-time employees.

After 11 years of commendable leadership as CEO, Brent Woods transitioned to an oversight role as President of the firm's general partner, effective May 1, 2024. Oliver Murray succeeded Mr. Woods as CEO, after a long tenure as head of portfolio management and client service (PMCS) at Brandes. Both individuals are qualified and experienced as members of executive management and appear excited to take on the new responsibilities. Mr. Murray appears to be well liked by the firm employees and his promotion appears to be well received. Importantly, Mr. Woods is retaining his position on the International Large Cap Investment Committee, and he remains committed to his investment-related duties. Although there are no immediate concerns with the CEO transition, Staff and Callan will continue to closely monitor the firm's executive leadership going forward.

As of December 31, 2023, Brandes had \$23.6 billion in assets under management (AUM), which is higher than the \$18.8 billion in assets at the firm at the end of 2022. The international equity strategy that the ERS invests in is still Brandes' flagship product. Assets in this strategy were \$8.0 billion as of December 31, 2023, which is an increase from \$5.9 billion as of June 30, 2022. Brandes reported positive net client flows in the international equity strategy during 2023 and noted that they have seen an increase in manager search and RFP activity in 2023 and early 2024.

Brandes launched three active exchange traded fund (ETF) vehicles in October 2023, at the request of a distribution partner that wanted more tax efficiency for retail clients. This includes an ETF version of the international large cap strategy the ERS invests in. Callan noted that it is beneficial to have vehicle diversification as well as exposure to vehicles that are favored in the

retail channel. These moves appear very well aligned with current industry trends. The flows of the three ETFs have been positive since October, adding \$150m to AUM. Brandes is also in the process of converting its US mutual funds to a series trust vehicle in order to outsource administration and lower costs. Northern Trust will be the series trust partner responsible for fund administration, and Brandes will act as the subadvisor.

### **Investment Process**

The investment style that Brandes applies originates from the value investing philosophies of Benjamin Graham and David Dodd. Brandes believes that its willingness to take a long-term approach and invest in businesses at prices below their intrinsic value will generate superior long-term returns. The firm relies heavily on the bottom-up, fundamental research generated by its analysts and associates across eight global sector teams. Ken Little, Managing Director of Investments, is ultimately responsible for maintaining the firm's investment process. Ted Kim, the Director of Research, oversees the research department, and manages workflow between the sector teams and each investment committee. Mauricio Abadia is the Deputy Director of Research and closely assists Mr. Kim with these responsibilities.

Analysts are given wide latitude to identify companies within their sector(s) to research. The analysts screen for companies with attractive valuations, ideally at a discount of 33% or more from intrinsic value as a basis for deeper research, however this is not always achievable. The analysts also focus on understanding a company's financial statements in order to derive an intrinsic value estimate for a company. While the majority of portfolio candidates come from analyst ideas and research, directors and investment committee members may ask an analyst to research specific stocks as well. During normal markets, analysts revisit their investment thesis on existing portfolio holdings every 12 months; however, portfolio holdings would typically be reviewed much more frequently during a financial crisis or significant market decline.

The International Large-Cap Investment Committee (IC) is comprised of five members and meets weekly to review the portfolio, discuss buy and sell candidates, and challenge analysts' ideas and assumptions. The IC is comprised of very experienced and senior members of the investment teams, and the research analysts are not involved in the portfolio construction process. The objective of the analysts is to make recommendations to the IC while covering equity securities across all sectors, capitalization ranges, and geographies around the world. It is the responsibility of the IC members to determine the reasonable entry points for any company recommended, if the IC deems the company be added to the portfolio. In addition, the IC also determines an attractive buy price and allocation size of the security. We will continue to keep this workload in mind as we monitor Brandes' commitment to resources and research staffing levels going forward.

The strategy is comprised mainly of stocks with market capitalizations above \$10 billion. However, compelling stocks with market capitalizations as low as \$1.5 billion may be included in the portfolio. As of December 31, 2023, about 85% of the portfolio was comprised of stocks above \$10 billion, about 10% between \$5 billion to \$10 billion, and less than 4% in stocks below \$5 billion in market cap. A stock's "margin of safety" is the main factor that the committee uses when it evaluates whether to place it in the portfolio. The margin of safety is the difference between a stock's current market price and the intrinsic value calculated by Brandes' analysts. Stocks with the largest margin of safety typically have the largest weightings in the portfolio. These are typically out-of-favor or overlooked companies and can often be in countries that are out-of-favor as well.

Brandes' focus on bottom-up stock selection often results in a portfolio that has significantly different sector and country weights compared to its benchmark. Brandes believes that portfolio risk is reduced by the margin of safety embedded in its investments. In other words, Brandes

believes a portfolio of stocks purchased at attractive valuations will be able to generate attractive long-term returns with some downside risk protection. The international equity portfolio has generally held between 55 and 85 securities, and the ERS' client guidelines set country, industry, and security exposure limits to ensure it is not too concentrated. While the guidelines allow a maximum 30% allocation to emerging markets, prior to 2015 the allocation had historically been below 15%. However, because Brandes is uncovering attractive opportunities in emerging markets, the allocation has been ranging between 17-22% since 2015. The emerging market allocation as of December 31, 2024 was about 18.5%.

The firm maintains an Investment Oversight Committee (IOC) comprised of senior professionals to review portfolios developed by the investment committees for each strategy on a quarterly basis. The IOC reviews portfolios to prevent drift from the strategy mandate and ensure the firm's investment process is consistent across strategies. This group also works with each investment committee to make sure it receives adequate support from the research group.

### **Trading**

Joseph Scafidi is the firm's Global Head of Trading and reports directly to Brandes' CEO. The trading team is separate from portfolio management and does not participate in the stock selection process. Before an order is executed, the firm's trading and product coordinator teams review the investment strategy and develop a plan to meet the investment goals while minimizing trading costs. This plan includes defining predetermined buy and sell price limits. Traders access the market in a variety of ways, which include using brokers, Bloomberg, algorithmic strategies, and electronic crossing networks.

The trading division at Brandes saw headcount reductions due to the outsourcing of operations to SEI beginning in 2019. The trading division eliminated their Managed Accounts, Corporate Proxy, Operational Risk & Pricing, and Settlements departments. These functions are all now handled by SEI with oversight by Brandes' trading team.

Brandes' equity trading costs rank in the second quartile over the trailing eight quarters ended March 31, 2024 according to ERS' transaction cost measurement provider, Global Trading Analytics (GTA). Brandes' foreign exchange (FX) trading during the same period ranked in the third quartile relative to its peer universe, which is deemed to be within an acceptable range of performance by GTA when considered in conjunction with its stock trading, which has been consistently favorable. Brandes has been good at both keeping the cost of commissions paid to brokers relatively low and keeping market impact costs to an acceptable range.

Brandes worked with the ETF accelerator division at Goldman Sachs on the set-up of the ETFs. Despite utilizing Goldman's expertise, the project was still a significant lift for the trading and compliance divisions at Brandes. These projects covered the initial set up of the legal structure and operational procedures and are considered to be generally one-time in nature and non-recurring.

The trading division changed its process for executing FX trades in 2019. Brandes moved away from buying and selling currency on a trade-by-trade basis in favor of standing trade orders with the ERS' custodian, Northern Trust. Staff discussed this change with Brandes to understand the rationale and potential impact on strategy performance. Mr. Scafidi noted several reasons for the change: the ability to net transactions to minimize fees associated with same day buys and sells in the same currency, smoother settlement through a more automated trade process, and the elimination of per-trade custodian fees. While many institutional investors pay a fee to their custodians for each third-party FX trade executed, the ERS does not have a similar fee in the current agreement with the custodian.



Mr. Scafidi mentioned that although the ERS does not pay its custodian a fixed fee for each FX trade, the fund still benefits from the netting effect of trades. However, Brandes has started using providers other than Northern Trust to execute F/X trades in our account, in order to evaluate if better results could be obtained elsewhere. It is still early in the process to draw definitive conclusions, but Brandes will continue to monitor these differences and evaluate methods for obtaining best execution on all trades.

Brandes' portfolio turnover has ranged between 15.4% and 27.7% over the past three years and averaged 22.6% during this time. This is consistent with the long-term view Brandes takes with its investments.

### **Compliance and Personal Transactions**

The Due Diligence Team met with Roberta Loubier, Global Head of Compliance and Chief Compliance Officer at the firm. Ms. Loubier reports directly to Brandes' CEO.

Brandes uses their proprietary rebalance engine, Horizon, and the Charles River Order Management System to maintain portfolio compliance within client guidelines. Pre-Trade compliance is monitored through Horizon based on client restrictions. Post-trade compliance is monitored by Charles River, which generates post-trade reviews and exception reports for any outliers. Post-trade compliance is also monitored by the ERS' designated Portfolio Manager, Lawrence Taylor. Mr. Taylor and his team typically review the ERS' portfolio multiple times per week to ensure the decisions of Brandes' Investment Committee are implemented and the ERS' investment guidelines are in compliance. Any apparent compliance violations are reported to Ms. Loubier, and any material violations receive increased scrutiny by the Chief Executive Officer.

Brandes maintains a Code of Ethics and anti-money laundering policy that each employee must certify they have read and are in compliance with annually. The Code of Ethics addresses, among other things, personal trading policies for both individual securities and mutual funds. Brandes also conducts annual meetings and provides periodic training throughout the year with appropriate staff to review the company's compliance policies.

Ms. Loubier noted that Brandes was visited by the Securities and Exchange Commission (SEC) as part of a routine examination in 2019. The SEC inquired about Brandes' Environmental, Social & Governance policies and procedures, proxy voting, and engagement with public companies. Ms. Loubier added that the summary letter received from the SEC did not note any deficiencies.

### **Operations and Business Continuity**

Staff met with Stephen Farnsworth, Global Head of Operations and Technology to discuss the firm's relationship with SEI. As noted in the Firm Summary, Brandes finalized the initial phase of a project to outsource trade settlement, reconciliation, reporting, and other operational functions to SEI in October 2019. Each operational support function continues to have an internal subject matter expert at Brandes to provide quality control of SEI's work. In addition to the regular oversight provided by these individuals, Mr. Farnsworth and team maintain biweekly reviews with SEI to provide feedback, monitor any outstanding issues, and hear from SEI about potential enhancements. The team also conducts periodic due diligence visits to SEI's headquarters. Brandes noted that the integration with SEI has offered opportunities to not only outsource work, but improve processes by leveraging SEI's scale and expertise.

Brandes tests its disaster recovery and remote operations plans annually and indicates everything performed satisfactorily in the latest tests during December 2023. The firm's geographically remote

disaster recovery facility would allow critical employees to manage client portfolios in the event something happened to the firm’s headquarters. Employees are also able to complete critical tasks from home as necessary. Brandes’ systems have immediate recovery of mission critical data, which is backed up every 15 minutes to minimize the potential for data loss in the event of a system failure.

**Performance Summary and Conclusion**

Brandes’ net of fee returns are provided in the table below as of March 31, 2024. While they are most certainly a value manager, Brandes utilizes a core benchmark, the MSCI EAFE, as they believe it is the most widely recognized international benchmark, and is appropriate for evaluating their performance over long time periods. It is important to keep this fact in mind when evaluating short term performance, which can deviate significantly from the core benchmark.

	1-year	3-year	5-year	10-Year	Since Inception
Brandes	24.0%	10.2%	9.0%	5.4%	7.7%
<i>MSCI EAFE ND</i>	<i>15.3%</i>	<i>4.8%</i>	<i>7.3%</i>	<i>4.8%</i>	<i>5.0%</i>

The performance of the strategy has improved in recent years as the value factor has outperformed growth after a prolonged period of relative underperformance. This reversal has allowed Brandes to outperform its core benchmark in all of the periods presented.

In summary, Brandes continues to apply the same disciplined approach to value investing that it did when the ERS hired the firm in 1998. Brandes’ comprehensive investment research capabilities alongside the disciplined implementation of Graham and Dodd value investing principles within developed and emerging markets result in two key aspects that should allow the strategy to be successful over the long term. This strategy continues to represent an important and complementary piece of the Fund’s portfolio. Staff is confident that Brandes is consistently employing the strategy as intended.

# **1st Quarter 2024 Performance Report**

June 6, 2024

Employes' Retirement System

# Presentation Agenda

- Fund Overview
- Public Equity
- Fixed Income
- Absolute Return
- Recent Performance Update
- Appendix: Manager Charts & Statistics

# Market Environment

Asset Class	Benchmark	Target Weight	Benchmark Return Q1 2024
Public Equity	MSCI ACWI IMI	39%	7.7%
Fixed Income	Bloomberg U.S. Agg.	29%	-0.8%
Real Assets <sup>(1)</sup>	Blended Benchmark	13%	-3.5%
Private Equity <sup>(1)</sup>	Russell 3000 + 2%	12%	12.4%
Absolute Return	90-Day T-Bill + 3%	7%	2.1%

	Q1 2024
<b>CMERS Benchmark</b>	<b>3.9%</b>

<sup>(1)</sup>Real Estate and Private Equity benchmark returns are reported on a 1-quarter lag.

# Relative Performance Expectations

		Q1 2024		Q1 2024	Q1 2024
<b>Value Equity Bias</b>	Russell 3000 Value	8.6%	Russell 3000 Growth	11.2%	↓
<b>Small Cap Equity Bias</b>	Russell 2000	5.2%	Russell 1000	10.3%	↓
<b>Fixed Income Credit</b>	Loomis Sayles (net)	0.6%	Bloomberg US Agg.	-0.8%	↑
<b>Private Equity<sup>(1)(2)</sup></b>	CMERS PE (net)	-0.1%	PE Benchmark	12.4%	↓↓

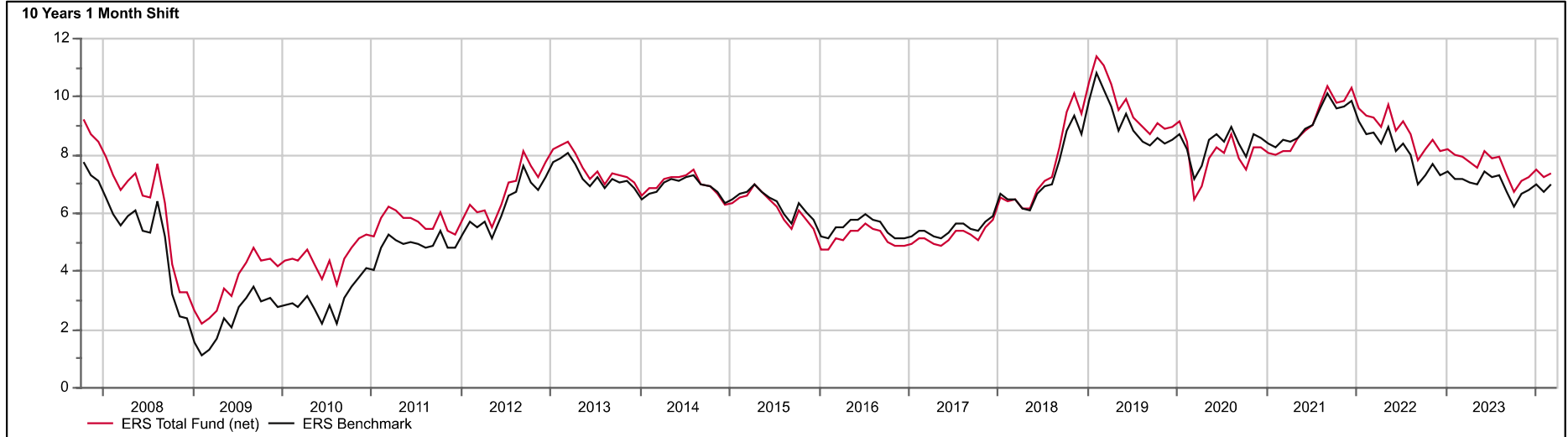
	Q1 2024
<b>CMERS Total Fund (net)</b>	<b>2.8%</b>
<b>CMERS Benchmark</b>	<b>3.9%</b>

(1) Private Equity benchmark return is reported on a 1-quarter lag.

(2) Private Equity returns are not typically reported during this time period because of the extra time these investment managers spend finalizing their year-end financial statements. Both Q4 2023 and Q1 2024 Private Equity returns are expected to be reported during the April-June time period.

# Total Fund Performance

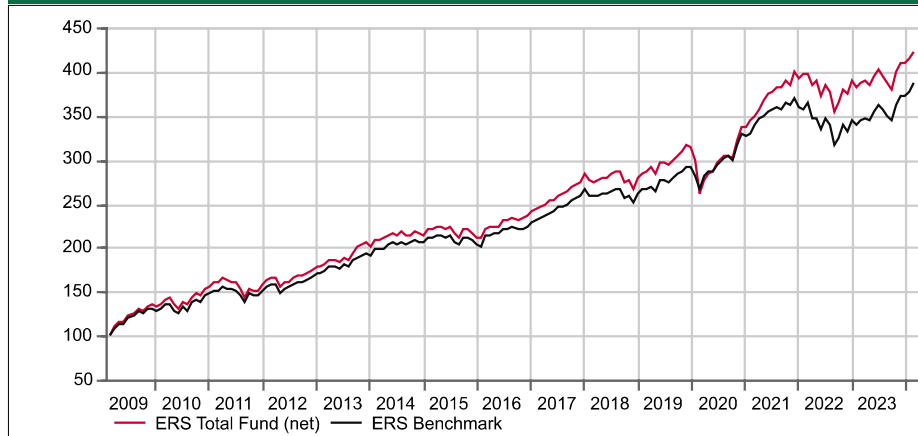
## 10 Year Rolling Returns – 11/1/1997 to 3/31/2024



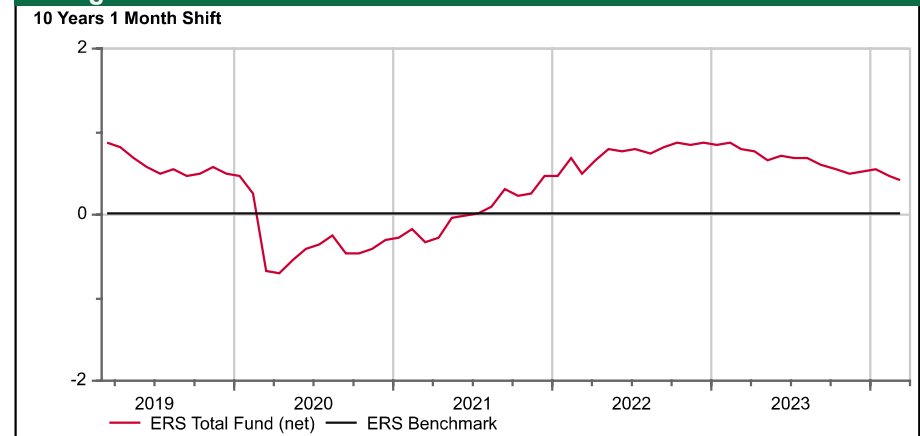
## Trailing Returns

	Annualized Return						
	QTR	1 Year	3 Year	5 Year	7 Year	10 Year	15 Year
ERS Total Fund (net)	2.8	9.4	6.7	8.1	8.1	7.3	10.1
ERS Benchmark	3.9	12.0	4.5	7.8	7.5	6.9	9.4

## Investment Growth – 4/1/2009 to 3/31/2024



## Rolling Excess Returns – 4/1/2009 to 3/31/2024



# ERS Fund Attribution – 1st Quarter 2024

Asset Class	Benchmark	Average Weight %	Policy Weight %	+/-	Portfolio Return	Benchmark Return	+/-	Attribution Effect(%)			Total Active Return
								Broad Category Group Allocation	Manager Selection	Style Bias	
<b>Public Equity</b>	MSCI ACWI IMI NR USD	38.9	39.0	-0.1	7.5	7.7	-0.2	0.0	0.2	-0.3	-0.1
<b>Fixed Income</b>	Bbg US Agg Bond TR USD	30.2	29.0	1.2	-0.1	-0.8	0.7	0.0	0.1	0.1	0.2
<b>Private Equity<sup>(2)</sup></b>	Russell 3000 (Qtr Lag) + 200bps <sup>(1)</sup>	12.8	12.0	0.8	-0.1	12.4	-12.4	0.1	-1.6	0.0	-1.5
<b>Real Assets<sup>(2)</sup></b>	Real Assets Benchmark <sup>(1)</sup>	10.8	13.0	-2.2	-2.6	-3.5	0.9	0.2	0.1	0.0	0.3
<b>Absolute Return</b>	90 Day T-Bill +3%	7.3	7.0	0.3	3.5	2.1	1.4	0.0	0.1	0.0	0.1
<b>Total</b>		100.0	100.0	0.0	2.8	3.9	-1.1	0.2	-1.1	-0.2	-1.1

## Main Drivers of Q1 2024 Relative Performance

### Manager Performance

**Private Equity**  
DFA Strategies, Loomis Sayles, Morgan Stanley, Blair, AQR,  
Aptitude outperformed

## Impact %

**-1.61%**  
**0.57%**

## Attribution Category

**Manager Performance**  
**Manager Performance**

### Style Bias

Primarily small cap and value in public equity

**-0.30%**

**Style Bias**

### Overall Allocation

Underweight Real Assets

**0.17%**

**Overall Allocation**

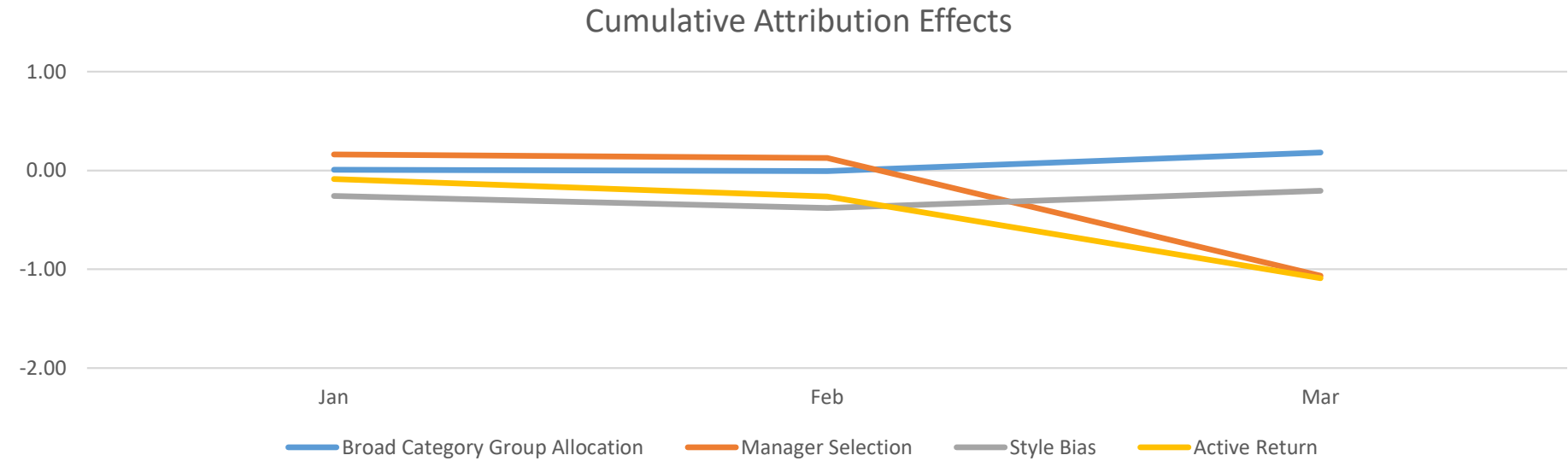
<sup>(1)</sup>Real Estate and Private Equity benchmark returns are reported on a 1-quarter lag.

<sup>(2)</sup> Private Equity returns are not typically reported during this time period because of the extra time these investment managers spend finalizing their year-end financial statements. Both Q4 2023 and Q1 2024 Private Equity returns are expected to be reported during the April-June time period.

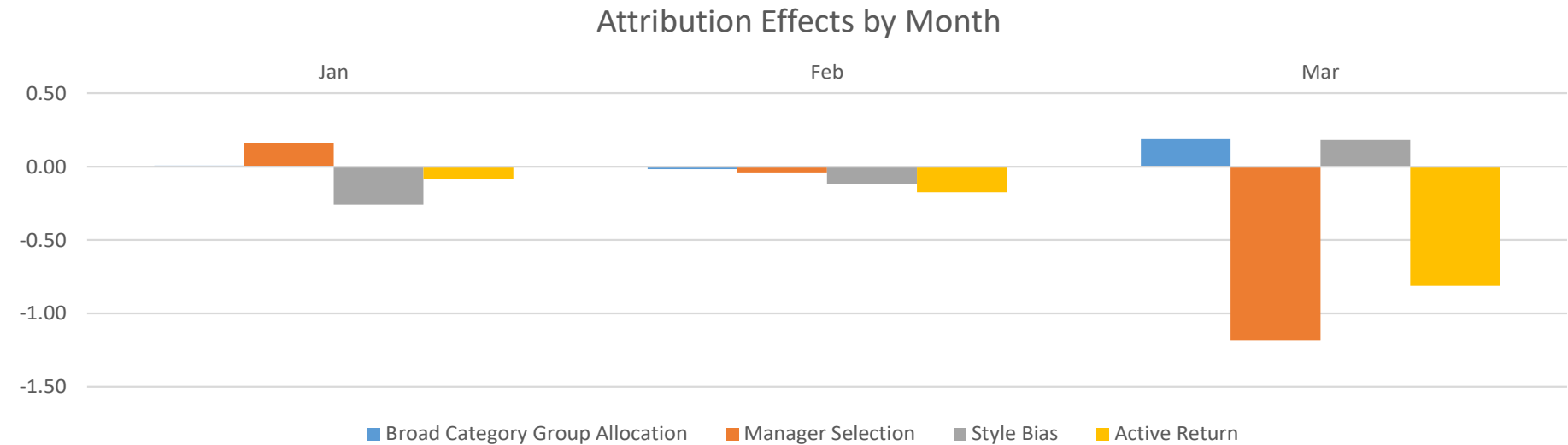


# YTD 2024 Attribution

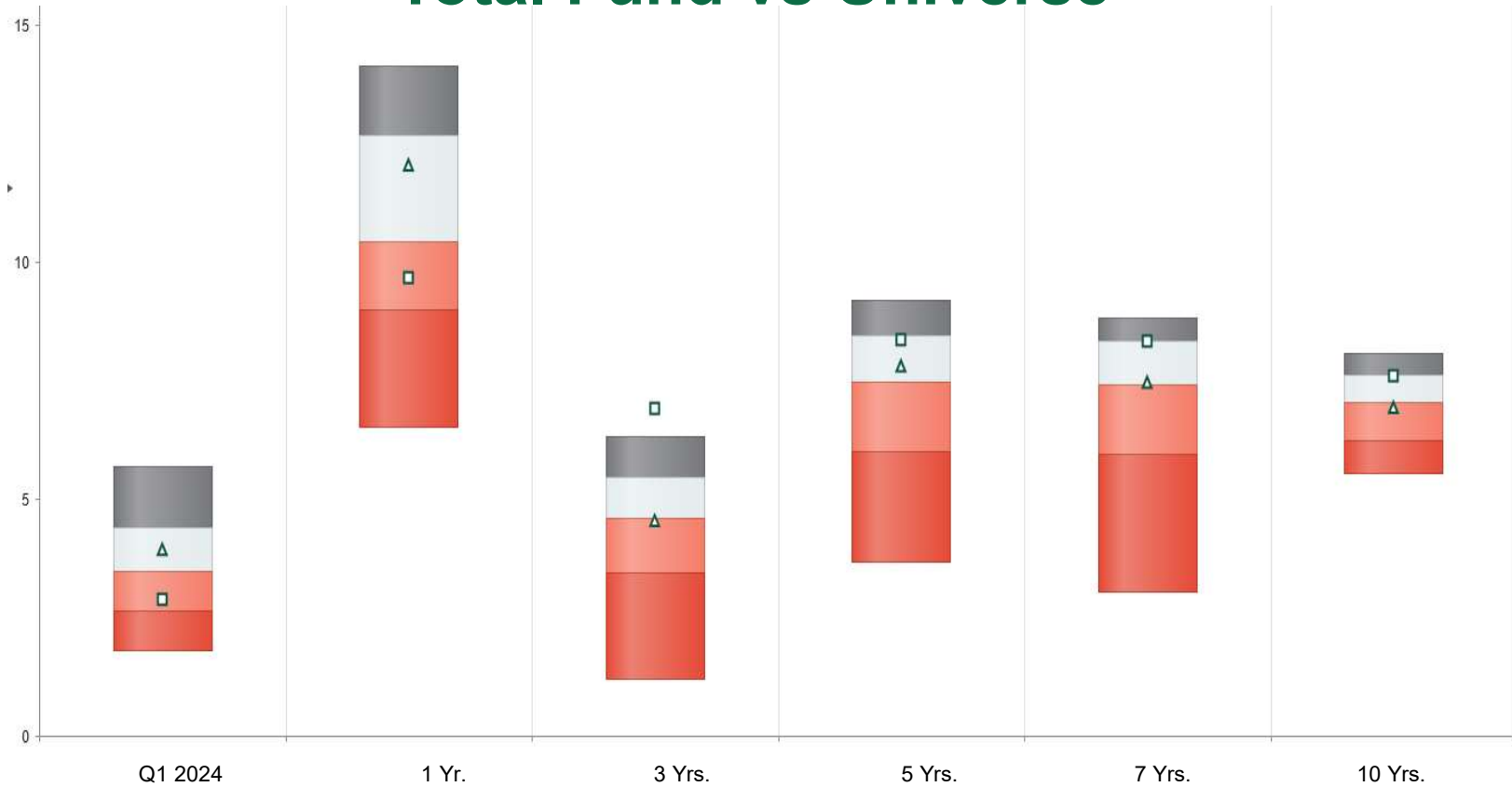
## Cumulative Attribution Effects



## Monthly Attribution Effects



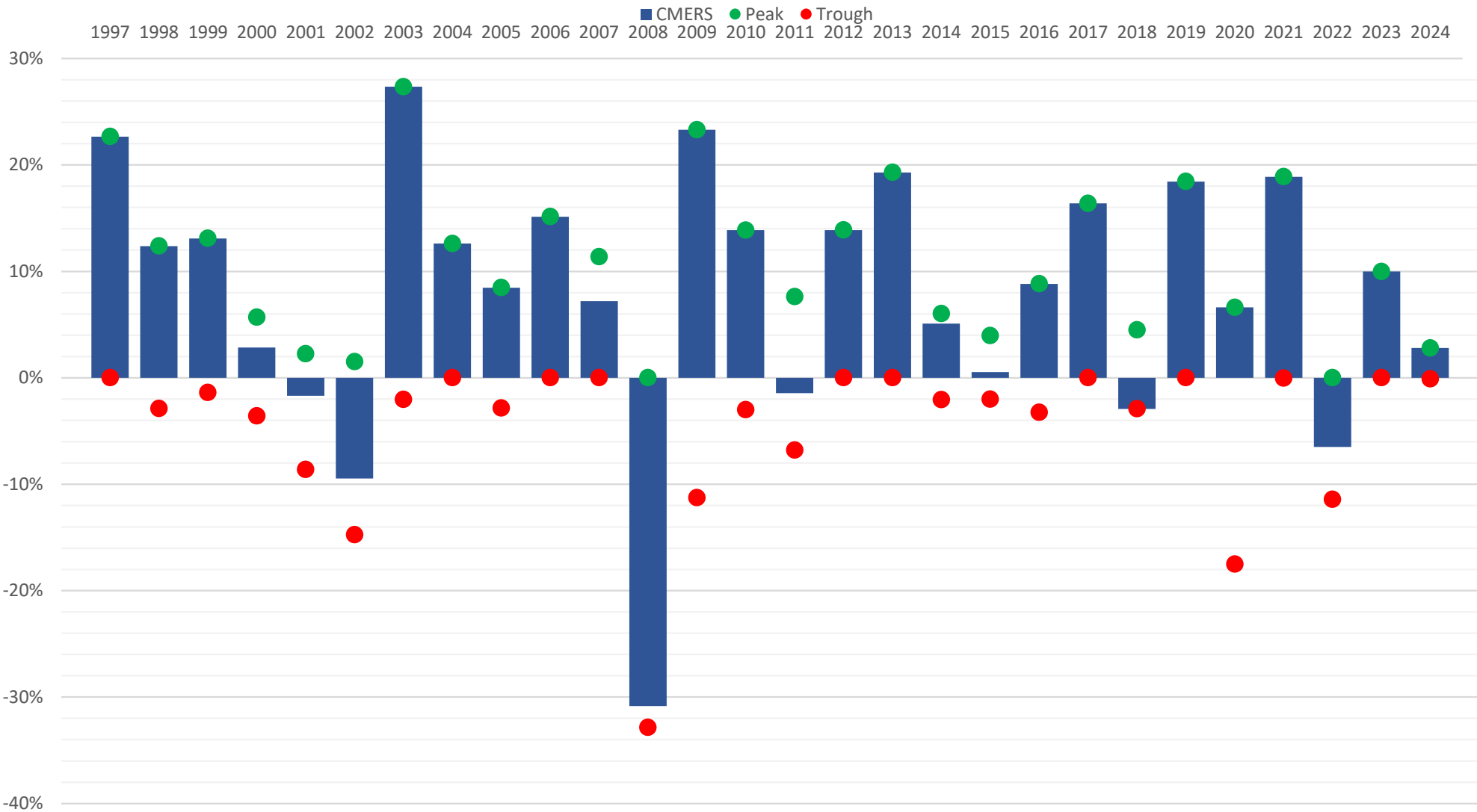
# Total Fund vs Universe



■ Account
 ▲ Index

	<b>Q1 2024</b>	<b>1 Yr.</b>	<b>3 Yrs.</b>	<b>5 Yrs.</b>	<b>7 Yrs.</b>	<b>10 Yrs.</b>
Account Return	2.9	9.7	6.9	8.4	8.3	7.6
Percentile Rank	66	68	9	30	27	27
Index Return	3.9	12.0	4.5	7.8	7.5	6.9
Percentile Rank	35	31	51	42	50	57
1st Quartile	4.4	12.7	5.5	8.5	8.3	7.6
Median	3.5	10.4	4.6	7.5	7.4	7.0
3rd Quartile	2.6	9.0	3.4	6.0	6.0	6.2
Observations	51	50	49	45	42	27

# Annual Returns, Peaks, and Troughs



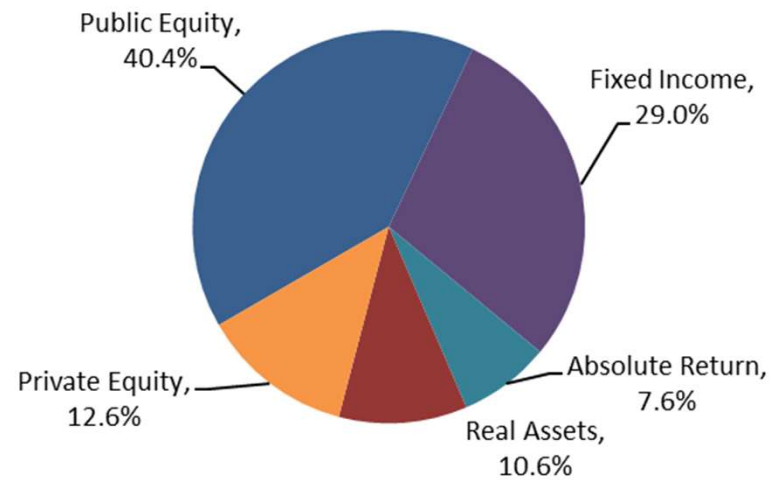
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>CMERS</b>	22.7%	12.4%	13.1%	2.8%	-1.7%	-9.4%	27.3%	12.6%	8.5%	15.1%	7.2%	-30.8%	23.3%	13.9%	-1.4%	13.9%	19.3%	5.1%	0.5%	8.8%	16.4%	-2.9%	18.4%	6.6%	18.9%	-6.5%	10.0%	2.8%
<b>Peak</b>	22.7%	12.4%	13.1%	5.7%	2.3%	1.5%	27.3%	12.6%	8.5%	15.1%	11.4%	0.0%	23.3%	13.9%	7.6%	13.9%	19.3%	6.0%	4.0%	8.8%	16.4%	4.5%	18.4%	6.6%	18.9%	0.0%	10.0%	2.8%
<b>Trough</b>	0.0%	-2.9%	-1.4%	-3.6%	-8.6%	-14.7%	-2.0%	0.0%	-2.9%	0.0%	0.0%	-32.9%	-11.3%	-3.0%	-6.8%	0.0%	0.0%	-2.1%	-2.0%	-3.3%	0.0%	-2.9%	0.0%	-17.5%	0.0%	-11.4%	0.0%	-0.1%

\*Net of Fees

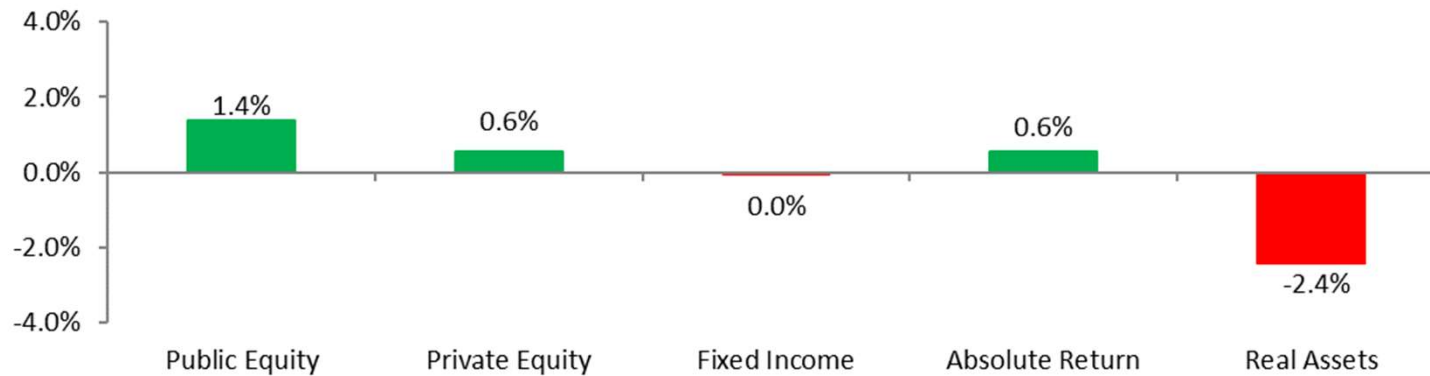


# Asset Allocation as of March 31, 2024

## Actual Asset Allocation\*



## Actual Asset Allocation vs. Policy Target



# YTD 2024 Market Value Change

December 31, 2023 Market Value including City Reserve & PABF Accounts			\$ 5,797,273,012
Monthly Cash Outflows thru	<u>March 31, 2024</u>		
Retiree Payroll Expense		\$ (117,599,971)	
PABF Payroll Expense		\$ (3,500)	
Expenses Paid		\$ (5,377,343)	
GPS Benefit Payments		\$ (2,369,572)	
Sub-Total Monthly Cash Outflows			\$ (125,350,386)
Monthly Cash Inflows thru	<u>March 31, 2024</u>		
Contributions		\$ 214,421,626	
PABF Contribution		\$ 1,000	
Sub-Total Monthly Contributions			\$ 214,422,626
Capital Market Gain/(Loss)			\$ 168,237,398
Value including City Reserve & PABF Accounts as of	<u>March 31, 2024</u>		<u>\$ 6,054,582,650</u>
Less City Reserve Account <sup>1</sup>			\$ 85,928,564
Less PABF Fund <sup>2</sup>			\$ 2,687
Net Projected ERS Fund Value as of	<u>March 31, 2024</u>		<u><u>\$ 5,968,651,400</u></u>

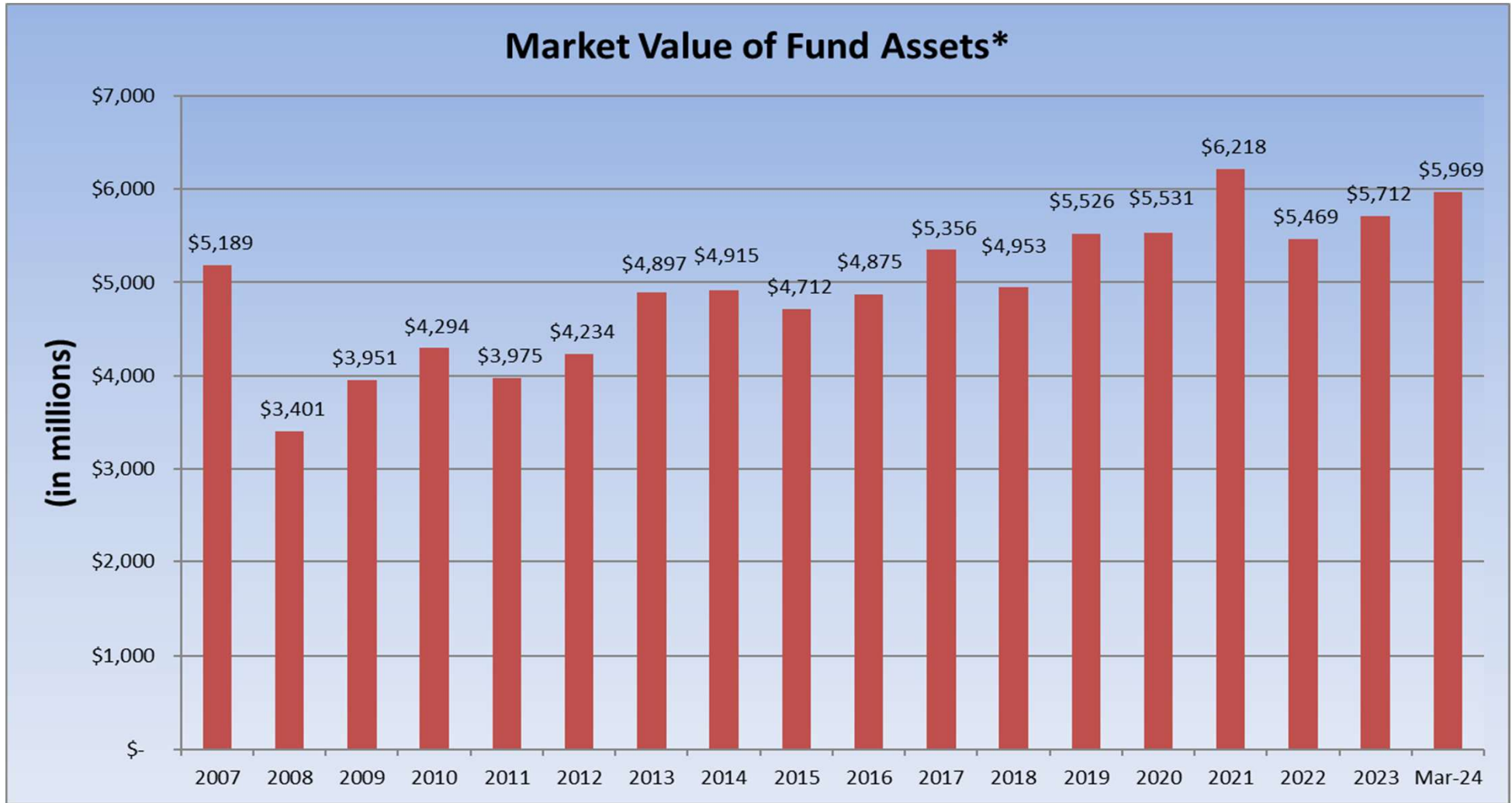
1 The City Reserve Account balance equals the market value currently held in the Baird account.

2 PABF Fund balance equals the market value currently held in the PABF account.

Monthly Cash Outflows, Monthly Cash Inflows, and Capital Market Gain/(Loss) amounts are calculated using estimates of cash flows into and out of the Fund. These amounts are not audited and may not tie to CMERS Financial Statements.

# Fund Value of Assets: 2007 – March 31, 2024

(Year Ended Dates Reflect 12/31 Fund Values)



Most recent Actuarial valuation projects benefit payments to total \$5.4 billion in next 10 years.

<b>Benefit Payments</b>	\$5.8 billion
<b>Expenses</b>	\$287 million
<b>Contributions</b>	\$1.8 billion
<b>Investment Gain</b>	\$5.0 billion

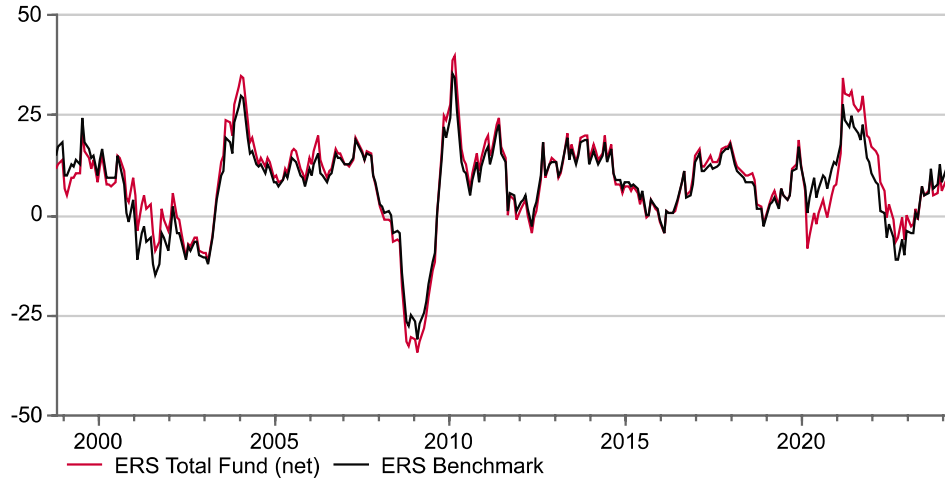
16 1/4 Year Estimates (1/1/2008 - 3/31/2024)

Benefit Payments, Expenses, Contributions, and Investment Gain amounts are calculated using estimates of cash flows into and out of the Fund. These amounts are not audited and may not tie to CMERS Financial Statements.

# Total Fund Rolling Returns as of March 31, 2024

## 1 Year Rolling Returns – 12/1/1997 to 3/31/2024

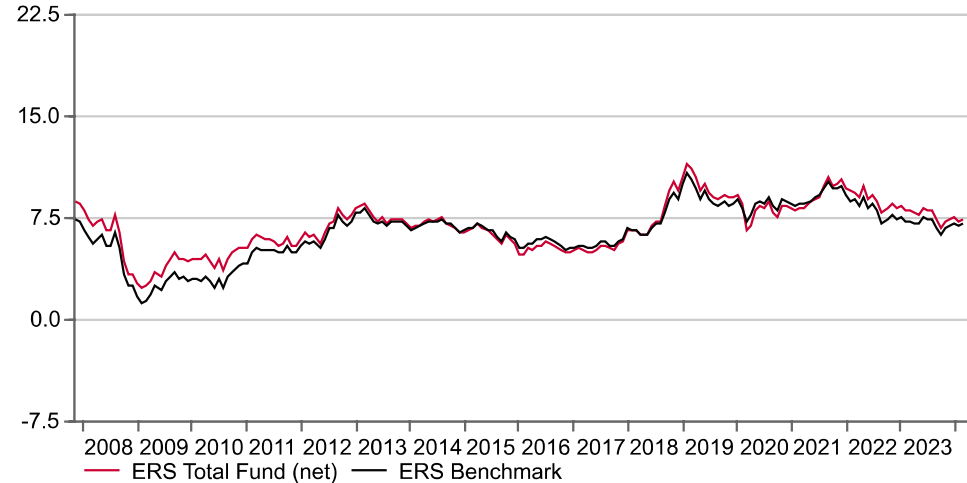
### 1 Year 1 Month Shift



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## 10 Year Rolling Returns – 12/1/1997 to 3/31/2024

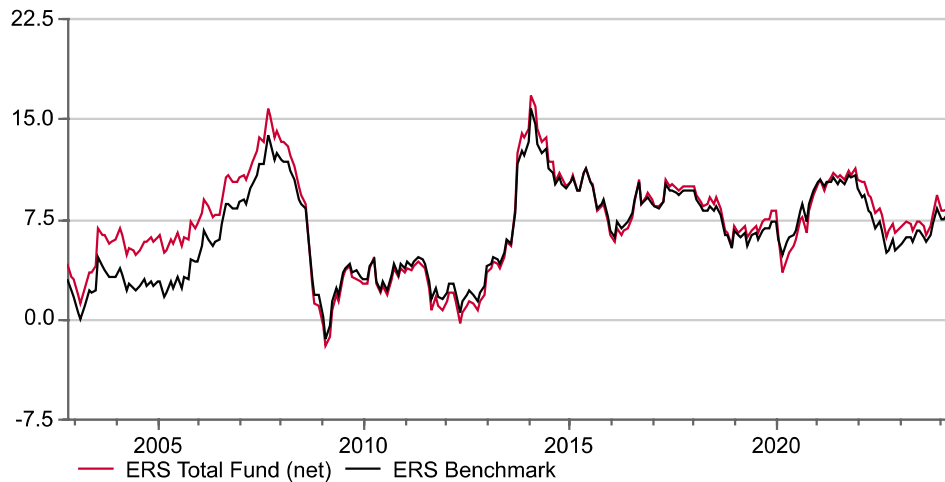
### 10 Years 1 Month Shift



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## 5 Year Rolling Returns – 12/1/1997 to 3/31/2024

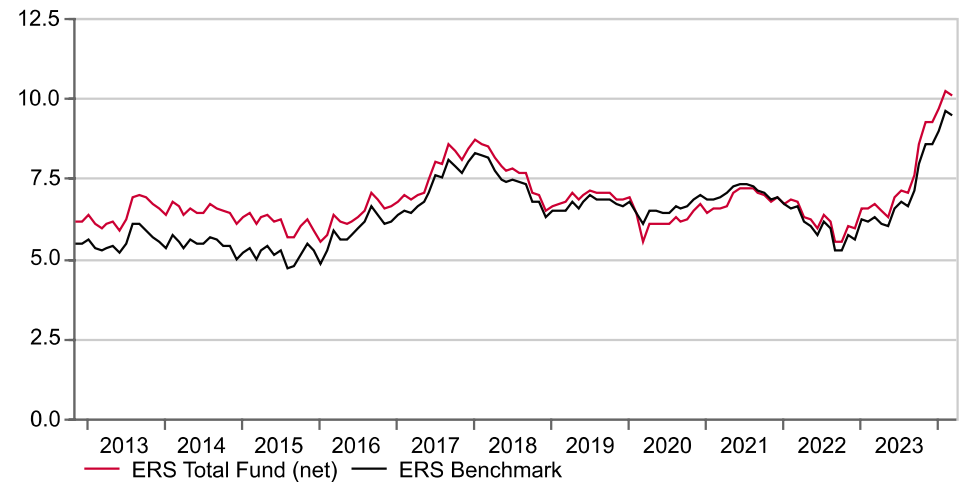
### 5 Years 1 Month Shift



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## 15 Year Rolling Returns – 12/1/1997 to 3/31/2024

### 15 Years 1 Month Shift

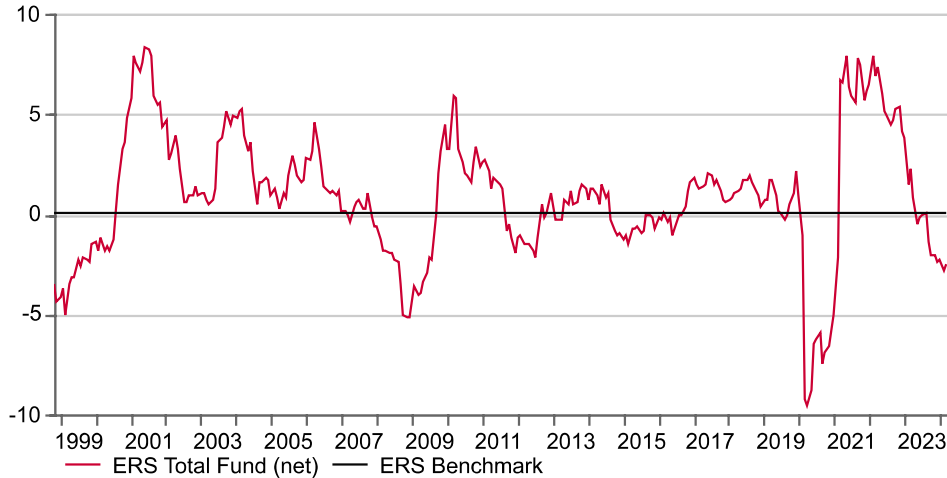


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# Total Fund Rolling Excess Returns as of March 31, 2024

1 Year Rolling Excess Returns – 12/1/1997 to 3/31/2024

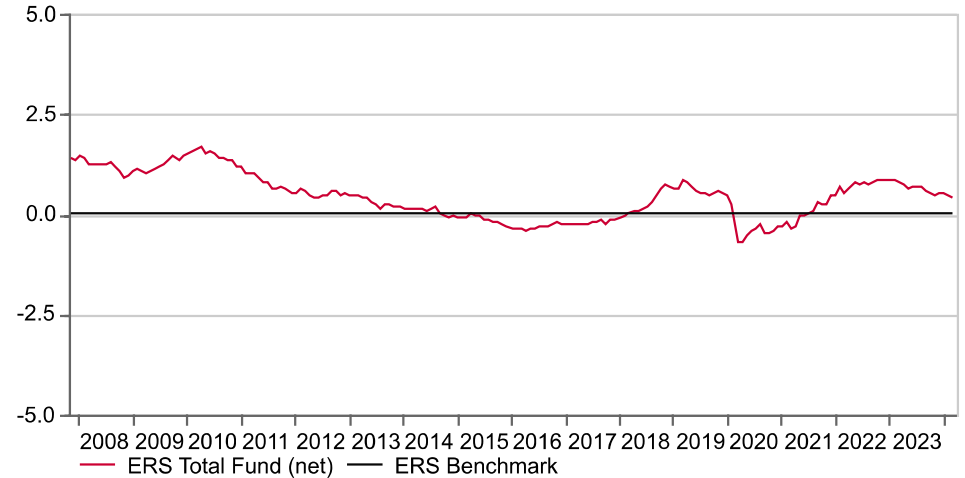
1 Year 1 Month Shift



©FactSet Research Systems

10 Year Rolling Excess Returns – 12/1/1997 to 3/31/2024

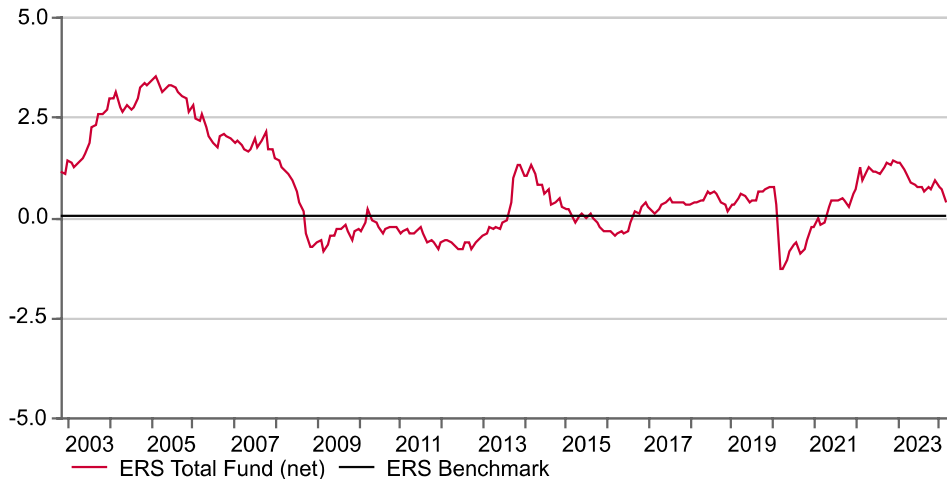
10 Years 1 Month Shift



©FactSet Research Systems

5 Year Rolling Excess Returns – 12/1/1997 to 3/31/2024

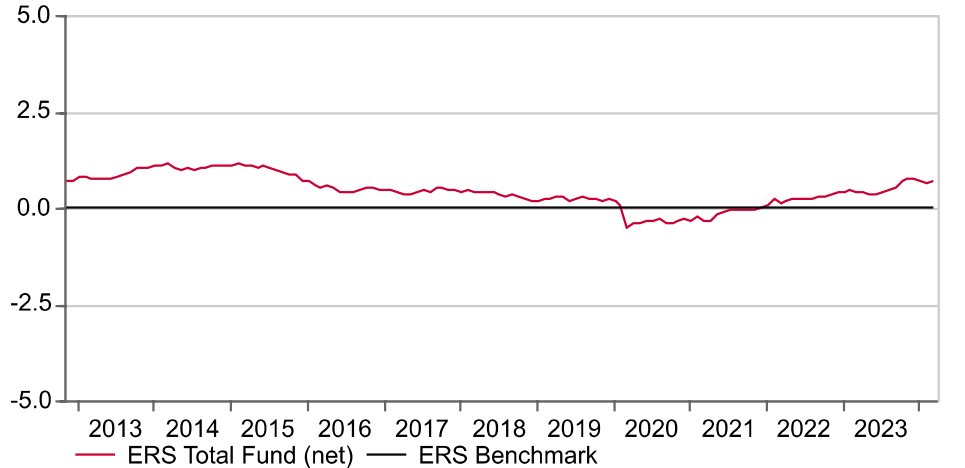
5 Years 1 Month Shift



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15 Year Rolling Excess Returns – 12/1/1997 to 3/31/2024

15 Years 1 Month Shift

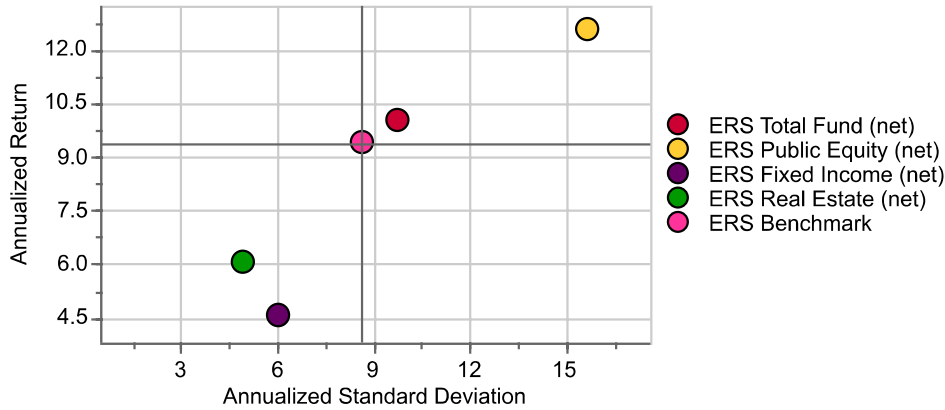


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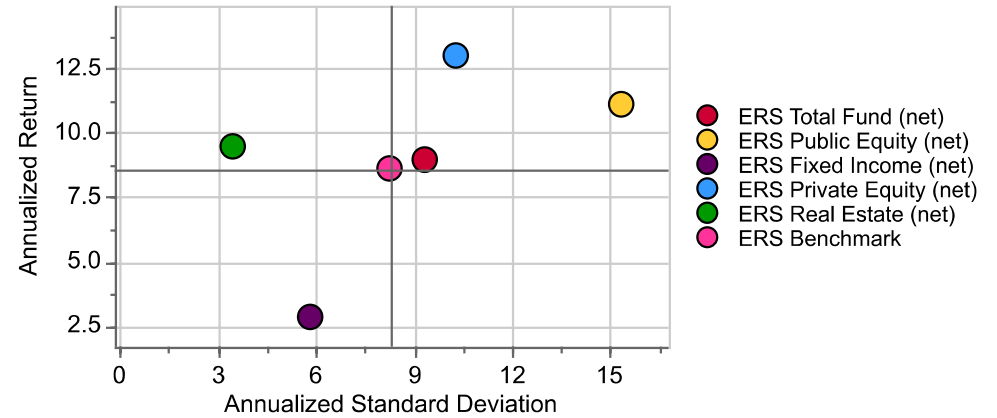
# Total Fund Statistics

## 15 Year Risk-Reward –4/1/2009 to 3/31/2024



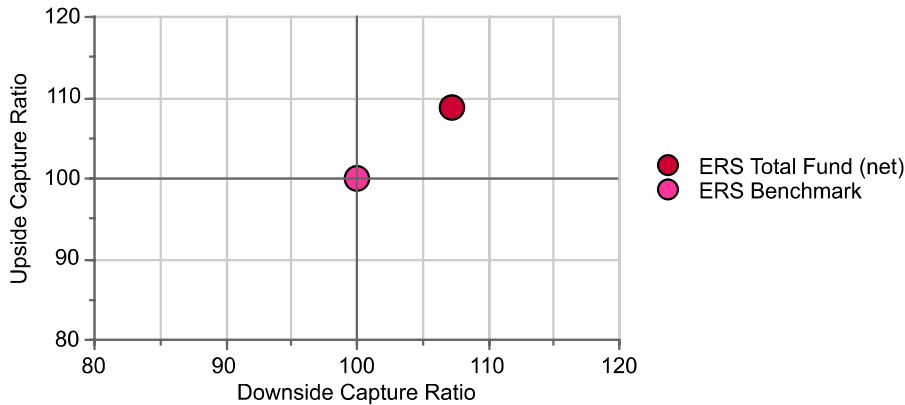
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## Risk-Reward Since Private Equity Inception – 7/1/2010 to 3/31/2024



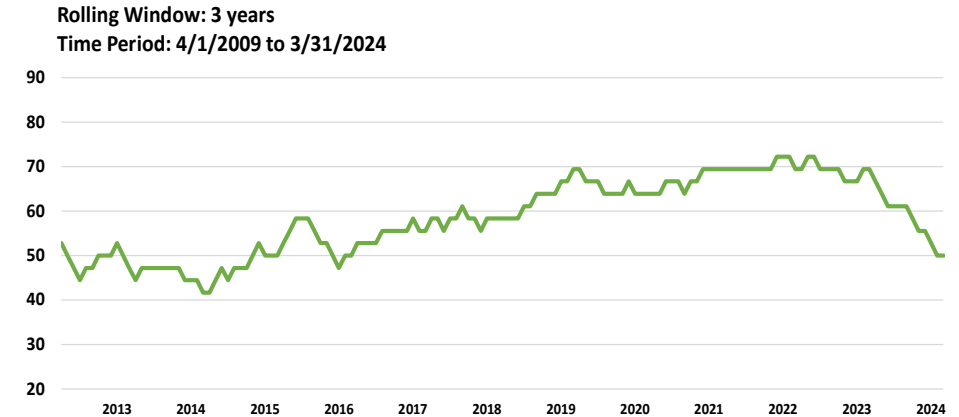
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## 15 Year Upside-Downside –4/1/2009 to 3/31/2024



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## Batting Average



## 15 Year Risk –4/1/2009 to 3/31/2024

	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error	Alpha	Beta
ERS Total Fund (net)	10.1	9.7	0.0	0.9	0.1	2.7	1.1
ERS Benchmark	9.4	8.6	0.0	1.0	--	--	1.0

## Risk – 7/1/2013 to 3/31/2024

	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error	Alpha	Beta
ERS Total Fund (net)	8.2	8.9	0.0	0.8	0.1	3.0	1.1
ERS Benchmark	7.7	7.8	0.0	0.8	--	--	1.0



\* Real Estate returns calculated by Northern Trust

# Public Equity

# Public Equity Performance

## 10 Year Rolling Returns – 7/1/2000 to 3/31/2024



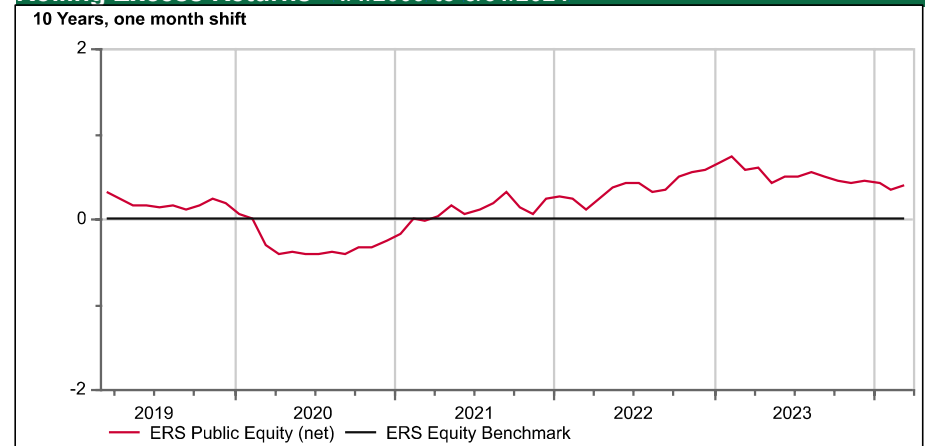
## Trailing Returns

	QTR	1 Year	3 Year	5 Year	7 Year	10 Year	15 Year
ERS Public Equity (Gross)	7.6	22.4	7.3	11.6	10.8	9.5	13.0
ERS Public Equity (Net)	7.5	22.0	7.0	11.2	10.4	9.1	12.6
ERS Public Equity Benchmark	7.7	22.5	6.3	10.6	9.9	8.7	12.2
MSCI AC World IMI	7.7	22.5	6.3	10.6	9.9	8.4	11.7

## Investment Growth – 4/1/2009 to 3/31/2024



## Rolling Excess Returns – 4/1/2009 to 3/31/2024



# Public Equity vs Universe

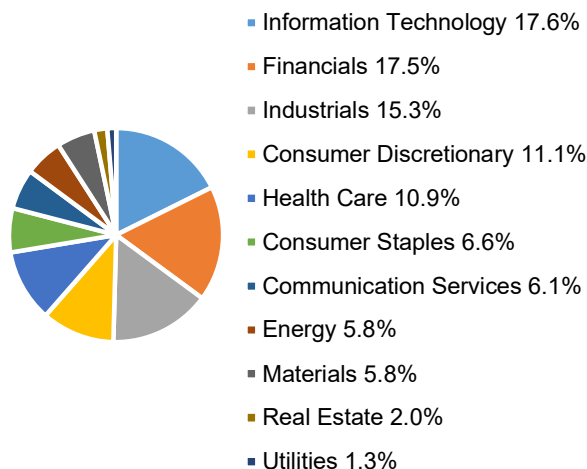


□ Account    ▲ Index

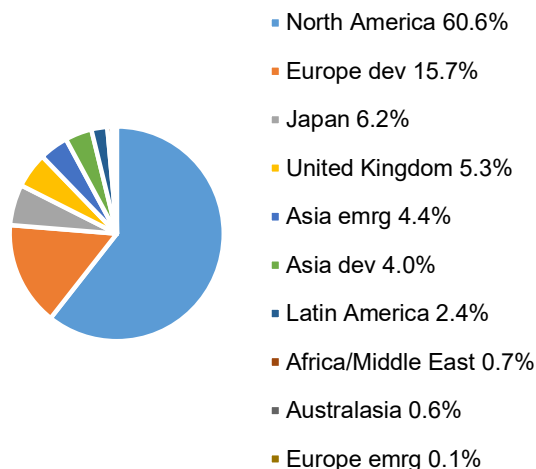
	<b>Q1 2024</b>	<b>1 Yr.</b>	<b>3 Yrs.</b>	<b>5 Yrs.</b>	<b>7 Yrs.</b>	<b>10 Yrs.</b>
Account Return	7.6	22.4	7.3	11.6	10.8	9.5
Percentile Rank	60	53	30	35	37	41
Index Return	7.7	22.5	6.3	10.6	9.9	8.7
Percentile Rank	54	53	57	70	71	3rd Quartile
1st Quartile	8.8	24.8	7.6	12.0	11.3	9.9
Median	7.8	22.6	6.5	11.2	10.6	9.3
3rd Quartile	7.0	20.9	5.3	10.1	9.7	8.4
Observations	125	124	125	122	124	111

# Public Equity Portfolio Snapshot

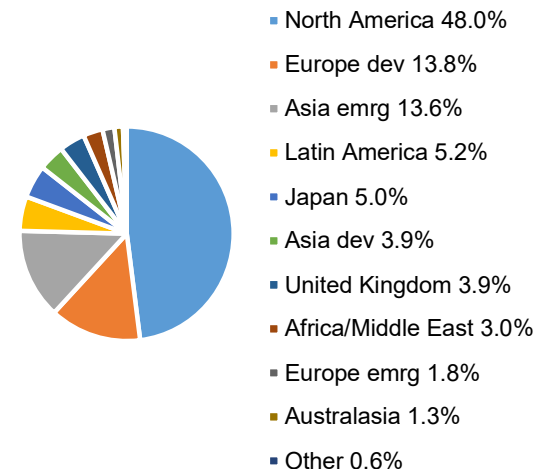
## Equity Sector Exposure (GICS)



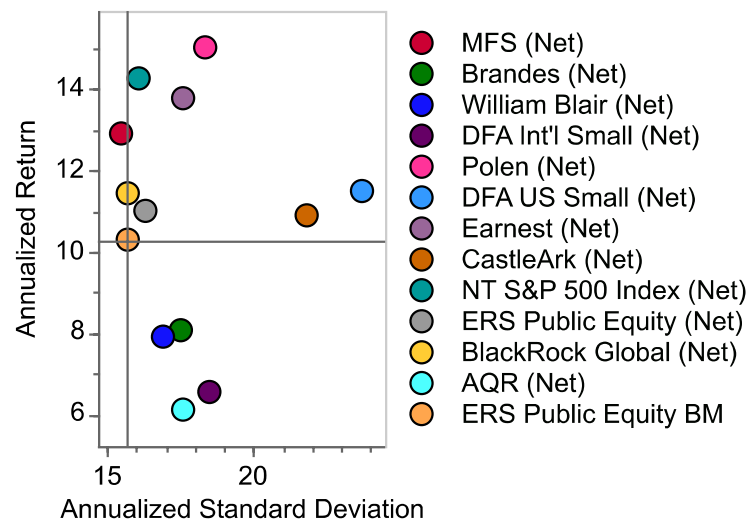
## Regional Exposure by Domicile



## Regional Exposure by Source of Revenue



## Risk – Reward – 8/1/2016 to 3/31/2024



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## Top 10 Holdings

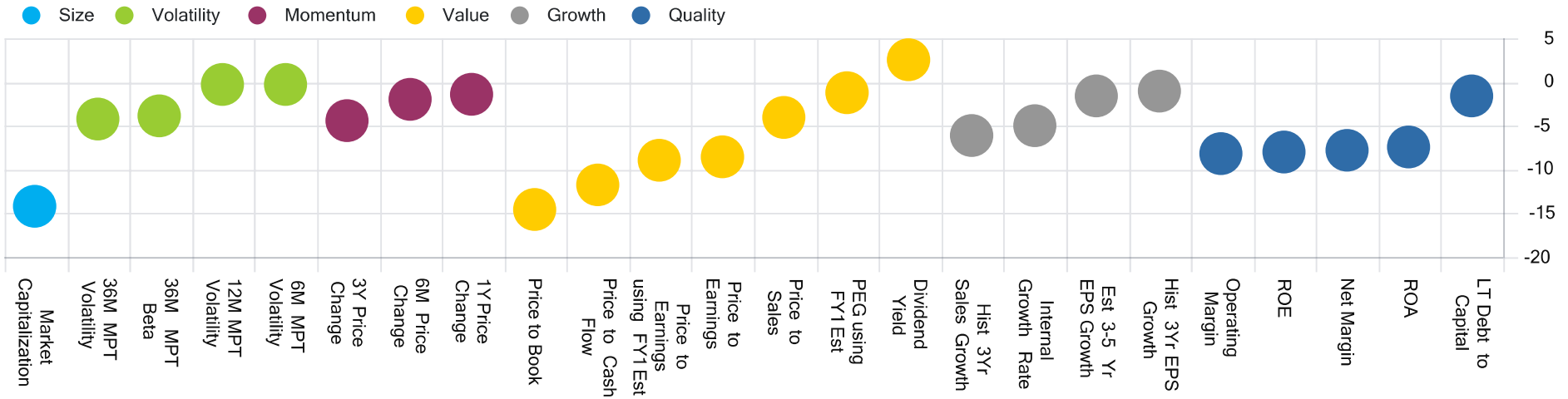
Portfolio Date 3/31/24	Weight %	Return %
Microsoft Corporation	2.3	12.1
Alphabet Inc.	1.2	8.0
Amazon.com, Inc.	1.2	18.7
Taiwan Semi Mfg. Co.	1.2	29.6
Apple Inc.	1.2	-10.8
NVIDIA Corporation	1.0	82.5
Visa Inc.	0.8	7.4
Berkshire Hathaway Inc.	0.7	17.9
JPMorgan Chase & Co.	0.7	18.1
Exxon Mobil Corporation	0.7	17.4

## Top 10 Managers

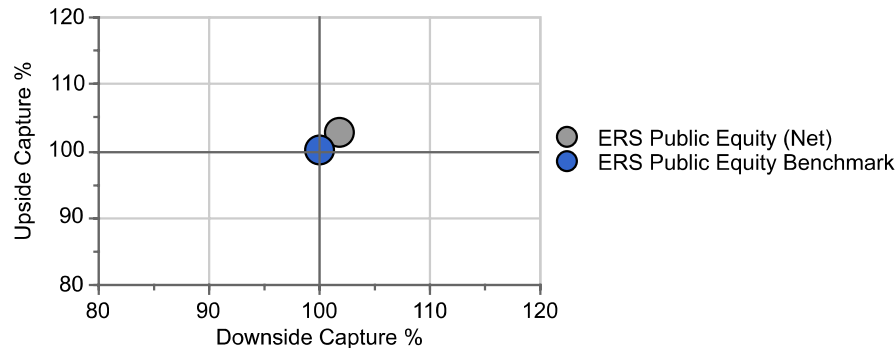
Portfolio Date 3/31/24	Weight %
Brandes Int'l Value	14.1
BlackRock Global Core	11.3
William Blair Int'l Growth	9.9
MFS Global Growth	8.7
BlackRock R1000 Value Index	8.7
NTQA S&P 500 Index Core	8.6
DFA US Small Cap Value	7.9
Earnest Mid Cap Core	7.3
DFA Int'l Small Cap Value	7.1
DFA US Large Cap Value	6.4

# Public Equity Statistics

## Characteristics Tilt vs MSCI ACWI IMI 3/31/2024

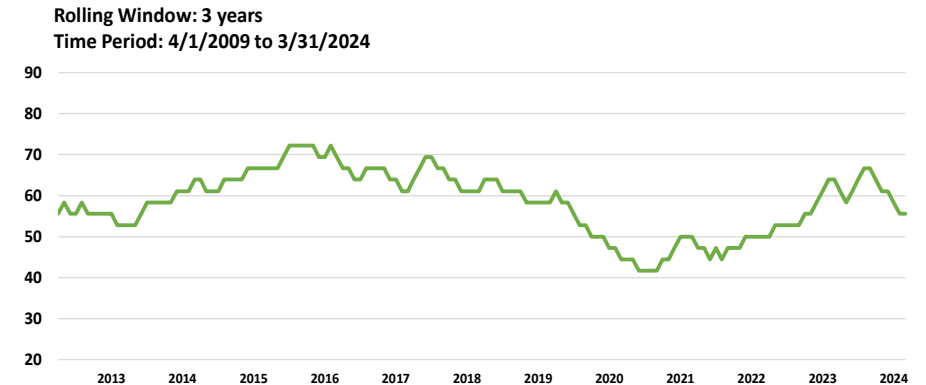


## 15 Year Upside-Downside –1/1/2009 to 3/31/2024



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## Batting Average



## 15 Year Risk –1/1/2009 to 3/31/2024

	Annualized Return	Standard Deviation	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
ERS Public Equity (Net)	12.6	15.7	0.0	0.7	0.1	1.8	1.0
ERS Public Equity Benchmark	12.2	15.1	0.0	0.7	--	--	1.0

## Risk – 7/1/2013 to 3/31/2024

	Annualized Return	Standard Deviation	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
ERS Public Equity (Net)	10.4	15.1	0.0	0.6	0.1	1.8	1.0
ERS Public Equity Benchmark	9.9	14.7	0.0	0.6	--	--	1.0



\*"Price to Earnings," "Price to Earnings using FY1 Est," and "PEG using FY1 Est" values exclude companies with negative earnings from calculations.

# Public Equity Valuation Characteristics

As of March 31, 2024

	Price/ Earnings	P/E using FY2 Est	Price/ Book	Price/ CF	Dividend Yield
ERS Public Equity	16.6	13.6	1.7	9.0	2.07
MSCI AC World IMI	20.3	16.0	2.8	12.0	1.90

Domestic Managers	Price/ Earnings	P/E using FY2 Est	Price/ Book	Price/ CF	Dividend Yield	Global & International Managers	Price/ Earnings	P/E using FY2 Est	Price/ Book	Price/ CF	Dividend Yield
BlackRock R1000 Value Index	19.6	15.0	2.5	11.6	2.10	AQR Emerging Markets Core	8.5	16.1	3.0	11.5	1.84
DFA Large Value	16.4	10.3	1.1	6.2	1.66	BlackRock Global Core	20.0	9.7	1.2	5.4	3.58
DFA Small Value	11.8	27.3	9.6	26.0	0.44	Brandes Int'l Value	12.2	9.2	0.8	4.7	3.55
Earnest Mid Core	20.4	15.6	2.8	12.3	1.42	DFA Int'l Small Value	9.9	21.7	4.9	19.7	1.05
NT S&P 500 Index	26.1	19.4	4.5	16.7	1.35	MFS Global Growth	28.8	20.2	4.2	19.3	1.42
Polen Large Growth	37.9	7.6	1.2	4.7	5.05	William Blair Int'l Growth	26.0	14.1	2.3	9.9	2.10

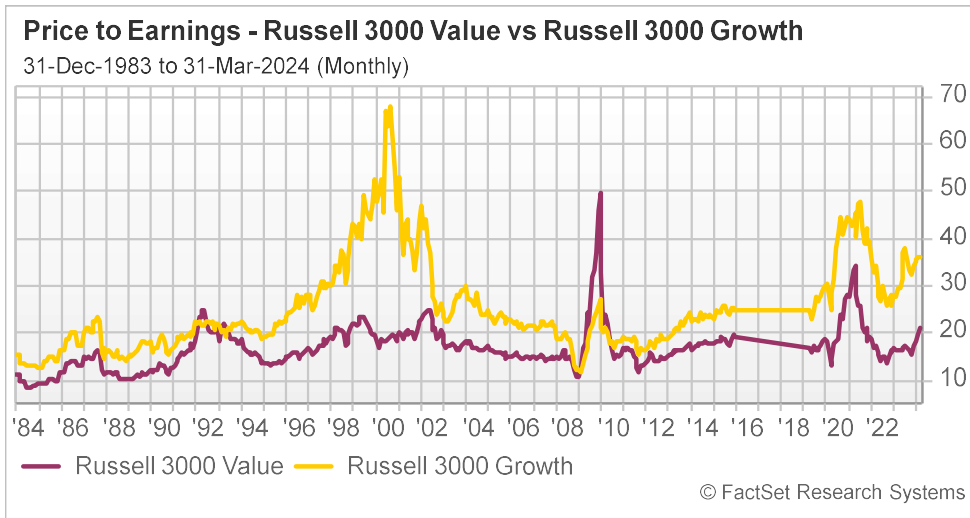
\*"Price/Earnings" and "P/E using FY2 Est" values exclude companies with negative earnings from calculations.

# P/E Ratio Comparisons in the U.S. Since 1980 - As of March 31, 2024

Value vs. Growth



Large vs. Small



Price to Earnings ratios for Value vs. Growth charts include companies with negative earnings in calculations.

Price to Earnings ratios for Large vs Small: Top chart includes companies with negative earnings in calculations; bottom chart excludes companies with negative earnings from calculation.



# Relative Investment Performance – Active Equity Managers

## as of March 31, 2024

### Outperforming Equity Managers

	1st Qtr	1 Year	3 Year	5 Year	7 Year	10 Year
AQR	6.1%	18.2%	-1.8%	4.9%	4.7%	N/A
<i>MSCI EM</i>	3.8%	10.1%	3.2%	2.7%	0.9%	
DFA International	5.3%	16.2%	6.2%	7.8%	5.3%	4.5%
<i>MSCI EAFE Small Cap</i>	2.9%	5.8%	7.6%	2.8%	0.2%	0.2%
DFA U.S. Large Value	11.5%	23.9%	9.6%	11.1%	N/A	N/A
<i>Russell 1000 Value</i>	2.5%	3.6%	1.4%	0.7%		
William Blair	6.8%	14.0%	-0.1%	8.3%	8.0%	5.9%
<i>MSCI ACWI ex US</i>	1.9%	0.2%	2.5%	1.8%	1.7%	1.2%
BlackRock Global Alpha Tilts	9.0%	24.8%	8.0%	11.5%	10.9%	N/A
<i>MSCI ACWI</i>	0.8%	1.6%	1.0%	0.6%	0.7%	
DFA U.S. Small Value	3.4%	24.4%	10.6%	13.7%	10.1%	9.2%
<i>Russell 2000 Value</i>	0.5%	5.6%	8.4%	5.6%	3.6%	2.3%
ERS Public Equity	7.5%	22.0%	7.0%	11.2%	10.4%	9.1%
<i>ERS Equity Benchmark</i>	0.2%	0.5%	0.7%	0.7%	0.5%	0.4%

Relative outperformance in blue

Relative underperformance in red

\*Returns net of fees

# Relative Investment Performance – Active Equity Managers

## as of March 31, 2024

### Underperforming Equity Managers

	1st Qtr	1 Year	3 Year	5 Year	7 Year	10 Year
Polen <i>S&amp;P 500</i>	7.6% 2.9%	30.4% 0.5%	4.2% 7.3%	12.8% 2.2%	15.3% 1.2%	14.9% 1.9%
MFS <i>MSCI ACWI</i>	6.4% 1.8%	18.6% 4.6%	6.4% 0.6%	12.5% 1.6%	13.3% 3.1%	11.2% 2.5%
Brandes <i>MSCI EAFE</i>	5.2% 0.6%	24.0% 8.7%	10.2% 5.4%	9.0% 1.7%	7.4% 0.7%	5.4% 0.6%
Earnest <i>Russell MidCap</i>	8.0% 0.6%	21.0% 1.3%	7.0% 0.9%	13.2% 2.1%	12.9% 2.3%	12.0% 2.0%
ERS Public Equity <i>ERS Equity Benchmark</i>	7.5% 0.2%	22.0% 0.5%	7.0% 0.7%	11.2% 0.7%	10.4% 0.5%	9.1% 0.4%

Relative outperformance in blue

Relative underperformance in red

\*Returns net of fees

# Relative Investment Performance – Passive Equity Managers & Other as of March 31, 2024

## Passive Equity Managers

	1st Qtr	1 Year	3 Year	5 Year	7 Year	10 Year
Northern Trust S&P 500 Index <i>S&amp;P 500</i>	10.5%	29.9%	11.5%	15.0%	14.1%	13.0%
	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
BlackRock Russell 1000 Value Index <i>Russell 1000 Value</i>	9.0%	20.3%	8.1%	10.4%	9.2%	N/A
	0.0%	0.0%	0.0%	0.1%	0.1%	

## Real Assets Manager

	1st Qtr	1 Year	3 Year	5 Year	7 Year	10 Year
Principal Diversified Real Assets <i>Blended Benchmark</i>	1.7%	3.7%	3.7%	5.0%	4.6%	N/A
	1.0%	0.1%	0.2%	0.5%	0.2%	

Relative outperformance in blue

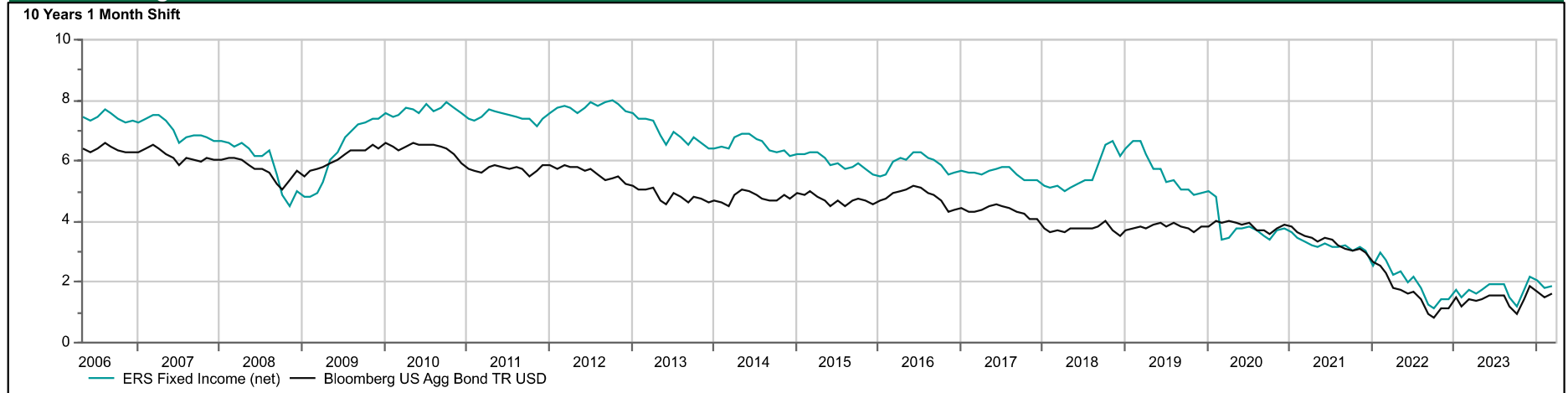
Relative underperformance in red

\*Returns net of fees

# Fixed Income

# Fixed Income Performance

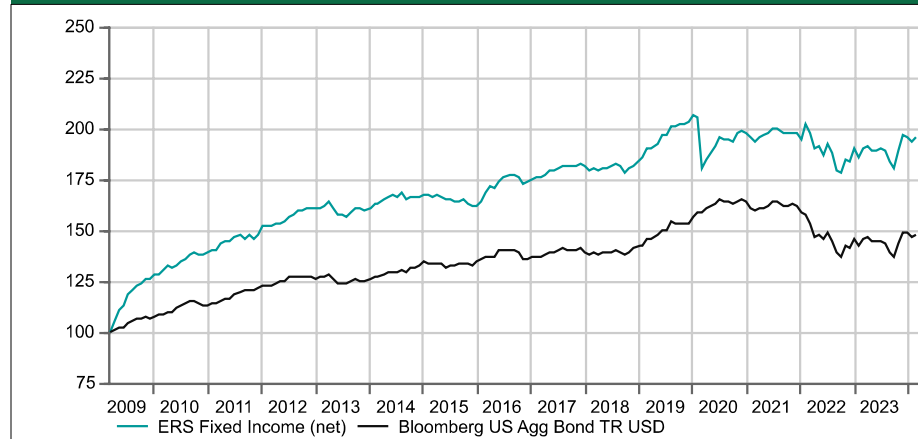
## 10 Year Rolling Returns – 6/1/1996 to 3/31/2024



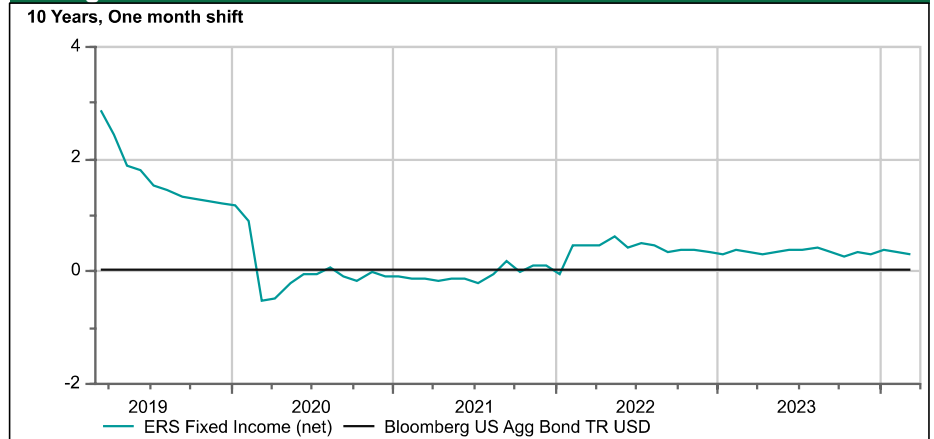
## Trailing Returns

		Annualized Return					
	QTR	1 Year	3 Year	5 Year	7 Year	10 Year	15 Year
Total Fixed Income (Gross)	-0.3	2.7	0.4	0.7	1.6	2.0	4.7
Total Fixed Income (Net)	-0.3	2.6	0.3	0.6	1.5	1.8	4.6
Bloomberg US Aggregate	-0.8	1.7	-2.5	0.4	1.1	1.5	2.6

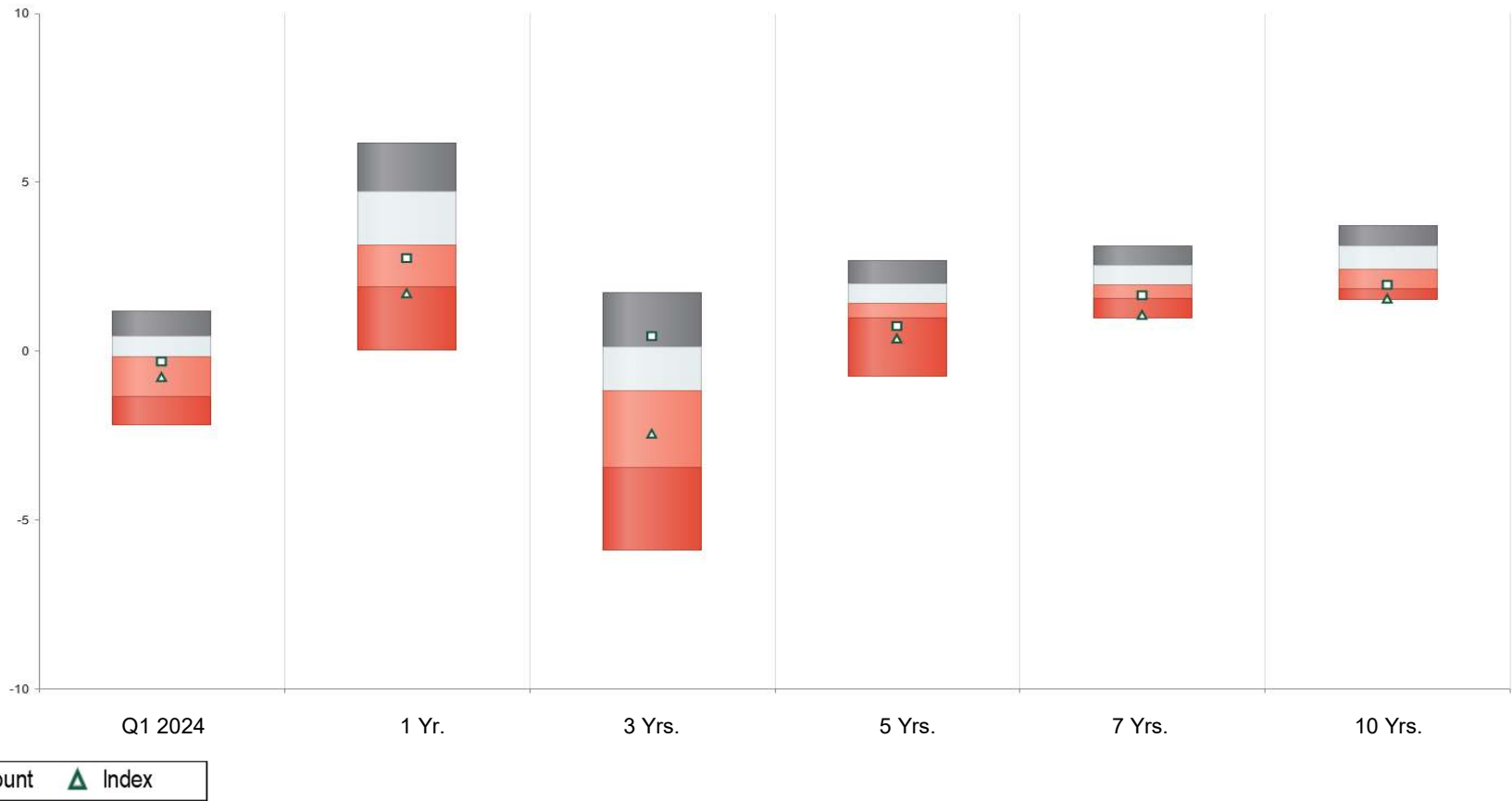
## Investment Growth –4/1/2009 to 3/31/2024



## Rolling Excess Return –4/1/2009 to 3/31/2024



# Fixed Income vs Universe



	<b>Q1 2024</b>	<b>1 Yr.</b>	<b>3 Yrs.</b>	<b>5 Yrs.</b>	<b>7 Yrs.</b>	<b>10 Yrs.</b>
Account Return	-0.3	2.7	0.4	0.7	1.6	2.0
Percentile Rank	54	54	20	81	68	69
Index Return	-0.8	1.7	-2.5	0.4	1.1	1.5
Percentile Rank	70	81	69	84	89	90
1st Quartile	0.4	4.7	0.1	2.0	2.5	3.1
Median	-0.2	3.1	-1.2	1.4	2.0	2.4
3rd Quartile	-1.3	1.9	-3.4	1.0	1.6	1.8
Observations	92	91	92	92	92	89

## Relative Investment Performance – Fixed Income Managers as of March 31, 2024

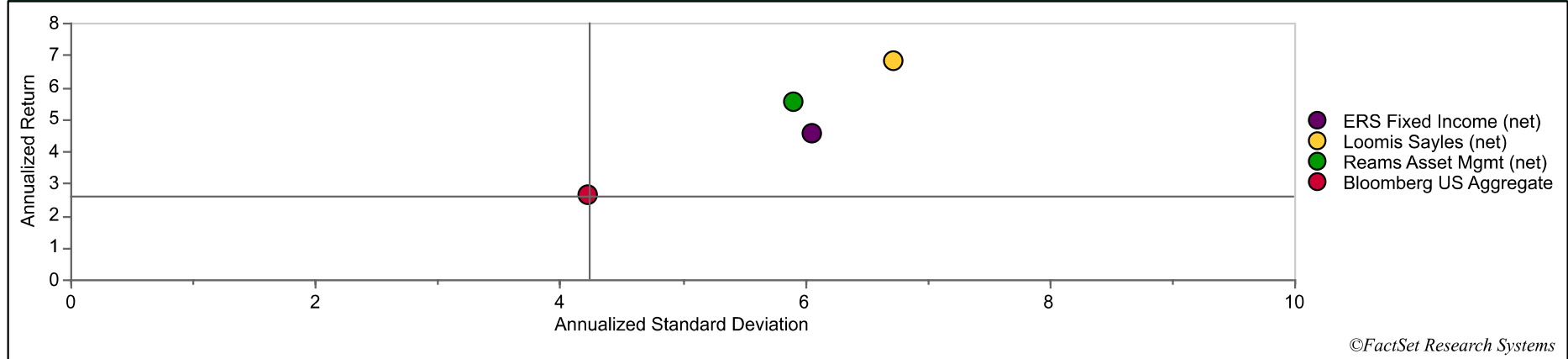
	1st Qtr	1 Year	3 Year	5 Year	7 Year	10 Year
Reams <i>Bloomberg U.S. Agg.</i>	-0.7% 0.1%	1.9% 0.2%	-1.4% 1.1%	2.7% 2.3%	2.9% 1.9%	2.8% 1.3%
Loomis Sayles <i>Bloomberg U.S. Agg.</i>	0.6% 1.4%	5.6% 3.9%	-0.6% 1.9%	2.5% 2.1%	3.0% 1.9%	3.3% 1.7%
BlackRock Index <i>Bloomberg U.S. Government</i>	-0.9% 0.0%	0.1% 0.0%	N/A	N/A	N/A	N/A
ERS Fixed Income <i>Bloomberg U.S. Agg.</i>	-0.3% 0.4%	2.6% 0.9%	0.3% 2.8%	0.6% 0.3%	1.5% 0.5%	1.8% 0.3%

Relative outperformance in blue
Relative underperformance in red

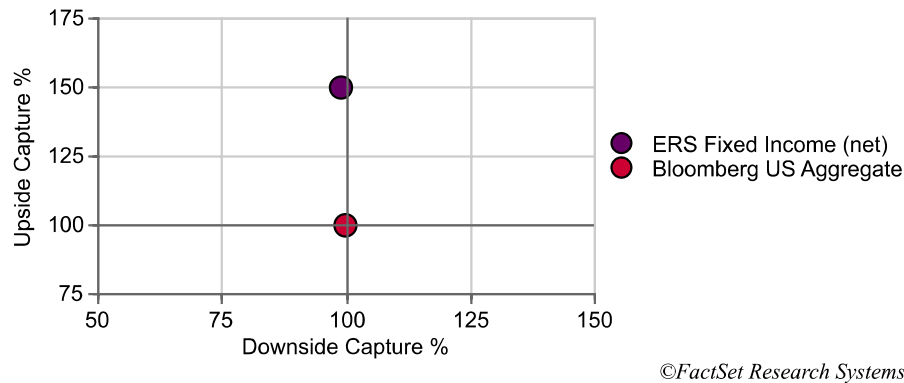
\*Returns net of fees

# Fixed Income Statistics

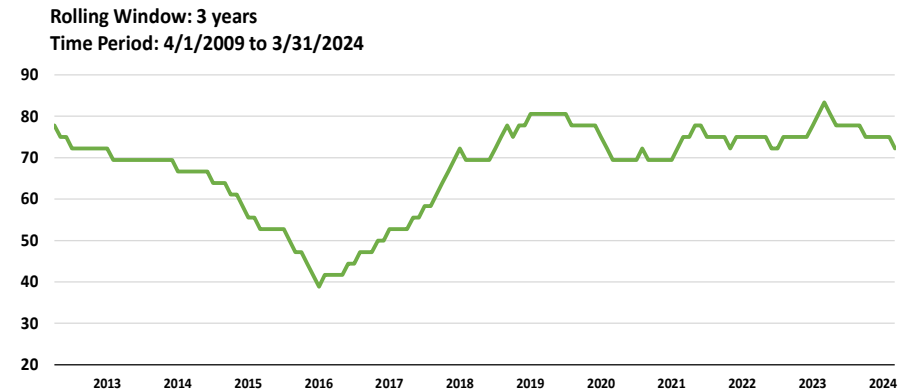
## Risk – Reward –4/1/2009 to 3/31/2024



## 15 Year Upside-Downside –4/1/2009 to 3/31/2024



## Batting Average



## 15 Year Risk –4/1/2009 to 3/31/2024

## Risk – 7/1/2013 to 3/31/2024

	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error	Alpha	Beta		Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error	Alpha	Beta
Total Fixed Income (Net)	4.6	6.1	0.2	0.6	0.1	4.3	1.0	Total Fixed Income (Net)	2.1	6.3	0.0	0.1	0.0	4.3	1.0
Bloomberg US Aggregate	2.6	4.2	0.0	0.4	--	--	1.0	Bloomberg US Aggregate	1.6	4.6	0.0	0.1	--	--	1.0



# Absolute Return

## Relative Investment Performance – Absolute Return Managers as of March 31, 2024

	1st Qtr	1 Year	3 Year	5 Year	7 Year
<b>UBS A&amp;Q</b> <i>1 Year Libor / SOFR + 4%</i>	2.6% 0.3%	8.6% 0.7%	8.0% 1.6%	9.2% 2.7%	7.7% 1.2%
<b>Aptitude</b> <i>SOFR + 4%</i>	4.8% 2.5%	10.1% 0.8%	N/A	N/A	N/A
<b>ERS Absolute Return</b> <i>3 Month T-Bill + 3%</i>	3.5% 1.4%	9.2% 0.7%	13.3% 7.4%	6.5% 1.4%	6.0% 1.0%

Relative outperformance in blue

Relative underperformance in red

### Risk Adjusted Returns (6/30/14 - 3/31/24)

	Return	Std Dev	Sharpe Ratio	Max Drawdown
<b>ERS Public Equity (net)</b>	8.9%	15.6%	0.5	-25.3%
<b>ERS Fixed Income (net)</b>	1.6%	6.5%	0.0	-13.6%
<b>ERS Absolute Return (net)</b>	5.9%	9.4%	0.5	-27.1%

\*Returns net of fees

# Performance Update

# Performance Update

Estimated ERS Total Fund Market Value is \$5.88 billion as of May 30, 2024

Period	ERS Fund*	Benchmark
YTD through March 31, 2024	2.8%	3.9%
April	-2.1%	-2.1%
May MTD (Estimate)	1.8%	1.9%
YTD Through May 30, 2024 (Estimate)	2.5%	3.7%

\*Returns Net of Fees

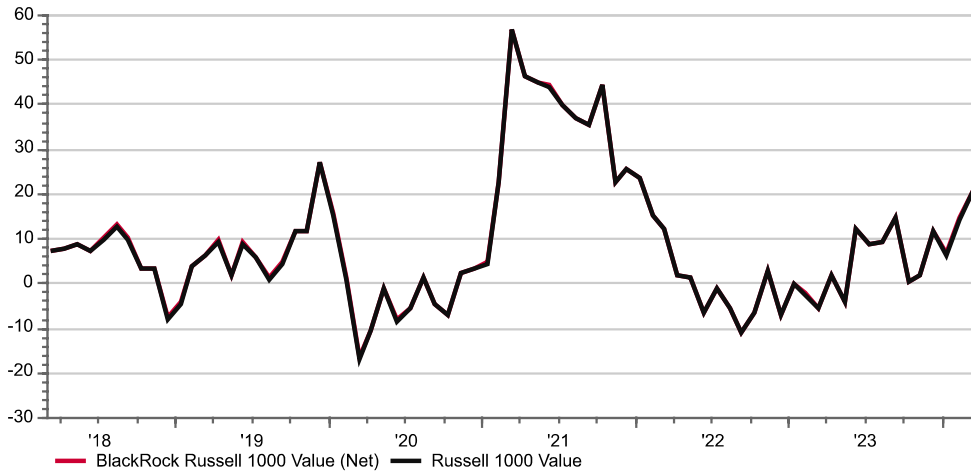
# Appendix

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# BlackRock Russell 1000 Value Portfolio Snapshot – March 31, 2024

## Rolling Returns Since Inception 4/1/2017 (One Year, One Month Shift)



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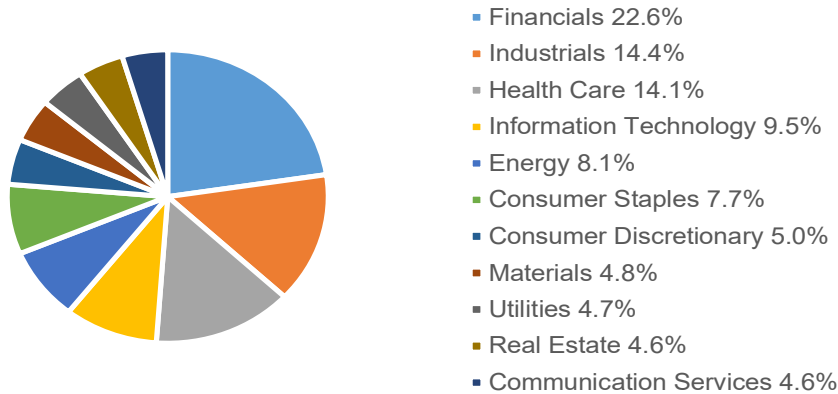
## Top 10 Holdings

	Portfolio Weight	Quarterly Return
Berkshire Hathaway Inc.	3.52	17.91
JPMorgan Chase & Co.	2.65	18.46
Exxon Mobil Corporation	2.13	17.38
Johnson & Johnson	1.75	1.67
Procter & Gamble Company	1.42	11.38
Merck & Co., Inc.	1.25	21.74
Chevron Corporation	1.24	6.89
Bank of America Corporation	1.20	13.41
Walmart Inc.	1.18	14.90
Walt Disney Company	1.02	35.52

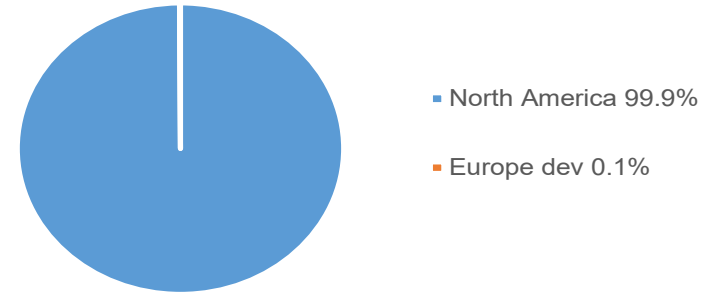
## Trailing Returns

	QTR	1 Year	3 Year	5 Year	Inception 4/1/2017
BlackRock R1000 Value (Net)	9.0	20.3	8.1	10.4	9.2
Russell 1000 Value	9.0	20.3	8.1	10.3	9.2

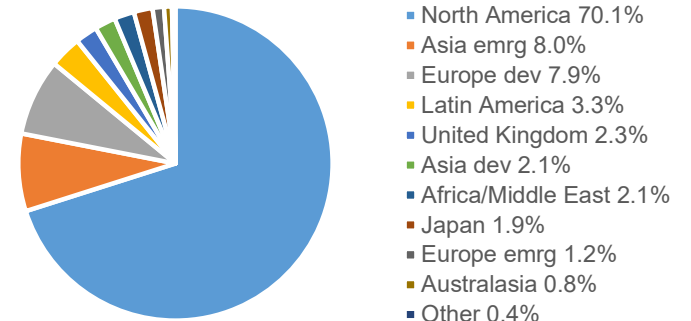
## Equity Sector Exposure (GICS)



## Regional Exposure by Domicile



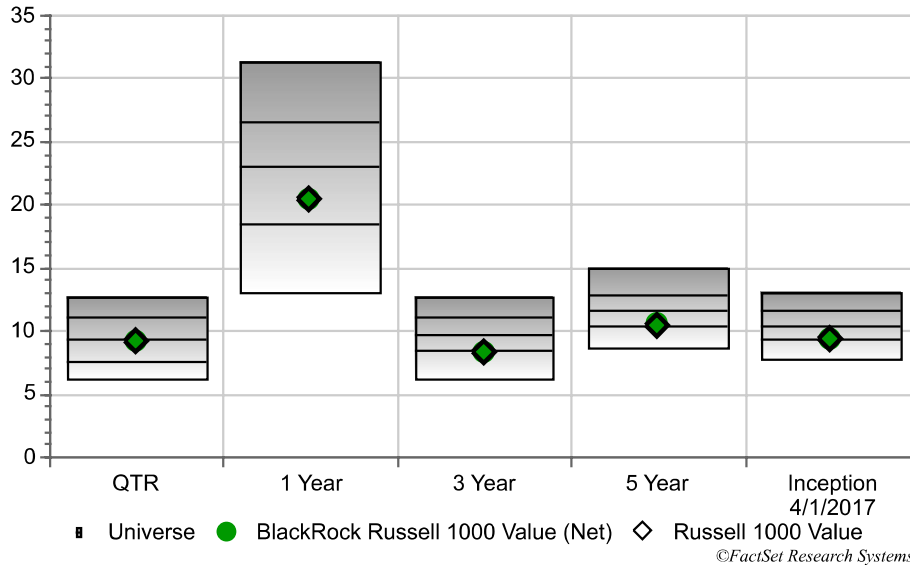
## Regional Exposure by Source of Revenue



# BlackRock Russell 1000 Value vs Universe & Benchmark

## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US:Large-Cap Value

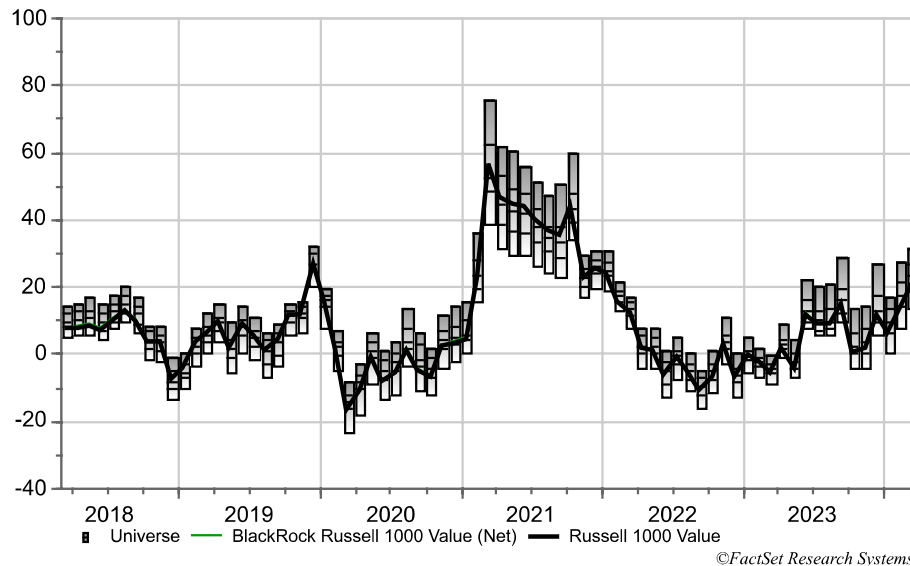


## Investment Growth Since Inception 4/1/2017



## Rolling Returns 4/1/2017 – 3/31/2024 (1 Year, 1 Month Shift)

Universe: Lipper US:Large-Cap Value



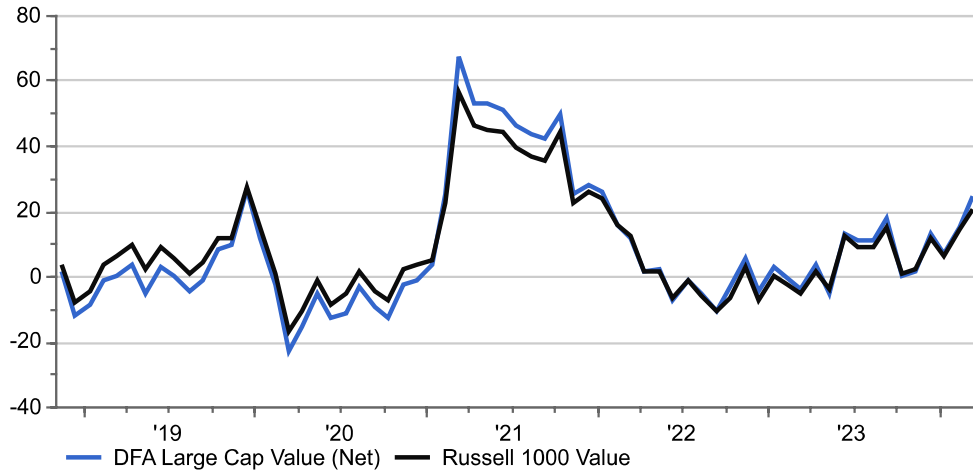
## Risk Since Inception 4/1/2017

	Return	Std Dev	Sharpe Ratio	Tracking Error
BlackRock R1000 Value (Net)	9.2	17.0	0.4	0.1
Russell 1000 Value	9.2	17.0	0.4	--



# DFA LCV Portfolio Snapshot – March 31, 2024

## Rolling Returns Since Inception 12/1/2017 (One Year, One Month Shift)



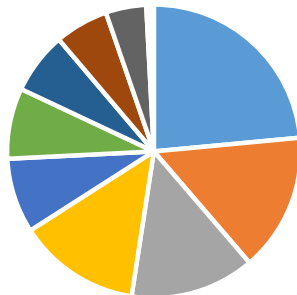
## Top 10 Holdings

	Portfolio Weight	Quarterly Return
JPMorgan Chase & Co.	4.71	18.46
Exxon Mobil Corporation	3.90	17.37
Berkshire Hathaway Inc.	2.28	17.91
Chevron Corporation	2.26	6.89
Comcast Corporation	1.59	-0.52
Verizon Communications Inc.	1.43	13.05
ConocoPhillips	1.20	10.42
Wells Fargo & Company	1.15	18.50
Pfizer Inc.	1.05	-2.12
AT&T Inc.	1.01	6.53

## Trailing Returns

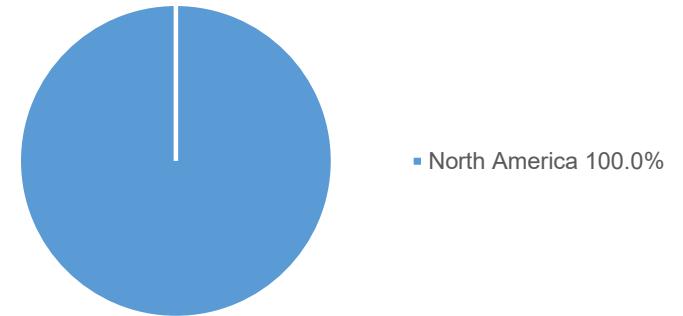
	QTR	1 Year	3 Year	5 Year	Inception 12/1/2017
DFA US Large Value	11.5	23.9	9.6	11.1	8.6
Russell 1000 Value	9.0	20.3	8.1	10.3	8.8

## Equity Sector Exposure (GICS)

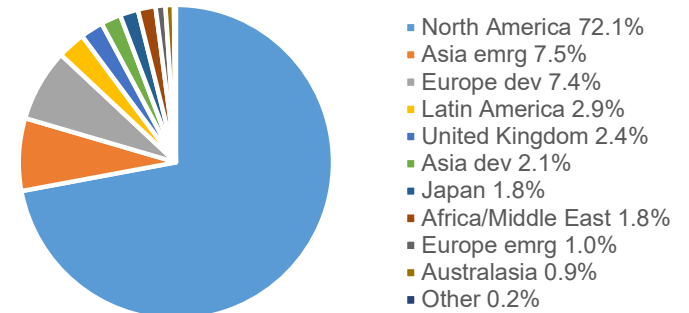


- Financials 23.5%
- Industrials 15.2%
- Energy 13.7%
- Health Care 13.5%
- Materials 8.2%
- Information Technology 7.8%
- Communication Services 6.8%
- Consumer Discretionary 5.9%
- Consumer Staples 4.5%
- Real Estate 0.5%
- Utilities 0.4%

## Regional Exposure by Domicile



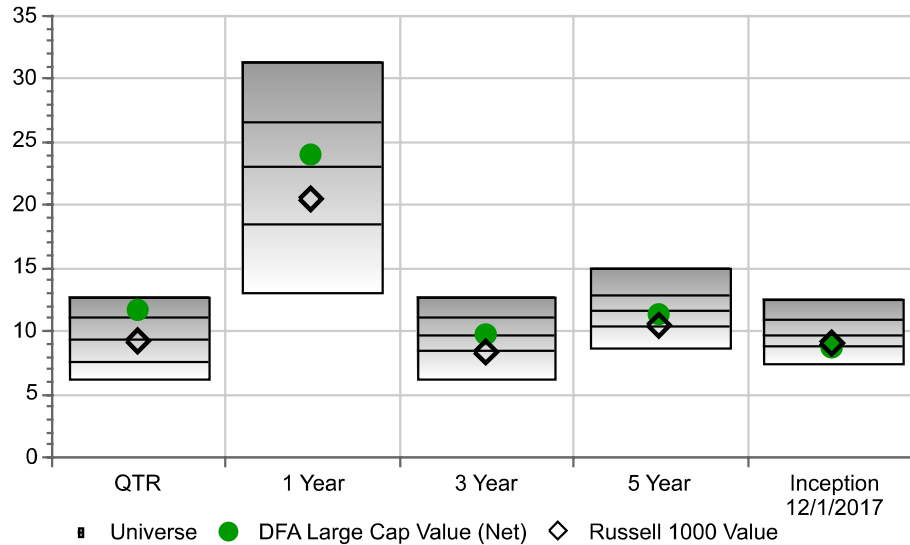
## Regional Exposure by Source of Revenue



# DFA LCV vs Universe & Benchmark

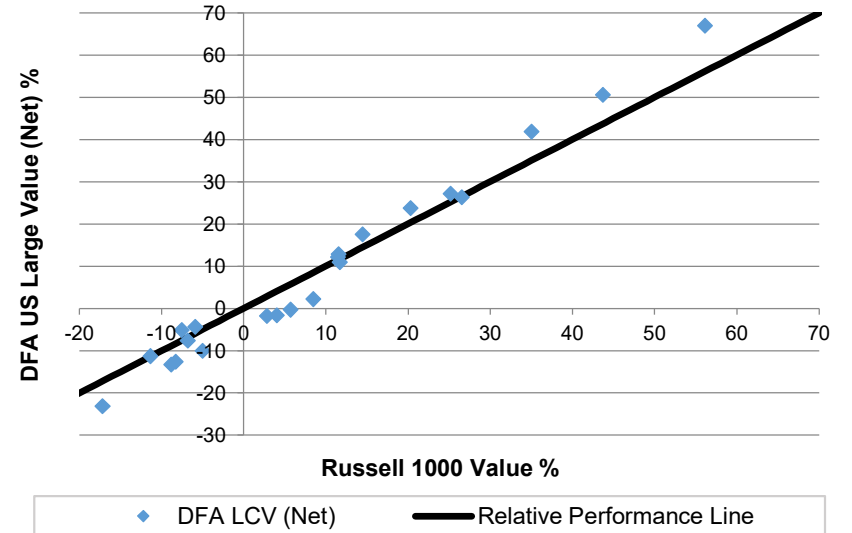
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US Large Cap Value



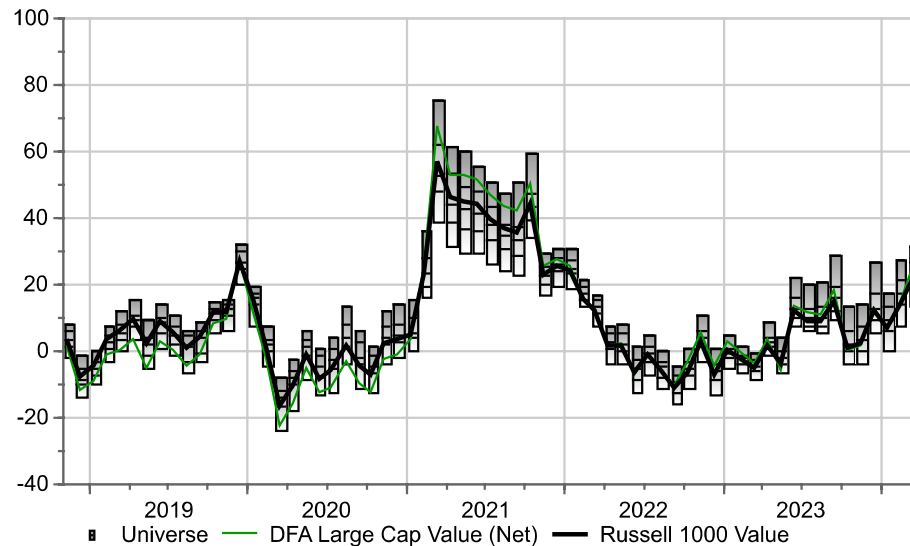
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## One-Year Rolling Return Versus Benchmark



## Rolling Returns 12/1/2017 – 3/31/2024 (1 Year, 1 Month Shift)

Universe: Lipper US Large Cap Value



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## Over/Under Benchmark Analysis

11	Outperform
11	Underperform
22	# Observations
50%	% Outperform

# DFA LCV Attribution Analysis – March 31, 2024

## Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Meta Platforms, Inc.	1.01	1.01	0.42
JPMorgan Chase & Co.	4.56	2.06	0.37
Exxon Mobil Corporation	4.17	1.88	0.31
Marathon Petroleum Corporation	0.84	0.54	0.19
United Rentals, Inc.	0.69	0.52	0.13
PACCAR Inc	0.77	0.51	0.13
Kroger Co.	0.60	0.45	0.11
Quanta Services, Inc.	0.65	0.54	0.11
PulteGroup, Inc.	0.74	0.63	0.11
Parker-Hannifin Corporation	0.80	0.49	0.10

## Top 10 Leading Detractors

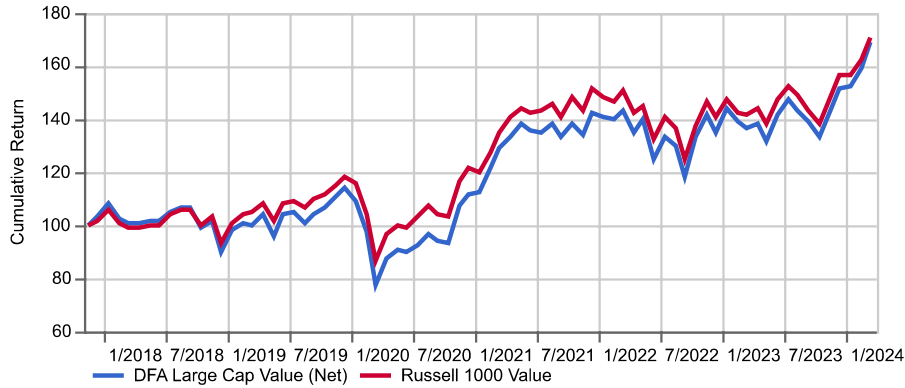
	Avg. Weights	Relative Weights	Active Return
Merck & Co., Inc.	0.00	-1.21	-0.26
Berkshire Hathaway Inc.	2.28	-1.16	-0.20
Walmart Inc.	0.00	-1.16	-0.17
Procter & Gamble Company	0.00	-1.44	-0.17
International Business Machines Corp.	0.02	-0.77	-0.14
Constellation Energy Corp.	0.00	-0.21	-0.11
Oracle Corporation	0.00	-0.49	-0.09
Walt Disney Company	0.61	-0.28	-0.09
Humana Inc.	0.43	0.30	-0.09
American Express Company	0.00	-0.39	-0.08

## Sector Attribution

	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	3.1	10.6	7.9	0.0	0.2	0.2
Consumer Discretionary	1.0	12.7	6.8	0.0	0.4	0.3
Consumer Staples	-3.3	4.3	6.5	0.1	-0.1	0.0
Energy	5.2	15.2	13.5	0.3	0.2	0.5
Financials	0.7	14.8	13.0	0.0	0.4	0.4
Health Care	-0.6	3.7	6.1	0.0	-0.4	-0.3
Industrials	0.6	16.7	11.7	0.0	0.7	0.7
Information Technology	-1.6	6.7	6.9	0.0	0.0	0.0
Materials	3.5	9.9	7.5	0.0	0.2	0.2
Real Estate	-4.4	4.1	-1.2	0.5	0.0	0.5
Utilities	-4.4	61.7	5.0	0.2	0.1	0.3
Cash	0.3	1.3	0.0	0.0	0.0	0.0
Total	0.0	11.6	8.8	1.0	1.8	2.8

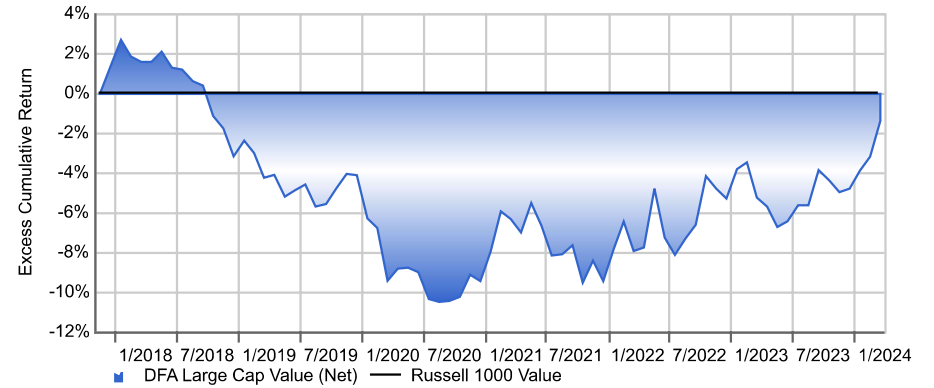
# DFA LCV Inception Performance & Statistics

## Investment Growth Since Inception 12/1/2017



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## Relative Cumulative Performance Since Inception 12/1/2017

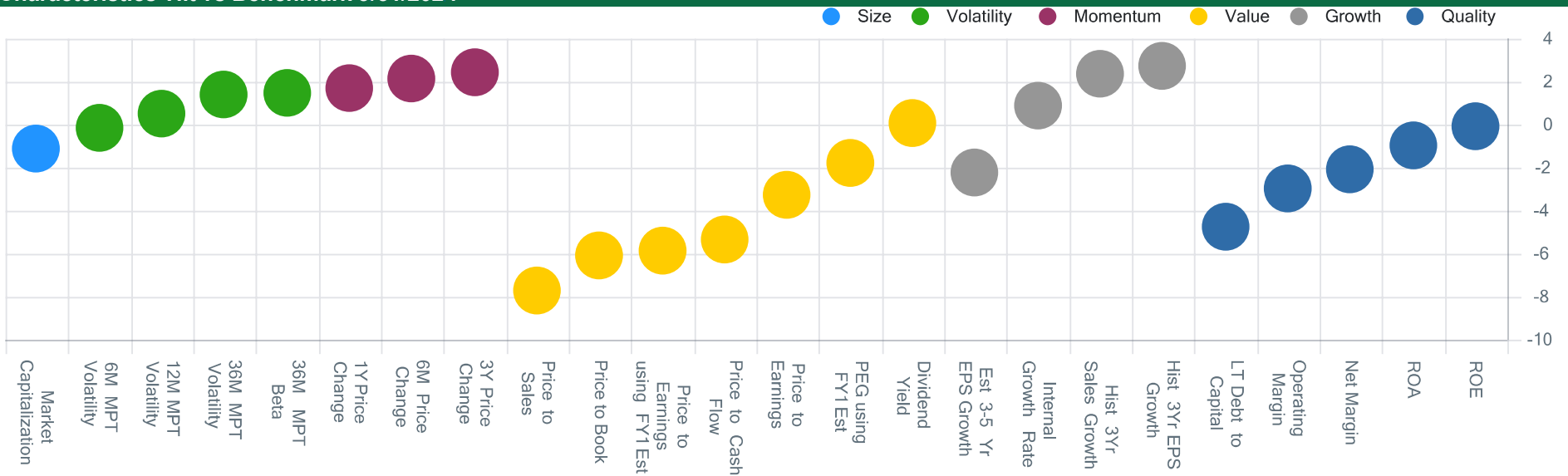


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## Risk Since Inception 12/1/2017

	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
DFA US Large Value	8.6	20.3	-0.7	0.3	0.0	3.8	1.1
Russell 1000 Value	8.8	17.8	--	0.4	--	--	1.0

## Characteristics Tilt vs Benchmark 3/31/2024



# DFA US SCV Portfolio Snapshot – March 31, 2024

## Rolling Returns Since Inception 10/1/1996 (Ten Year, One Month Shift)



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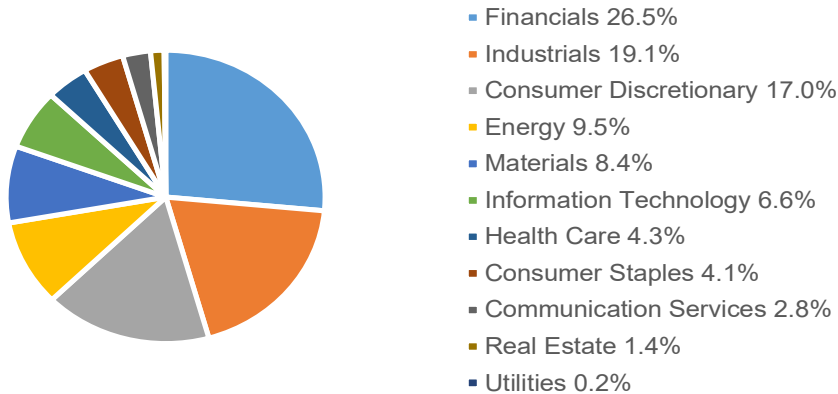
## Top 10 Holdings

	Portfolio Weight	Quarterly Return
United States Steel Corporation	0.97	-16.09
Taylor Morrison Home Corporation	0.86	16.53
PVH Corp.	0.86	15.17
Amkor Technology, Inc.	0.77	-2.86
PBF Energy Inc.	0.75	31.66
Air Lease Corporation	0.67	23.15
Commercial Metals Company	0.67	18.17
Murphy Oil Corporation	0.66	7.94
MGIC Investment Corporation	0.66	16.59
Assured Guaranty Ltd.	0.65	17.01

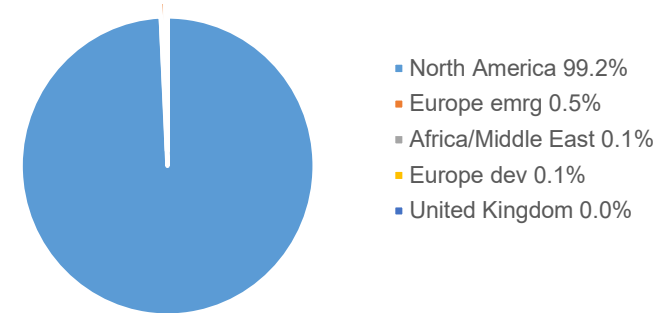
## Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
DFA Small Cap Value (Net)	3.4	24.4	10.6	13.7	9.2	15.6
Russell 2000 Value	2.9	18.8	2.2	8.2	6.9	12.1

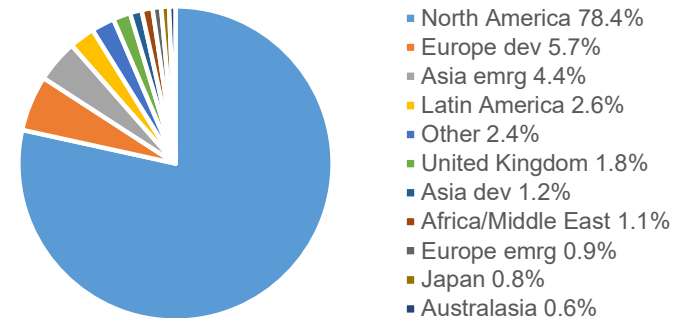
## Equity Sector Exposure (GICS)



## Regional Exposure by Domicile



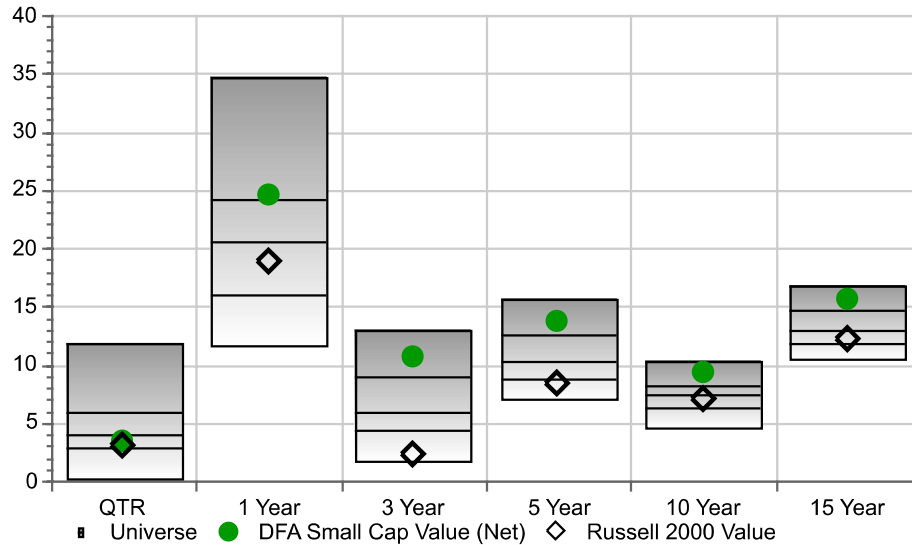
## Regional Exposure by Source of Revenue



# DFA US SCV vs Universe & Benchmark

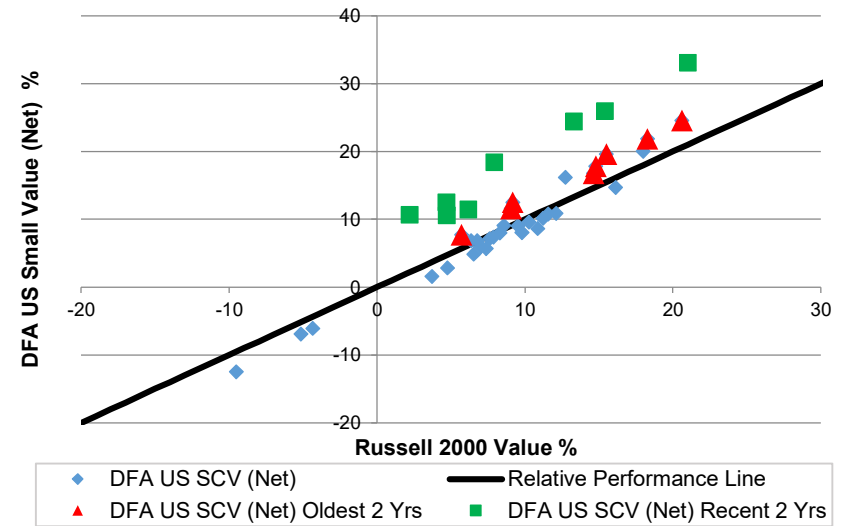
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US Small Cap Value



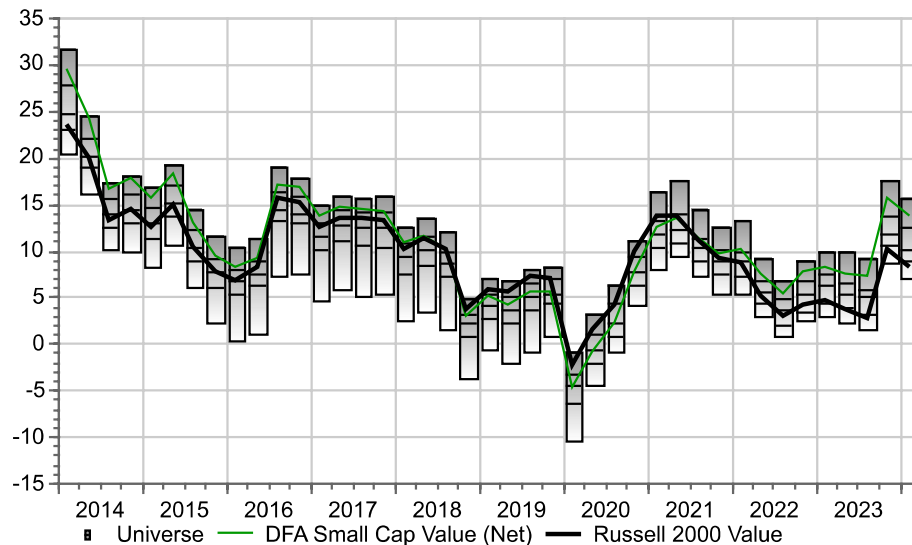
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## Three-Year Rolling Return Versus Benchmark



## Rolling Returns 7/1/2008 – 3/31/2024 (5 Year, 3 Month Shift)

Universe: Lipper US Small Cap Value



©FactSet Research Systems

## Over/Under Benchmark Analysis

21	Outperform
19	Underperform
40	# Observations
53%	% Outperform

## DFA US SCV Attribution Analysis – March 31, 2024

### Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Air Lease Corporation	0.56	0.56	0.13
PVH Corp.	0.84	0.84	0.13
Gates Industrial Corporation Plc	0.37	0.37	0.12
Assured Guaranty Ltd.	0.72	0.72	0.12
Powell Industries, Inc.	0.26	0.17	0.11
Kirby Corporation	0.50	0.50	0.11
MGIC Investment Corporation	0.63	0.63	0.10
TechnipFMC plc	0.41	0.41	0.10
Mohawk Industries, Inc.	0.34	0.34	0.09
White Mountains Insurance Group, Ltd.	0.43	0.43	0.08

### Top 10 Leading Detractors

	Avg. Weights	Relative Weights	Active Return
New York Community Bancorp, Inc.	0.37	0.37	-0.38
United States Steel Corporation	1.17	1.17	-0.20
Carvana Co.	0.00	-0.24	-0.15
Iovance Biotherapeutics, Inc.	0.00	-0.19	-0.13
CleanSpark, Inc.	0.02	-0.10	-0.13
Permian Resources Corporation	0.09	-0.29	-0.11
Avidity Biosciences, Inc.	0.00	-0.08	-0.10
Light & Wonder, Inc.	0.00	-0.33	-0.08
Abercrombie & Fitch Co.	0.00	-0.20	-0.07
Howard Hughes Holdings Inc.	0.43	0.43	-0.07

### Sector Attribution

	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	0.5	-5.6	-4.0	0.0	0.0	-0.1
Consumer Discretionary	6.5	4.4	4.9	0.1	-0.1	0.0
Consumer Staples	1.7	1.0	-1.8	-0.1	0.1	0.0
Energy	1.1	11.6	12.1	0.1	0.0	0.0
Financials	0.9	-2.3	-2.5	0.0	0.1	0.0
Health Care	-5.2	0.6	8.9	-0.3	-0.3	-0.6
Industrials	3.4	11.5	8.4	0.2	0.5	0.7
Information Technology	0.2	0.5	0.2	0.0	0.0	0.0
Materials	3.4	3.7	7.6	0.2	-0.3	-0.2
Real Estate	-8.8	-7.8	-1.8	0.4	-0.1	0.3
Utilities	-3.7	-24.7	-1.3	0.2	0.0	0.1
<b>Total</b>	<b>0.0</b>	<b>3.4</b>	<b>2.9</b>	<b>0.7</b>	<b>-0.2</b>	<b>0.5</b>

# DFA US SCV 15 Year Performance & Statistics

## Investment Growth – 15 Years



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## Relative Cumulative Performance – 15 Years

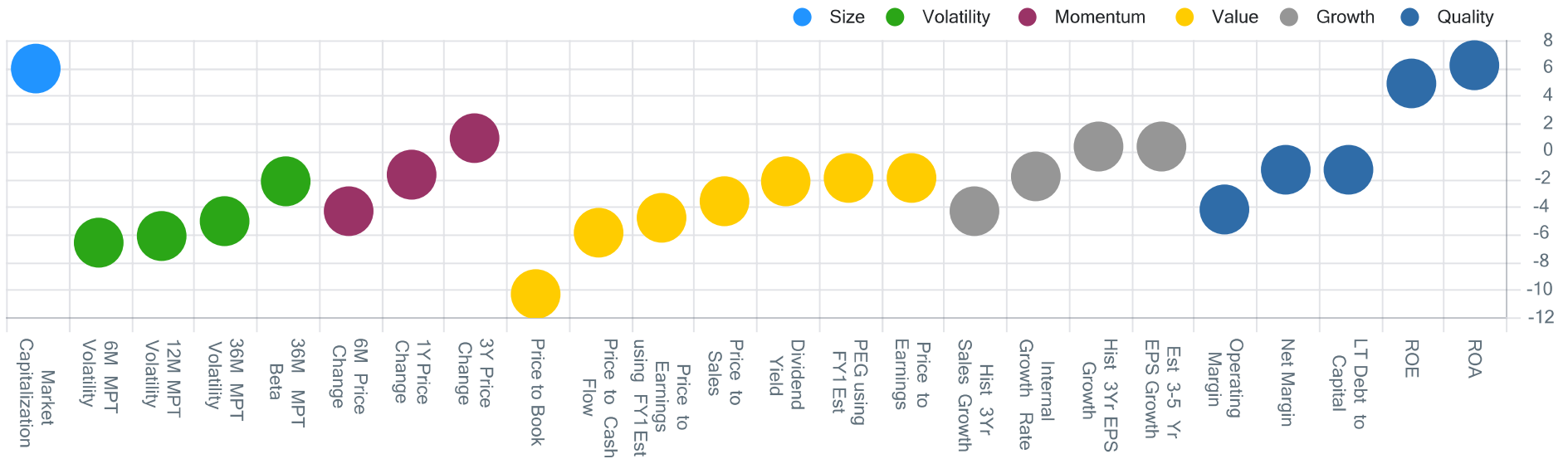


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## Risk – 15 Years

	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
DFA Small Cap Value (Net)	15.6	22.0	2.5	0.7	0.9	3.9	1.1
Russell 2000 Value	12.1	20.2	--	0.6	--	--	1.0

## Characteristics Tilt vs Benchmark 3/31/2024





# Earnest Portfolio Snapshot – March 31, 2024

## Rolling Returns Since Inception 5/1/2005 (Ten Year, One Month Shift)



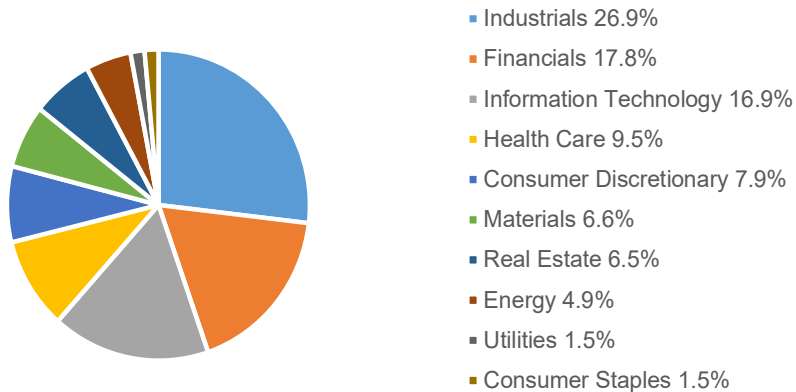
## Top 10 Holdings

	Portfolio Weight	Quarterly Return
Republic Services, Inc.	3.18	16.09
Entegris, Inc.	2.79	17.39
Masco Corporation	2.68	18.21
D.R. Horton, Inc.	2.45	8.49
CBRE Group, Inc.	2.42	4.46
Progressive Corporation	2.35	30.47
Reinsurance Grp. of America, Inc.	2.23	19.80
Raymond James Financial, Inc.	2.15	15.58
Darden Restaurants, Inc.	2.14	2.55
Intercontinental Exchange, Inc.	2.08	7.36

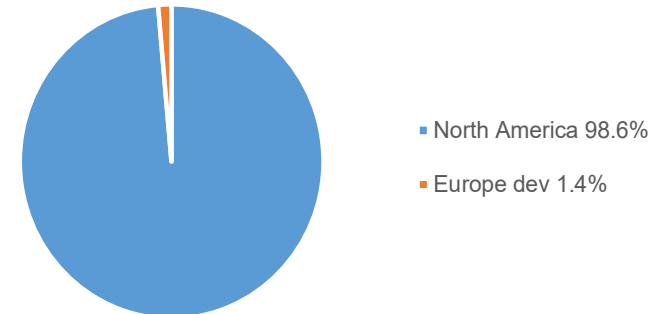
## Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
Earnest (Net)	8.0	21.0	7.0	13.2	12.0	16.0
Russell Midcap	8.6	22.3	6.1	11.1	9.9	14.9

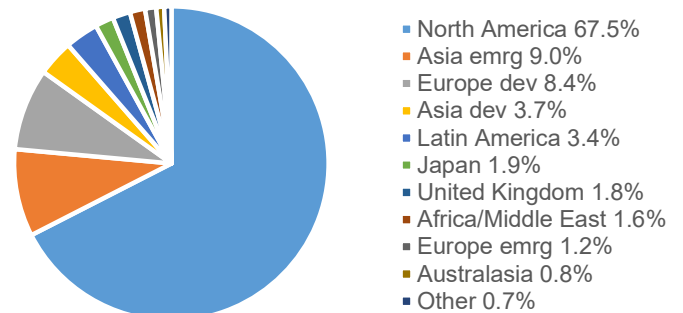
## Equity Sector Exposure (GICS)



## Regional Exposure by Domicile



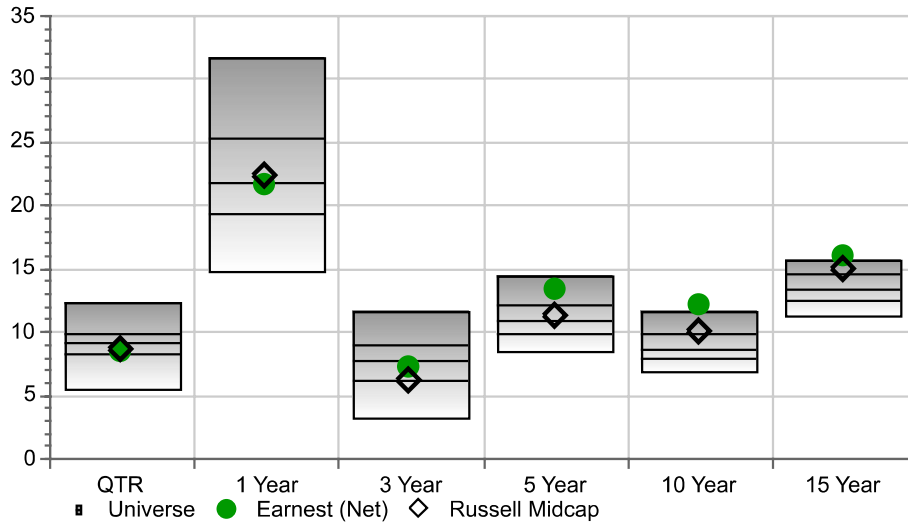
## Regional Exposure by Source of Revenue



# Earnest vs Universe & Benchmark

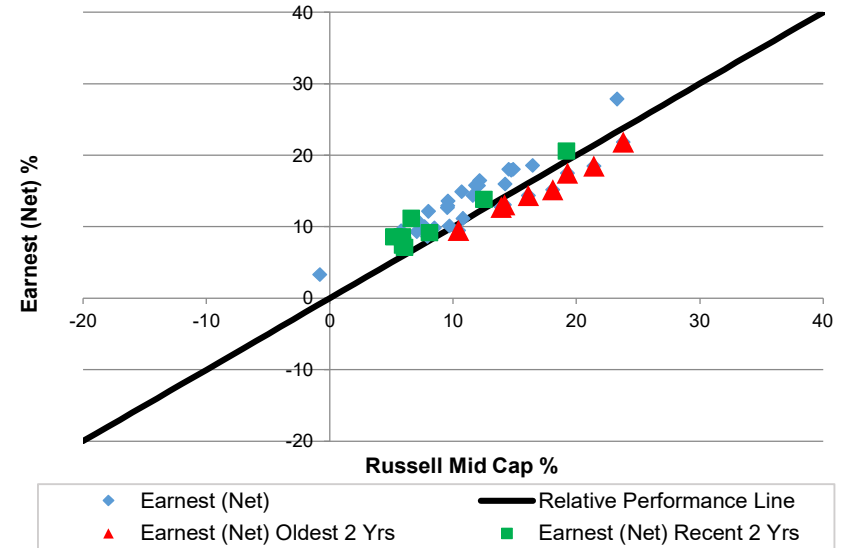
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US: Mid Cap Core



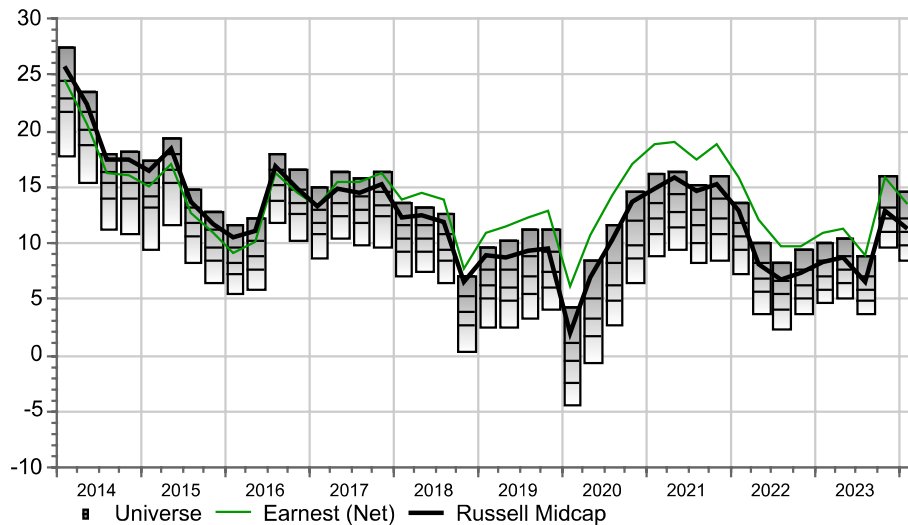
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## Three-Year Rolling Return Versus Benchmark



## Rolling Returns 7/1/2008 – 3/31/2024 (5 Year, 3 Month Shift)

Universe: Lipper US: Mid Cap Core



©FactSet Research Systems

## Over/Under Benchmark Analysis

<b>32</b>	Outperform
<b>8</b>	Underperform
<b>40</b>	# Observations
<b>80%</b>	% Outperform

# Earnest Attribution Analysis – March 31, 2024

## Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Progressive Corporation	2.14	2.14	0.61
Republic Services, Inc.	3.09	2.75	0.44
Masco Corporation	2.56	2.42	0.44
Applied Materials, Inc.	1.62	1.62	0.43
Entegris, Inc.	2.64	2.47	0.43
Catalent, Inc	1.00	0.91	0.39
Reinsurance Grp. of Amer., Inc.	2.12	2.02	0.39
Air Lease Corporation	1.68	1.64	0.37
RenaissanceRe Holdings, Ltd.	1.75	1.65	0.32
Synopsys, Inc.	2.41	2.41	0.32

## Top 10 Leading Detractors

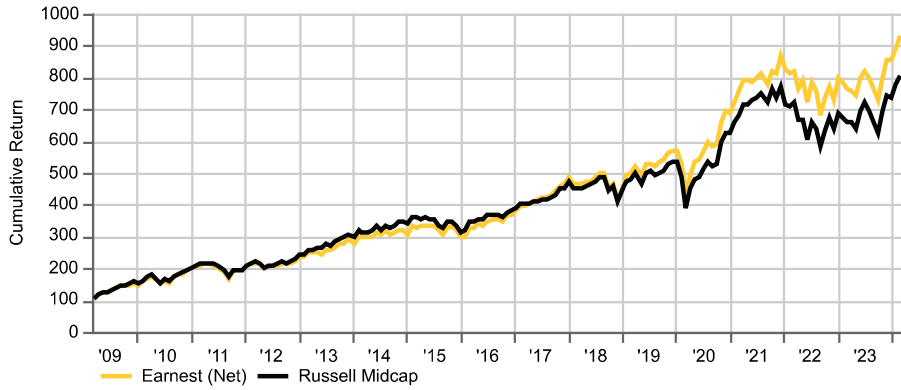
	Avg. Weights	Relative Weights	Active Return
Americold Realty Trust, Inc.	1.44	1.37	-0.28
SBA Communications Corporation	1.47	1.24	-0.22
Constellation Energy Corporation	0.00	-0.41	-0.21
Akamai Technologies, Inc.	2.33	2.17	-0.18
CrowdStrike Holdings, Inc.	0.00	-0.58	-0.14
Coinbase Global, Inc.	0.00	-0.27	-0.14
Phillips 66	0.00	-0.58	-0.13
PACCAR Inc	0.00	-0.49	-0.13
Trane Technologies plc	0.00	-0.55	-0.13
Parker-Hannifin Corporation	0.00	-0.58	-0.12

## Sector Attribution

	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	-3.2	0.0	-3.6	0.4	0.0	0.4
Consumer Discretionary	-2.7	6.3	10.0	0.0	-0.3	-0.3
Consumer Staples	-2.0	11.5	6.8	0.0	0.1	0.1
Energy	-0.3	13.9	12.1	0.0	0.1	0.1
Financials	1.4	14.6	12.2	0.0	0.4	0.4
Health Care	-0.6	8.2	5.4	0.0	0.3	0.3
Industrials	6.3	11.1	13.8	0.3	-0.7	-0.4
Information Technology	3.1	4.4	6.3	0.0	-0.4	-0.4
Materials	0.5	9.1	8.9	0.0	0.0	0.0
Real Estate	-1.1	-6.8	0.0	0.1	-0.5	-0.4
Utilities	-3.7	-1.7	6.7	0.1	-0.1	0.0
Cash	2.2	1.3	0.0	-0.2	0.0	-0.2
Total	0.0	8.2	8.6	0.8	-1.1	-0.4

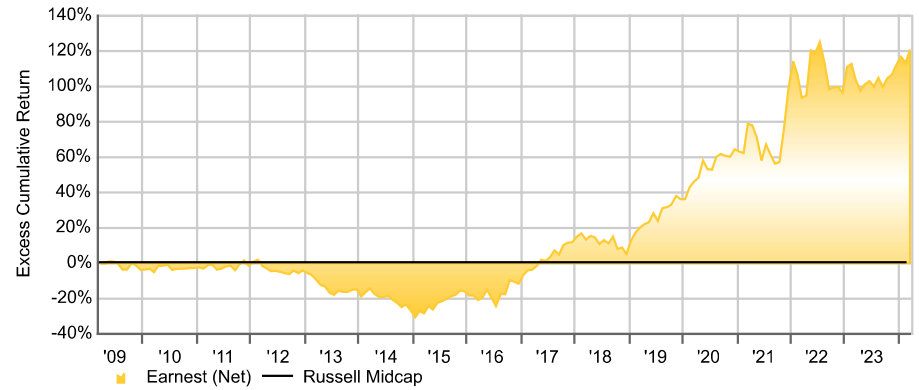
# Earnest 15 Year Performance & Statistics

## Investment Growth – 15 Years



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## Relative Cumulative Performance – 15 Years

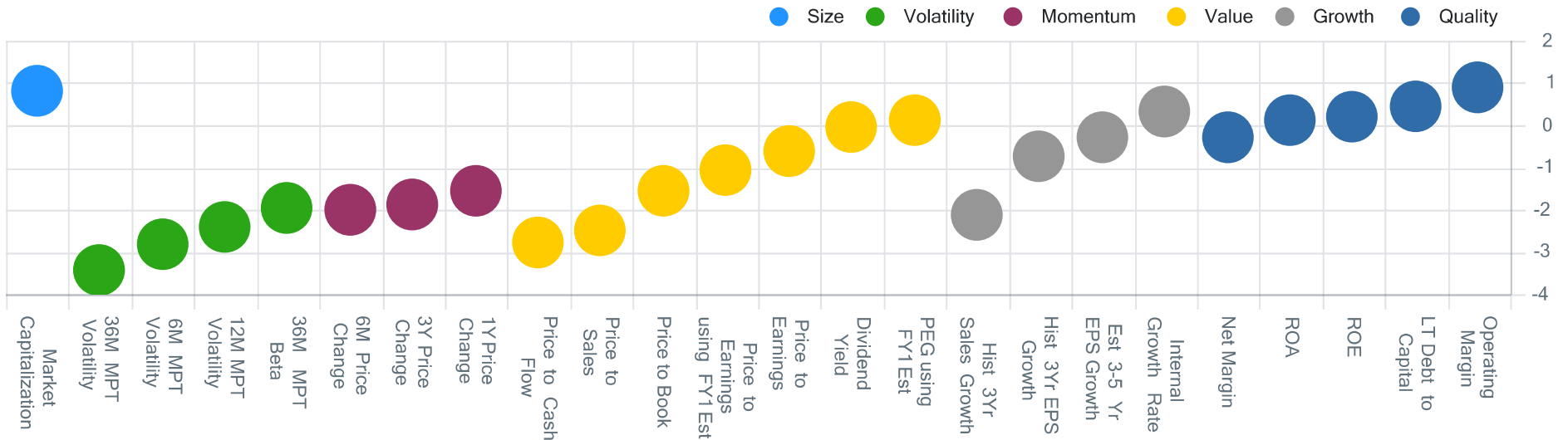


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## Risk – 15 Years

	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
Earnest (Net)	16.0	16.8	1.4	0.9	0.3	3.6	1.0
Russell Midcap	14.9	17.0	--	0.8	--	--	1.0

## Characteristics Tilt vs Benchmark 3/31/2024



# Northern Trust S&P 500 Portfolio Snapshot – March 31, 2024

## Rolling Returns Since 10/1/1999 (Ten Year, One Month Shift)



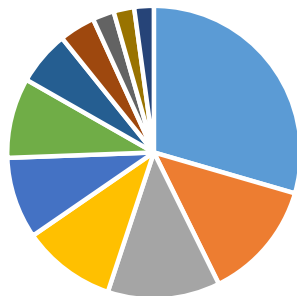
## Top 10 Holdings

	Portfolio Weight	Quarterly Return
Microsoft Corporation	7.01	12.08
Apple Inc.	5.62	-10.82
NVIDIA Corporation	5.01	82.46
Alphabet Inc.	3.71	8.04
Amazon.com, Inc.	3.68	18.72
Meta Platforms, Inc.	2.42	37.32
Berkshire Hathaway Inc.	1.71	17.91
Eli Lilly and Company	1.39	33.69
Broadcom Inc.	1.30	19.21
JPMorgan Chase & Co.	1.10	18.46

## Trailing Returns

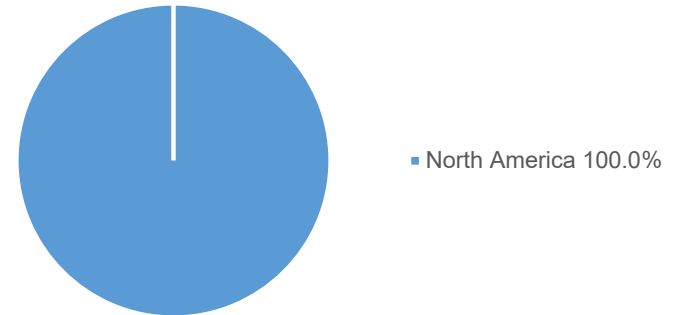
	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
NT S&P 500 Index (Net)	10.5	29.9	11.5	15.0	13.0	15.7
S&P 500	10.6	29.9	11.5	15.0	13.0	15.6

## Equity Sector Exposure (GICS)

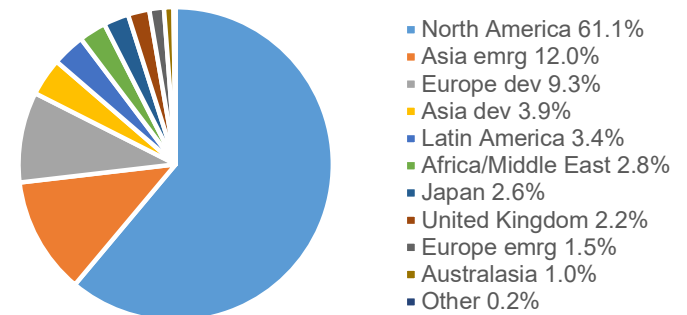


- Information Technology 29.5%
- Financials 13.2%
- Health Care 12.4%
- Consumer Discretionary 10.3%
- Communication Services 9.0%
- Industrials 8.8%
- Consumer Staples 5.9%
- Energy 4.0%
- Materials 2.4%
- Real Estate 2.3%
- Utilities 2.2%

## Regional Exposure by Domicile



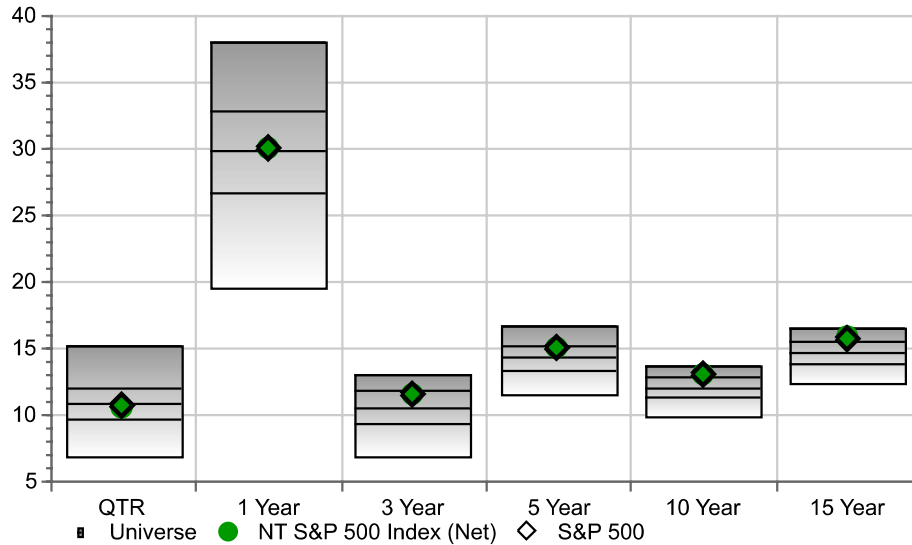
## Regional Exposure by Source of Revenue



# Northern Trust S&P 500 vs Universe & Benchmark

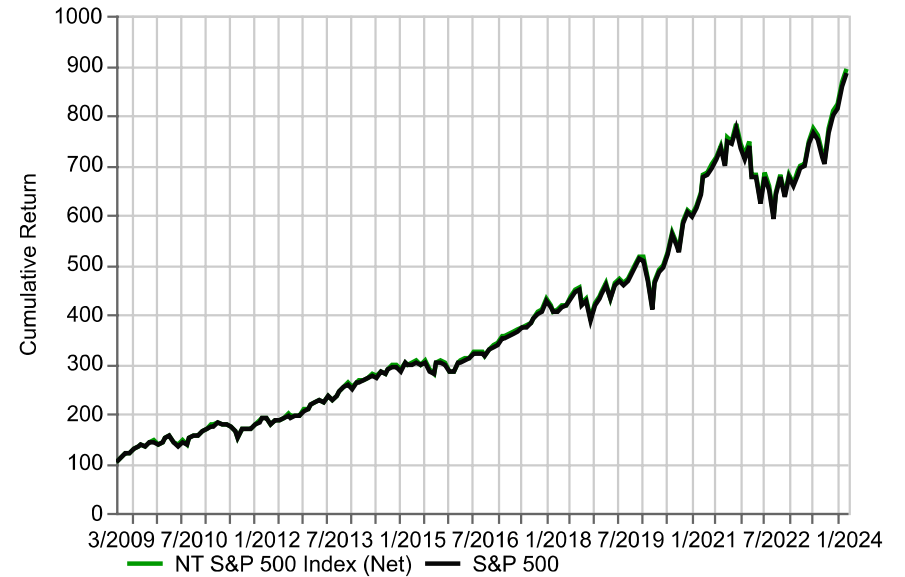
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US: Large Cap Core



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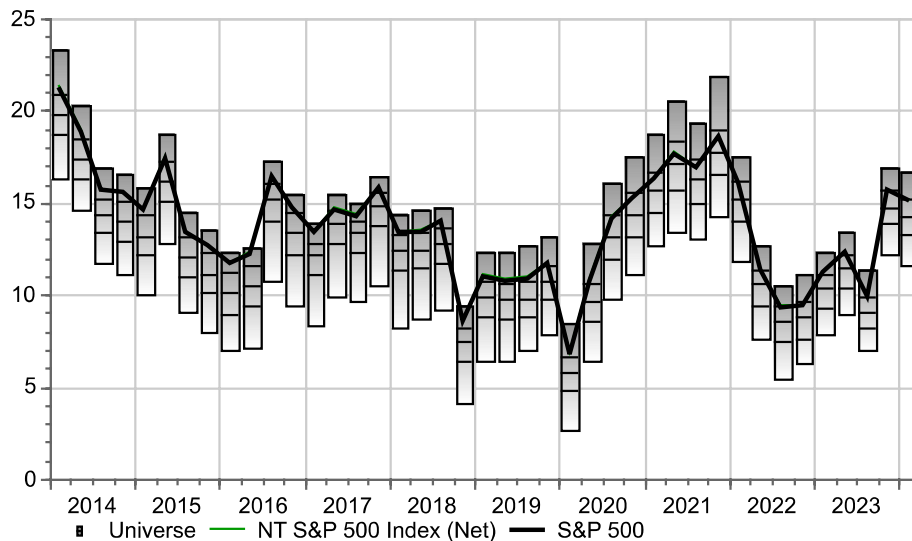
## Investment Growth – 15 Years



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## Rolling Returns 7/1/2008 – 3/31/2024 (5 Year, 3 Month Shift)

Universe: Lipper US: Large Cap Core



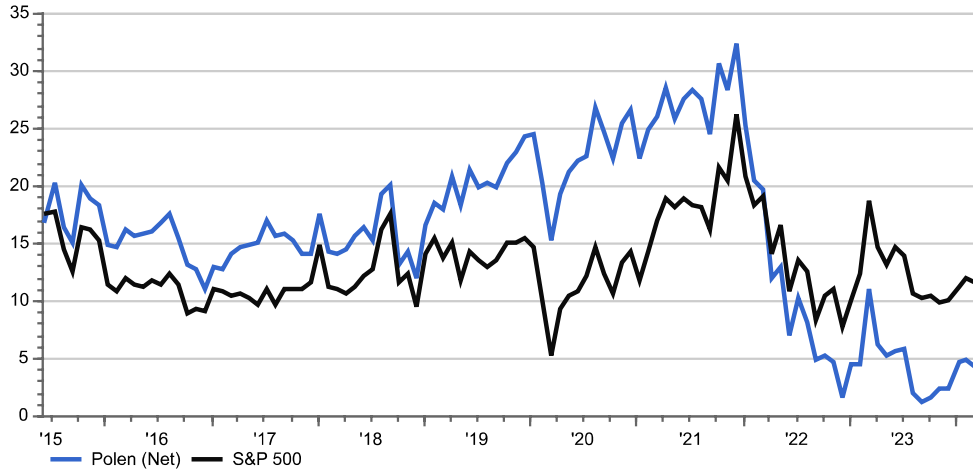
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## Risk – 15 Years

	Return	Std Dev	Sharpe Ratio	Tracking Error
NT S&P 500 Index (Net)	15.7	14.7	1.0	0.1
S&P 500	15.6	14.7	1.0	--

# Polen Portfolio Snapshot – March 31, 2024

## Rolling Returns Since Inception 7/1/2012 (Three Year, One Month Shift)



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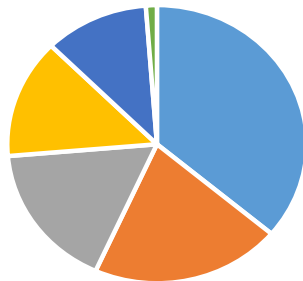
## Top 10 Holdings

	Portfolio Weight	Quarterly Return
Amazon.com, Inc.	9.84	18.72
Microsoft Corporation	9.72	12.08
Alphabet Inc.	7.42	8.04
Netflix, Inc.	6.26	24.74
Visa Inc.	5.85	7.39
Salesforce, Inc.	5.76	14.61
Mastercard Incorporated	5.31	13.08
ServiceNow, Inc.	5.21	7.91
Thermo Fisher Scientific Inc.	4.92	9.57
Airbnb, Inc.	4.49	21.17

## Trailing Returns

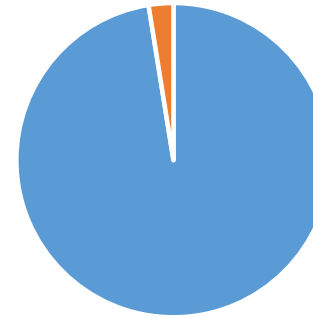
	QTR	1 Year	3 Year	5 Year	10 Year	Inception 7/1/2012
Polen (Net)	7.6	30.4	4.2	12.8	14.9	15.0
S&P 500	10.6	29.9	11.5	15.0	13.0	14.3
S&P 500 Growth	12.8	33.7	10.2	15.8	14.6	15.5

## Equity Sector Exposure (GICS)



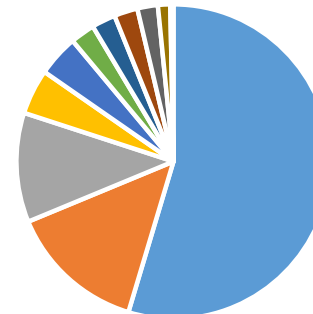
- Information Technology 36.1%
- Health Care 20.6%
- Consumer Discretionary 16.9%
- Communication Services 13.9%
- Financials 11.3%
- Industrials 1.2%

## Regional Exposure by Domicile



- North America 97.5%
- Europe dev 2.5%

## Regional Exposure by Source of Revenue

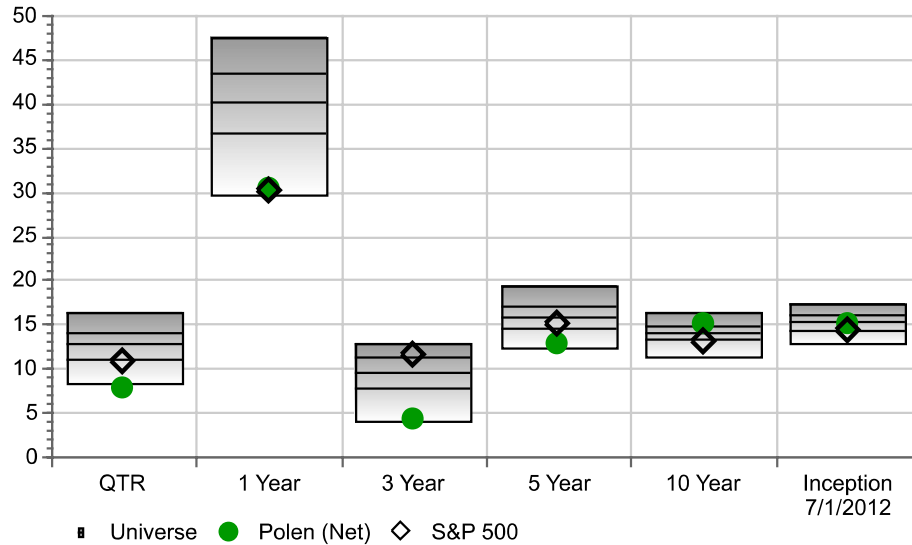


- North America 54.6%
- Europe dev 14.1%
- Asia emrg 11.2%
- Africa/Middle East 4.7%
- Latin America 4.2%
- United Kingdom 2.5%
- Japan 2.5%
- Europe emrg 2.4%
- Asia dev 2.1%
- Australasia 1.3%
- Other 0.3%

# Polen vs Universe & Benchmark

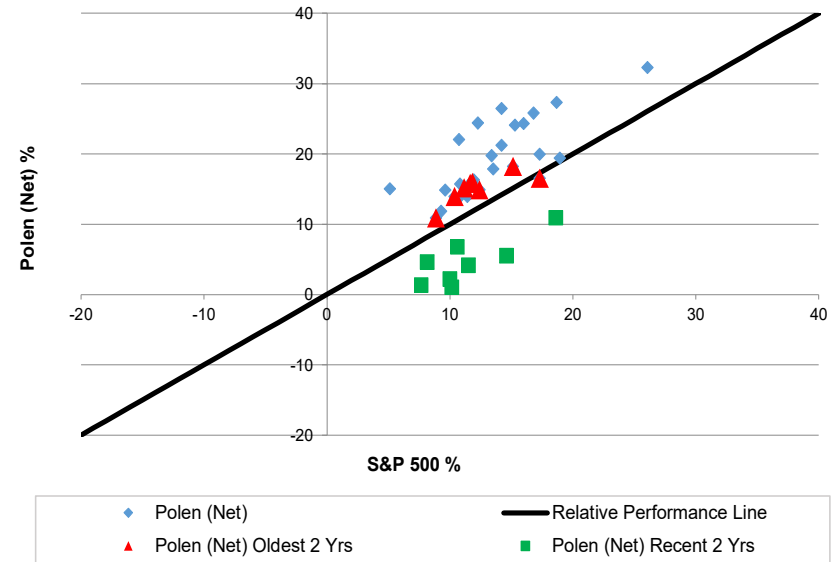
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US Large Cap Growth



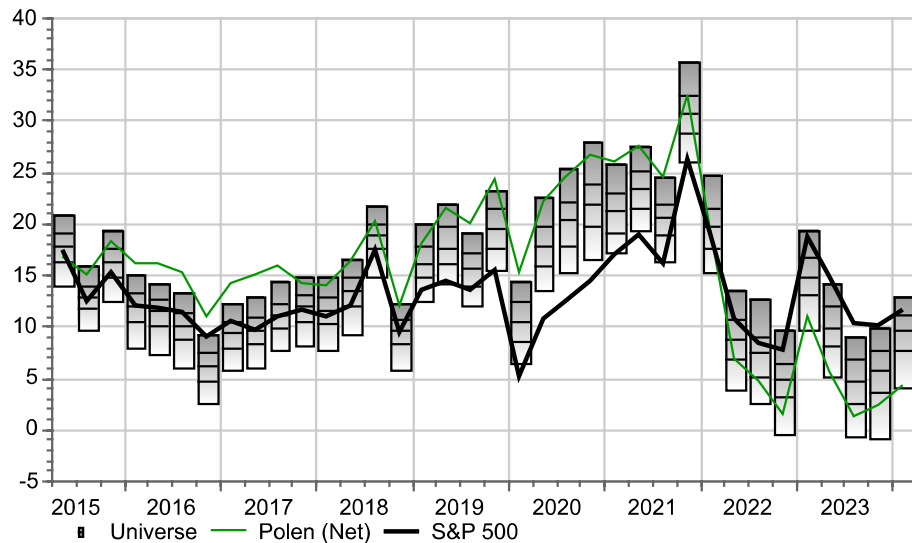
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## Three-Year Rolling Return Versus Benchmark



## Rolling Returns 7/1/2012 – 3/31/2024 (3 Year, 3 Month Shift)

Universe: Lipper US Large Cap Growth



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### Over/Under Benchmark Analysis

27 Outperform  
 9 Underperform  
 36 # Observations  
 75% % Outperform



# Polen Attribution Analysis – March 31, 2024

## Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Netflix, Inc.	5.47	4.88	1.12
Amazon.com, Inc.	9.61	6.05	1.07
Airbnb, Inc.	4.04	3.89	0.78
Salesforce, Inc.	5.52	4.85	0.68
ServiceNow, Inc.	6.54	6.17	0.60
Mastercard Incorporated	5.05	4.14	0.52
Novo Nordisk A/S	2.06	2.06	0.46
PayPal Holdings, Inc.	3.41	3.25	0.28
Visa Inc.	4.99	3.93	0.26
Alphabet Inc.	6.99	3.28	0.26

## Top 10 Leading Detractors

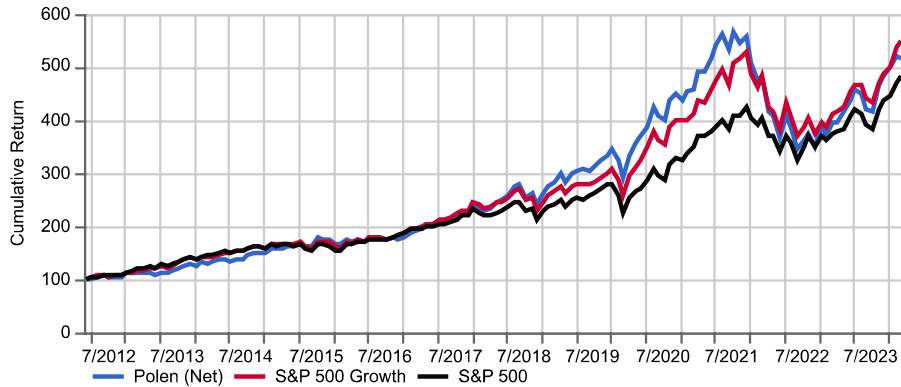
	Avg. Weights	Relative Weights	Active Return
NVIDIA Corporation	0.00	-3.78	-2.56
Meta Platforms, Inc.	0.00	-2.21	-0.76
Adobe Inc.	5.36	4.71	-0.60
Zoetis Inc.	2.83	2.61	-0.46
Berkshire Hathaway Inc.	0.00	-1.69	-0.30
NIKE, Inc.	1.91	1.60	-0.26
Broadcom Inc.	0.00	-1.28	-0.24
JPMorgan Chase & Co.	0.00	-1.24	-0.22
Exxon Mobil Corporation	0.00	-1.13	-0.19
Merck & Co., Inc.	0.00	-0.73	-0.16

## Sector Attribution

	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	3.7	14.9	15.8	0.2	-0.1	0.1
Consumer Discretionary	5.0	15.0	5.0	-0.3	1.5	1.3
Consumer Staples	-6.1	0.0	7.5	0.2	0.0	0.2
Energy	-3.8	0.0	13.7	-0.1	0.0	-0.1
Financials	0.4	9.7	12.5	0.0	-0.4	-0.4
Health Care	3.8	4.0	8.9	-0.1	-0.8	-0.9
Industrials	-8.7	0.0	11.0	0.0	0.0	0.0
Information Technology	9.3	4.8	12.7	0.3	-3.0	-2.7
Materials	-2.3	0.0	8.9	0.0	0.0	0.0
Real Estate	-2.4	0.0	-0.6	0.3	0.0	0.3
Utilities	-2.2	0.0	4.6	0.1	0.0	0.1
Cash	3.3	1.3	1.3	-0.3	0.0	-0.3
Total	0.0	8.1	10.6	0.4	-2.8	-2.4

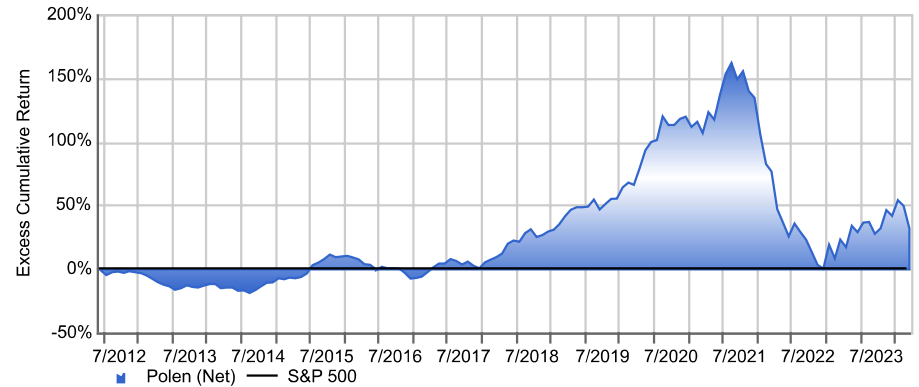
# Polen Inception Performance & Statistics

## Investment Growth Since Inception 7/1/2012



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## Relative Cumulative Performance Since Inception 7/1/2012

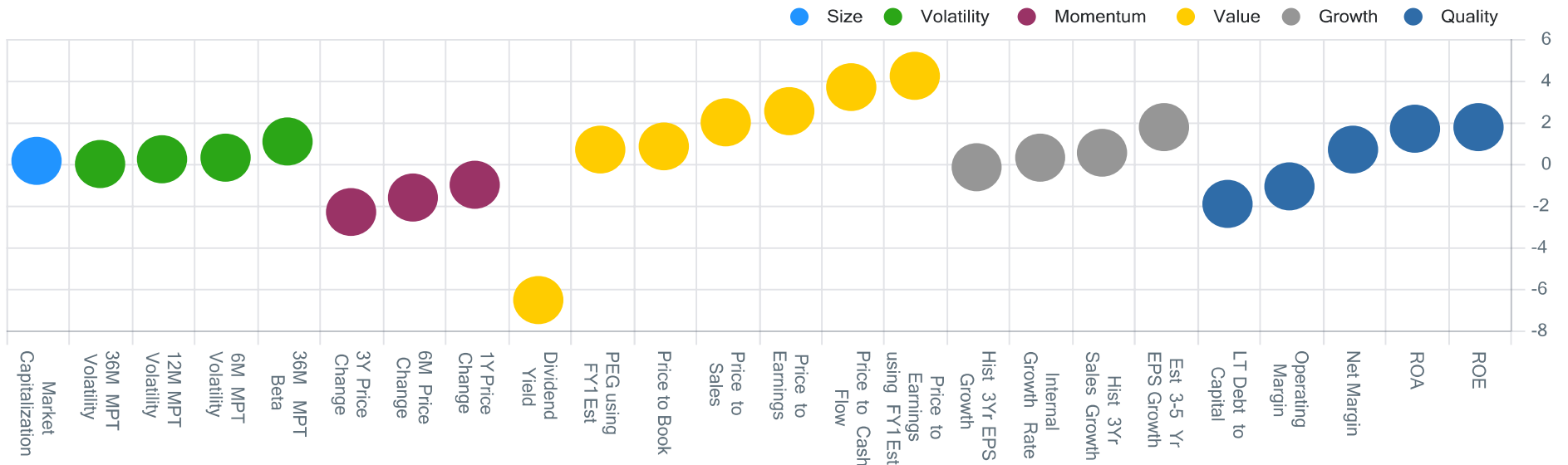


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## Risk Since Inception 7/1/2012

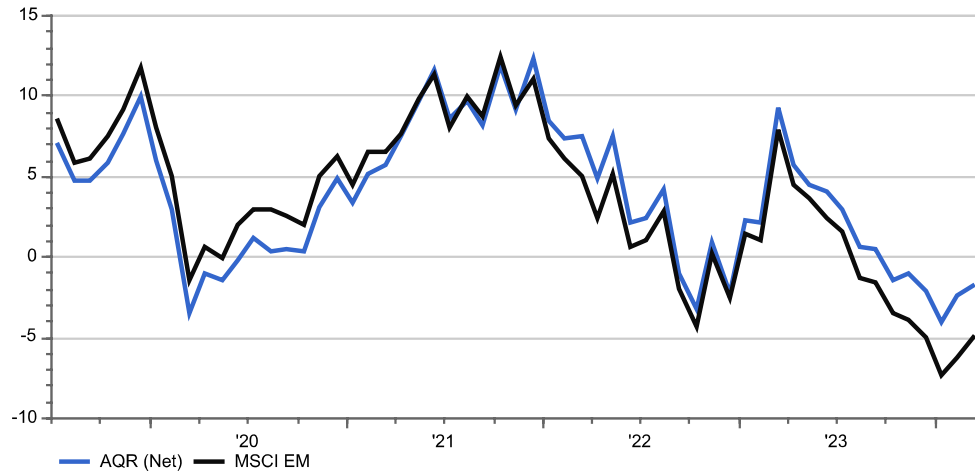
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
Polen (Net)	15.0	16.2	0.5	0.9	0.1	6.7	1.0
S&P 500	14.3	14.3	--	0.9	--	--	1.0
S&P 500 Growth	15.5	15.5	--	0.9	--	--	1.0

## Characteristics Tilt vs Benchmark 3/31/2024



# AQR Portfolio Snapshot – March 31, 2024

## Rolling Returns Since Inception 8/1/2016 (Three Year, One Month Shift)

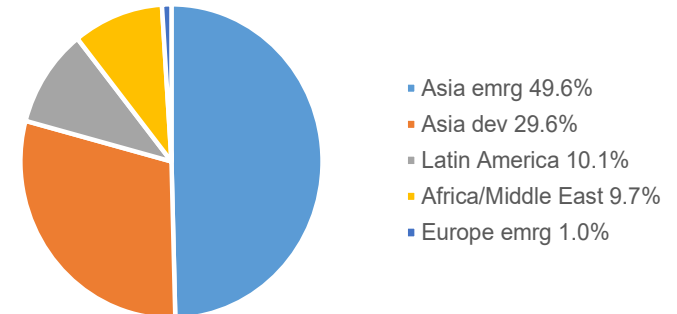


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## Top 10 Holdings

	Portfolio Weight	Quarterly Return
Taiwan Semi Mfg. Co. Ltd.	8.17	26.54
Samsung Electronics Co., Ltd.	2.67	0.86
Tencent Holdings Limited	2.33	3.25
MediaTek Inc.	1.96	15.78
China Construction Bank Corporation	1.87	15.01
Larsen & Toubro Limited	1.55	6.51
Petroleo Brasileiro S.A	1.51	-2.69
Alibaba Group Holding Limited	1.49	-7.25
Li Auto Inc.	1.40	-17.72
CEMEX, S.A.B. de C.V.	1.38	13.06

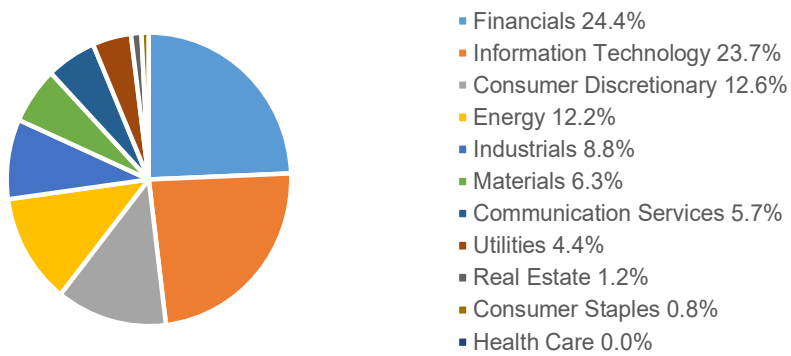
## Regional Exposure by Domicile



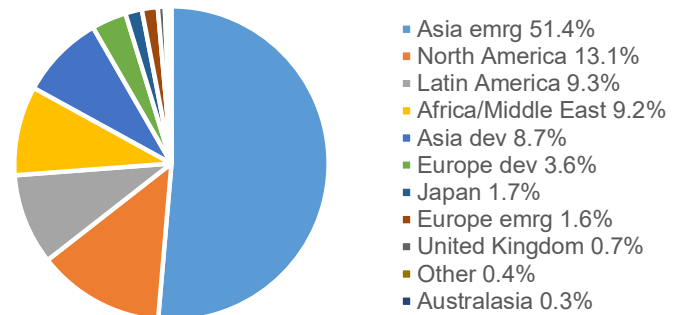
## Trailing Returns

	QTR	1 Year	3 Year	5 Year	Inception 8/1/16
AQR (Net)	6.1	18.2	-1.8	4.9	6.1
MSCI EM	2.4	8.2	-5.1	2.2	4.8

## Equity Sector Exposure (GICS)



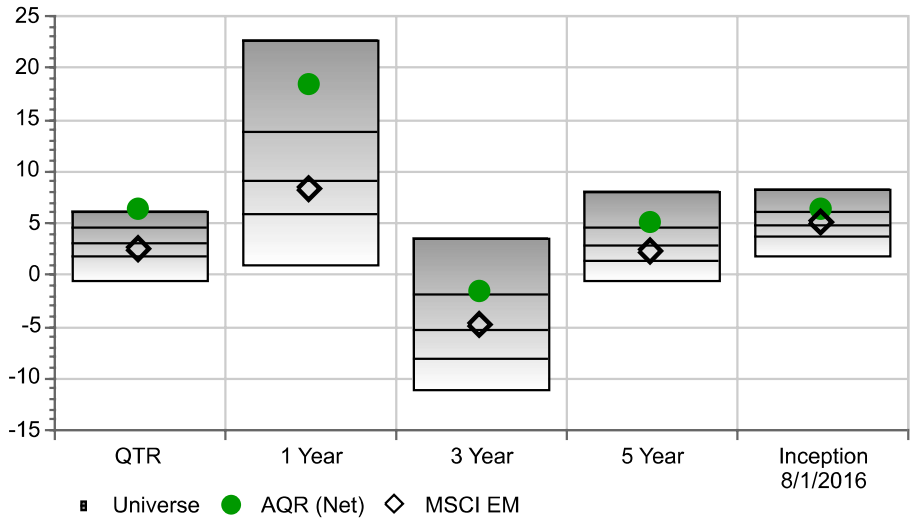
## Regional Exposure by Source of Revenue



# AQR vs Universe & Benchmark

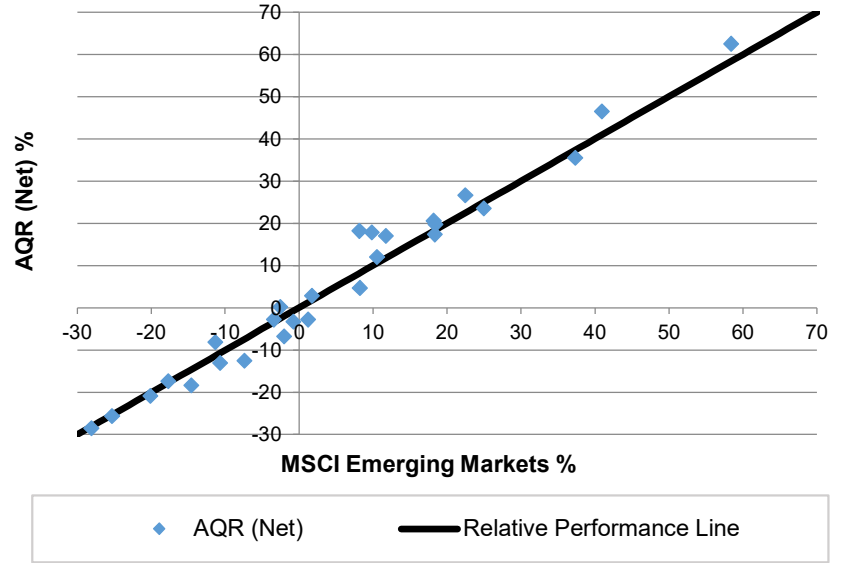
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US Emerging Markets



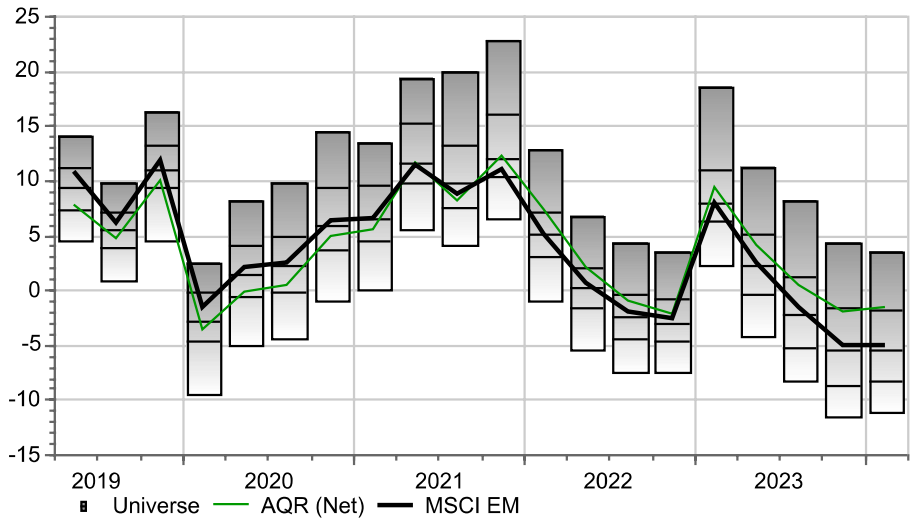
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## One-Year Rolling Return Versus Benchmark



## Rolling Returns 8/1/2016 – 3/31/2024 (3 Year, 3 Month Shift)

Universe: Lipper US Emerging Markets



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### Over/Under Benchmark Analysis

14 Outperform  
 13 Underperform  
 27 # Observations  
 52% % Outperform

## AQR Attribution Analysis – March 31, 2024

### Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Oil & Natural Gas Corp. Ltd.	1.31	1.18	0.37
Bharat Petroleum Corp. Ltd.	1.14	1.08	0.35
Indian Oil Corp. Ltd.	1.20	1.12	0.32
Power Grid Corp. of India Ltd.	1.35	1.14	0.21
Industrial Bank Of Korea	1.11	1.07	0.18
Hana Financial Group Inc.	0.65	0.49	0.17
ASE Technology Holding Co., Ltd.	1.29	1.09	0.15
Kia Corp.	1.41	1.09	0.15
Bank of Baroda	0.93	0.88	0.14
Hindustan Petroleum Corp. Ltd.	0.94	0.89	0.14

### Top 10 Leading Detractors

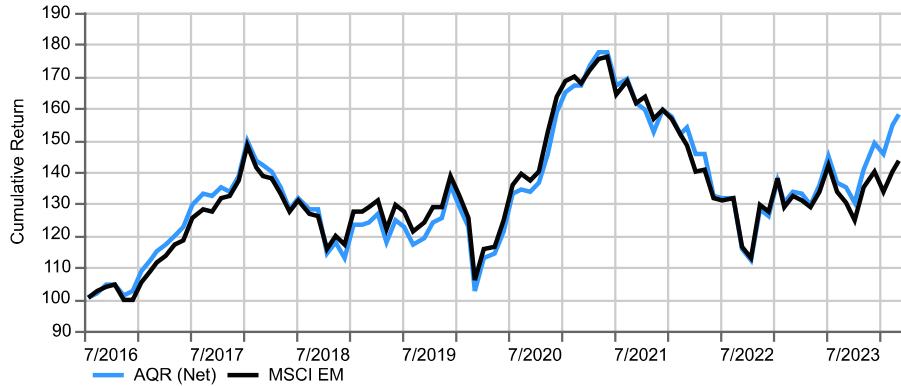
	Avg. Weights	Relative Weights	Active Return
SK hynix Inc.	0.00	-0.86	-0.21
Reliance Industries Limited	0.24	-1.23	-0.18
Exxaro Resources Limited	0.82	0.78	-0.18
Sunny Optical Technology (Group) Co. Ltd.	0.54	0.47	-0.15
Silergy Corp.	0.34	0.27	-0.12
Old Mutual Limited	0.72	0.67	-0.10
Sasol Limited	0.51	0.44	-0.10
NetEase, Inc.	0.00	-0.56	-0.09
Meituan	0.25	-0.45	-0.09
China National Building Material Co. Ltd.	0.40	0.37	-0.08

### Sector Attribution

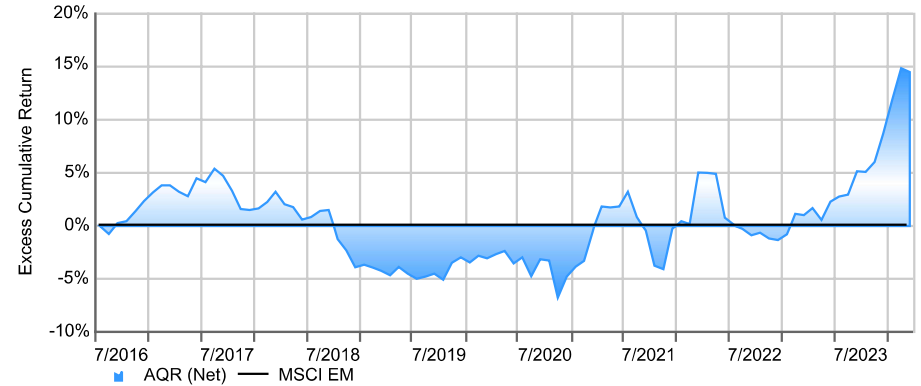
	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	-3.5	-0.7	0.7	0.1	-0.1	0.0
Consumer Discretionary	-2.8	-2.3	-0.5	0.1	-0.1	-0.1
Consumer Staples	-4.9	-5.6	-4.3	0.4	0.0	0.3
Energy	6.7	13.2	6.9	0.3	0.8	1.1
Financials	3.3	5.0	2.3	0.1	0.9	0.8
Health Care	-3.4	-15.6	-4.5	0.2	0.0	0.2
Industrials	2.9	1.7	1.5	0.0	-0.1	0.0
Information Technology	0.0	13.8	9.9	0.0	0.9	0.9
Materials	0.4	-0.4	-4.6	-0.1	0.3	0.3
Real Estate	-0.4	-10.1	-6.0	0.0	-0.1	0.0
Utilities	1.6	11.7	3.6	0.0	0.3	0.3
Total	0.0	6.2	2.4	1.1	2.8	3.8

# AQR Inception Performance & Statistics

## Investment Growth Since Inception 8/1/2016



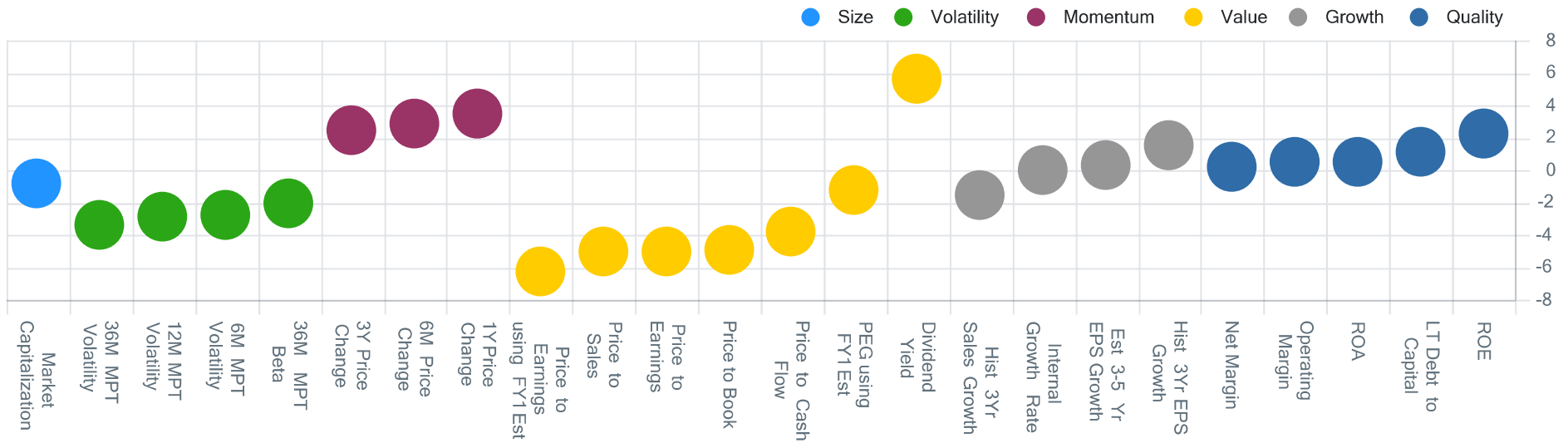
## Relative Cumulative Performance Since Inception 8/1/2016



## Risk Since Inception 8/1/2016

	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
AQR (Net)	6.1	17.6	1.3	0.2	0.4	3.5	1.0
MSCI EM	4.8	17.1	--	0.2	--	--	1.0

## Characteristics Tilt vs Benchmark 3/31/2024



# Brandes Portfolio Snapshot – March 31, 2024

## Rolling Returns Since Inception 2/1/1998 (Ten Year, One Month Shift)



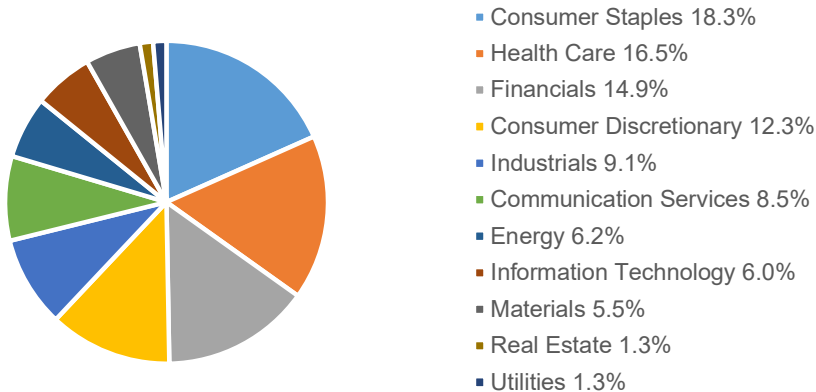
## Top 10 Holdings

	Portfolio Weight	Quarterly Return
Rolls-Royce Holdings plc	3.56	41.09
Embraer S.A.	2.81	44.37
Takeda Pharmaceutical Company Limited	2.79	-1.70
Heineken Holding N.V.	2.58	-4.53
Sanofi	2.55	-0.92
Heidelberg Materials AG	2.49	23.15
Alibaba Group Holding Limited	2.46	-7.29
Intesa Sanpaolo S.p.A.	2.45	24.38
UBS Group AG	2.27	-0.68
SAP SE	2.26	26.50

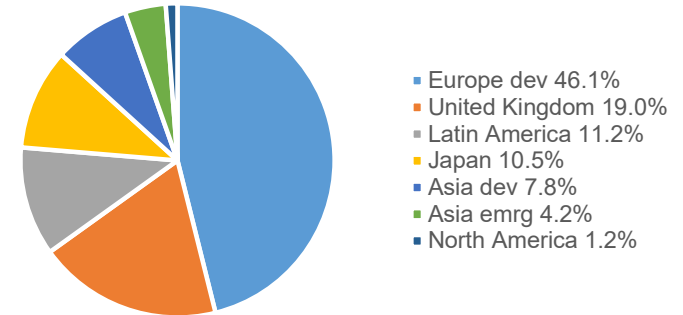
## Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
Brandes (Net)	5.2	24.0	10.2	9.0	5.4	8.7
MSCI EAFE	5.8	15.3	4.8	7.3	4.8	8.4
MSCI EAFE Value	4.5	17.3	6.6	6.4	3.5	7.5

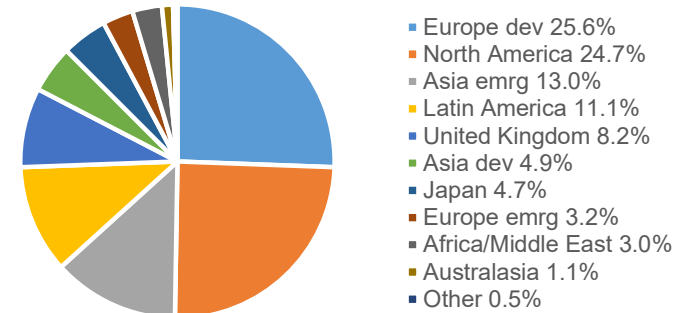
## Equity Sector Exposure (GICS)



## Regional Exposure by Domicile



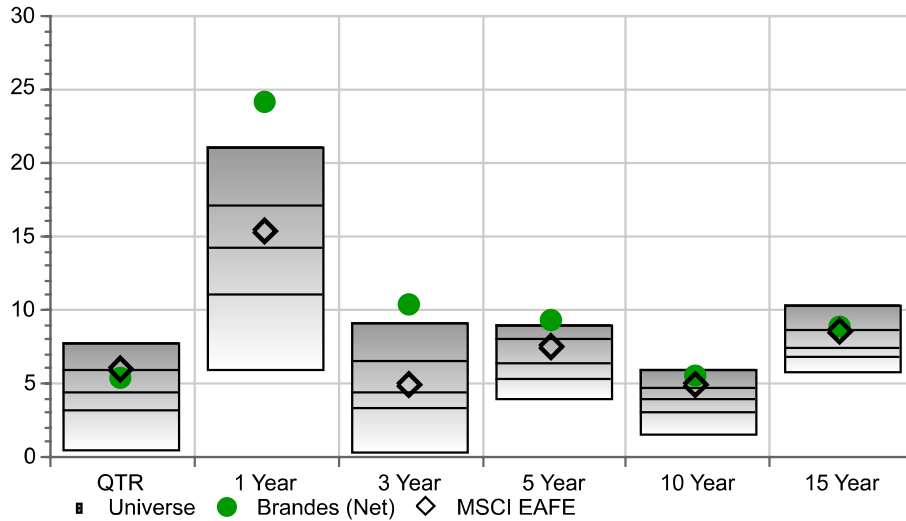
## Regional Exposure by Source of Revenue



# Brandes vs Universe & Benchmark

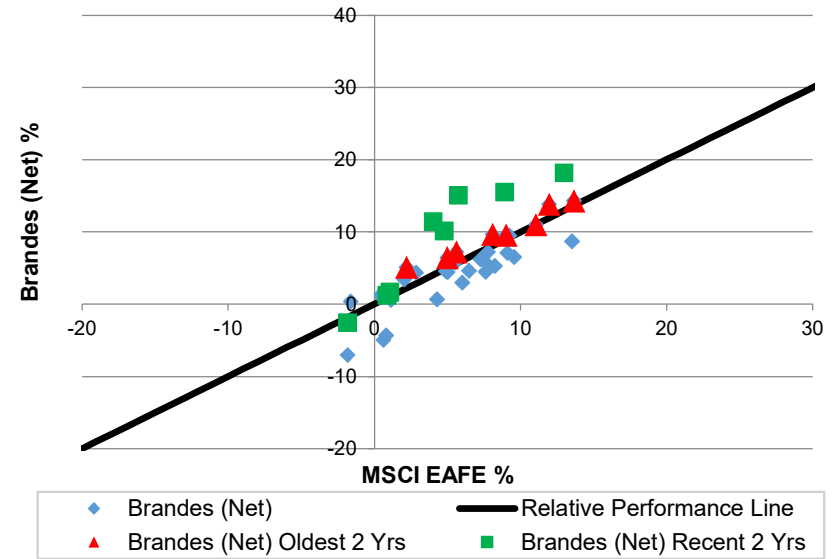
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US Int'l Multi-Cap Value



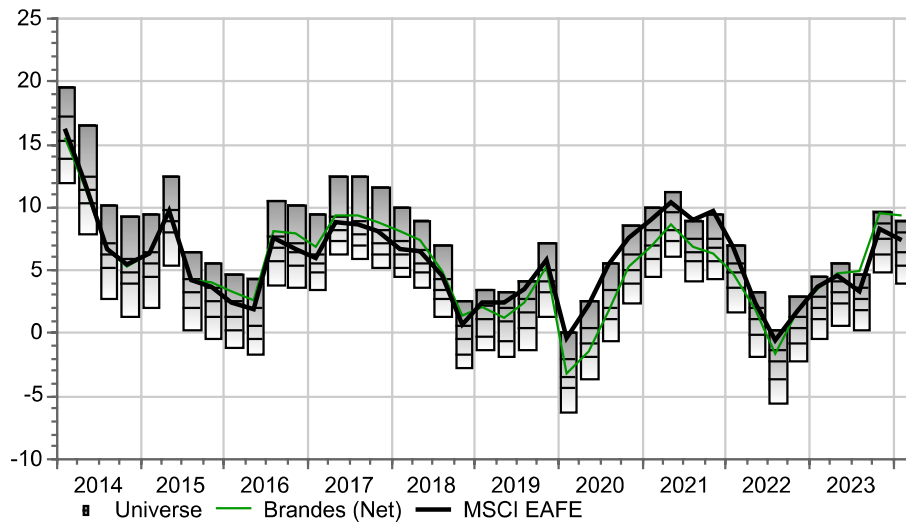
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## Three-Year Rolling Return Versus Benchmark



## Rolling Returns 7/1/2008 – 3/31/2024 (5 Year, 3 Month Shift)

Universe: Lipper US Int'l Multi Cap Value



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### Over/Under Benchmark Analysis

<b>21</b>	Outperform
<b>19</b>	Underperform
<b>40</b>	# Observations
<b>53%</b>	% Outperform



# Brandes Attribution Analysis – March 31, 2024

## Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Rolls-Royce Holdings plc	3.22	3.01	1.18
Embraer S.A.	2.35	2.35	1.02
Taiwan Semi Mfg. Co. Ltd.	2.09	2.09	0.54
Heidelberg Materials AG	2.37	2.29	0.51
Intesa Sanpaolo S.p.A.	2.20	1.90	0.45
Buzzi SpA	1.46	1.46	0.40
SAP SE	2.37	1.27	0.34
MS&AD Insurance Group Holdings, Inc.	0.91	0.80	0.32
GSK plc	2.31	1.82	0.32
Publicis Groupe SA	1.72	1.58	0.29

## Top 10 Leading Detractors

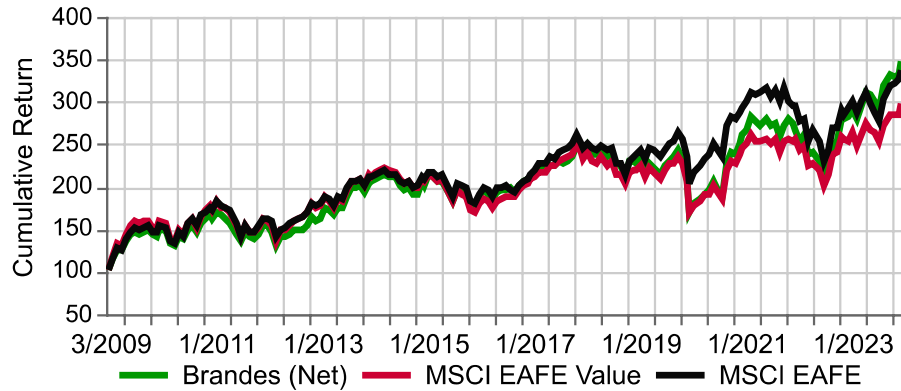
	Avg. Weights	Relative Weights	Active Return
Grifols, S.A.	1.65	1.63	-1.02
Koninklijke Philips N.V.	1.82	1.72	-0.27
Swatch Group AG	1.69	1.63	-0.25
Fresenius SE & Co. KGaA	1.47	1.40	-0.20
Alibaba Group Holding Limited	2.47	2.47	-0.19
J Sainsbury plc	1.43	1.40	-0.19
Anheuser-Busch InBev SA/NV	2.41	2.06	-0.19
Telecom Italia S.p.A.	0.60	0.58	-0.16
Carrefour SA	1.90	1.84	-0.13
Tokyo Electron Ltd.	0.00	-0.46	-0.14

## Sector Attribution

	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	3.6	4.8	4.1	0.0	-0.1	0.0
Consumer Discretionary	0.0	-0.1	11.0	0.0	-1.4	-1.3
Consumer Staples	8.5	-2.2	-3.2	-0.8	-0.1	-0.6
Energy	2.2	-1.1	2.2	-0.1	-0.2	-0.3
Financials	-3.3	15.4	8.6	-0.1	1.1	0.9
Health Care	4.2	-7.7	4.7	0.0	-2.3	-2.3
Industrials	-8.7	31.8	7.8	-0.2	1.7	1.7
Information Technology	-3.0	19.7	14.2	-0.2	0.2	0.1
Materials	-2.2	22.0	-1.2	0.2	1.0	1.3
Real Estate	-0.9	-6.4	1.3	0.0	-0.2	-0.1
Utilities	-1.9	-4.7	-5.1	0.3	0.0	0.2
Cash	1.6	2.5	0.0	-0.1	0.0	-0.1
Total	0.0	5.3	5.8	-1.2	-0.3	-0.5

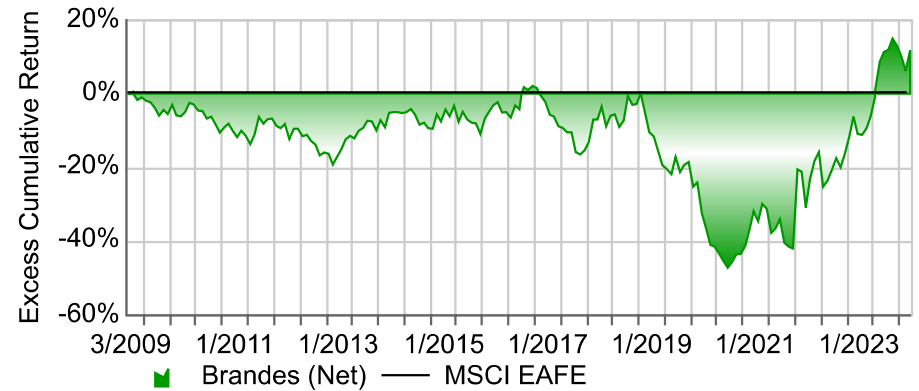
# Brandes 15 Year Performance & Statistics

## Investment Growth – 15 Years



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## Relative Cumulative Performance – 15 Years



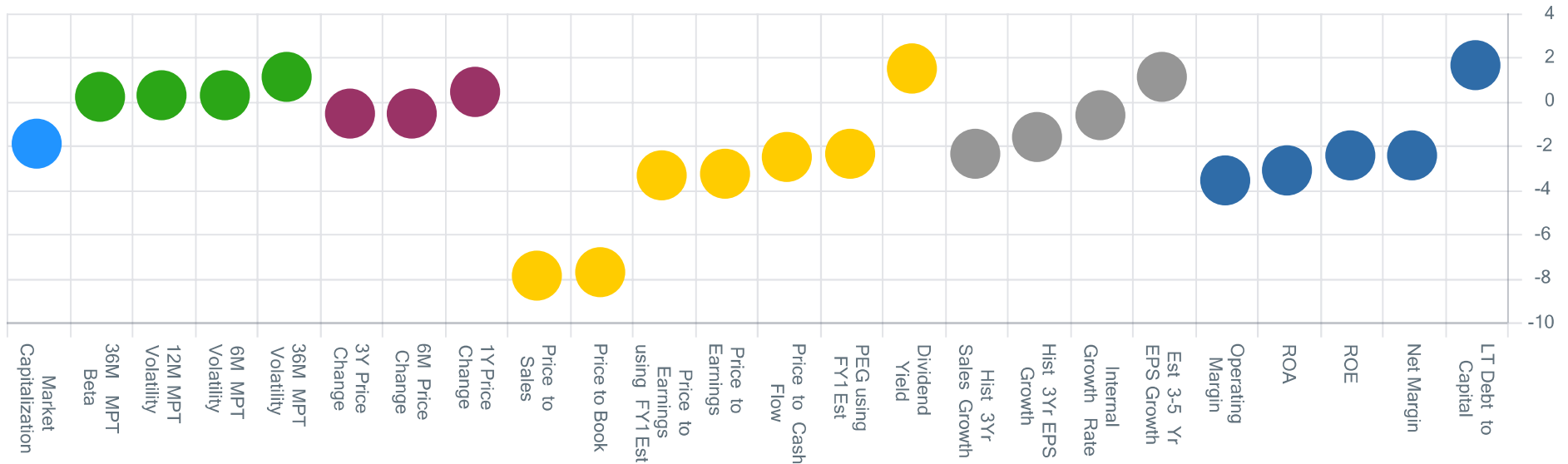
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## Risk – 15 Years

	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
Brandes (Net)	8.7	17.1	0.4	0.5	0.0	5.3	1.0
MSCI EAFE	8.4	16.3	--	0.5	--	--	1.0
MSCI EAFE Value	7.5	17.6	--	0.4	--	--	1.1

## Characteristics Tilt vs Benchmark 3/31/2024

● Size ● Volatility ● Momentum ● Value ● Growth ● Quality



# DFA International Portfolio Snapshot – March 31, 2024

## Rolling Returns Since Inception 5/1/2006 (Ten Year, One Month Shift)



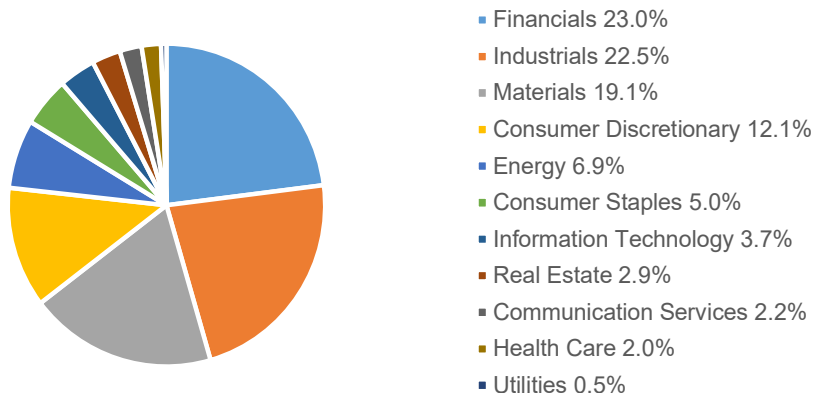
## Top 10 Holdings

	Portfolio Weight	Quarterly Return
Banco de Sabadell, S.A.	1.32	27.64
Leonardo SpA	1.16	52.06
Alamos Gold Inc	0.84	9.78
Celestica Inc.	0.79	53.40
Crescent Point Energy Corp.	0.77	19.23
Vistry Group plc	0.76	32.85
Jyske Bank A/S	0.76	19.70
Banco BPM S.p.A.	0.76	25.47
Helvetia Holding AG	0.75	-0.01
ASR Nederland N.V.	0.69	3.75

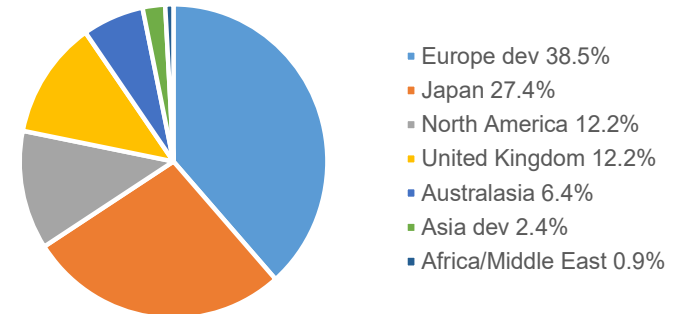
## Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
DFA Int'l Small Cap (Net)	5.3	16.2	6.2	7.8	4.5	10.0
MSCI EAFE Small Cap	2.4	10.4	-1.4	4.9	4.7	9.8
MSCI World ex US Small Cap Value	2.9	12.9	2.2	5.8	4.1	10.1

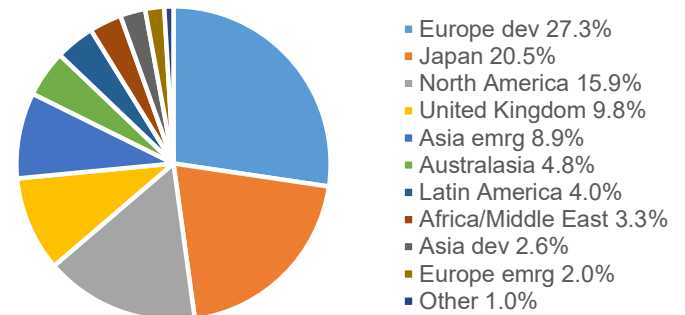
## Equity Sector Exposure (GICS)



## Regional Exposure by Domicile



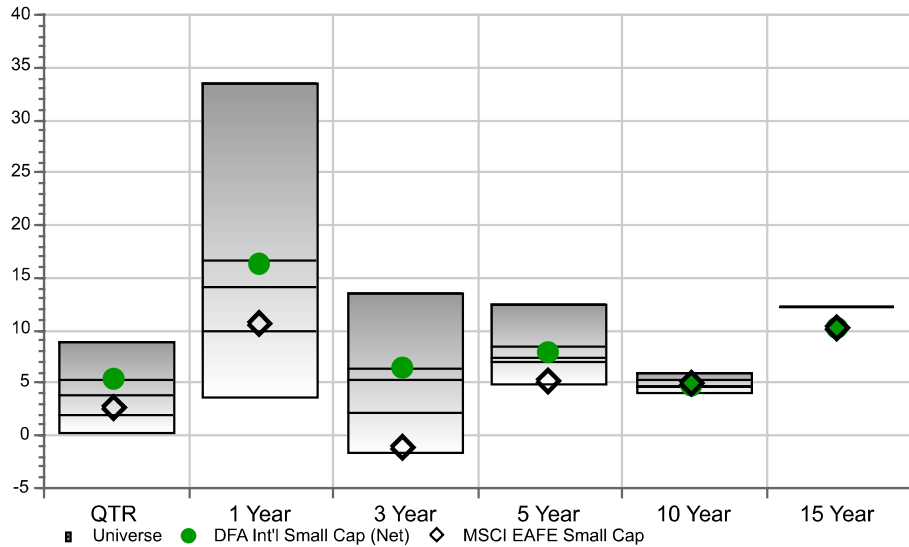
## Regional Exposure by Source of Revenue



# DFA International vs Universe & Benchmark

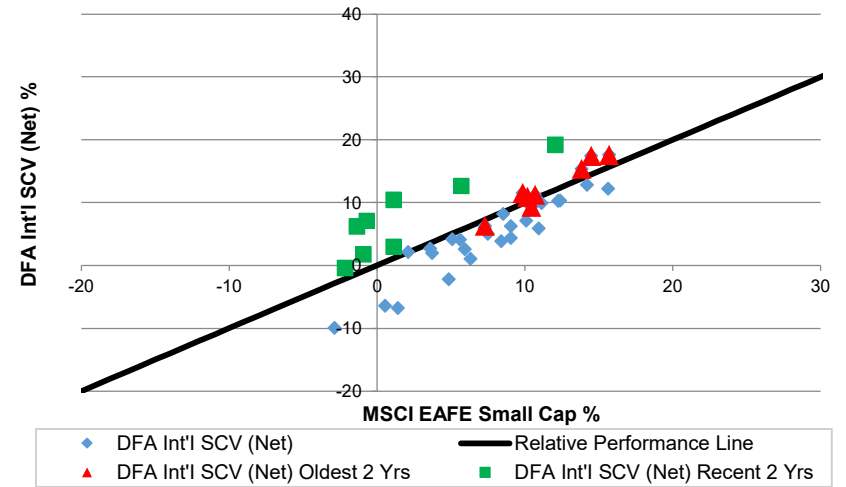
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US: Int'l Sm/Mid Cap Value



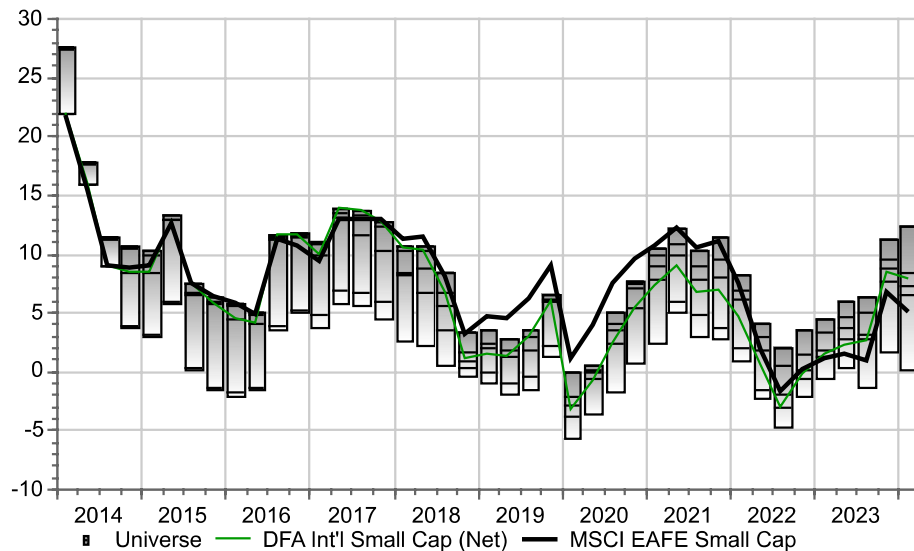
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## Three-Year Rolling Return Versus Benchmark



## Rolling Returns 7/1/2008 – 3/31/2024 (5 Year, 3 Month Shift)

Universe: Lipper US: Int'l Sm/Mid Cap Value



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## Over/Under Benchmark Analysis

<b>15</b>	Outperform
<b>25</b>	Underperform
<b>40</b>	# Observations
<b>38%</b>	% Outperform

# DFA International Attribution Analysis – March 31, 2024

## Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Leonardo SpA	0.94	0.94	0.46
Celestica Inc.	0.75	0.75	0.34
Banco de Sabadell, S.A.	1.11	0.83	0.23
Banco BPM S.p.A.	0.85	0.85	0.20
MEG Energy Corp.	0.63	0.63	0.17
Vistry Group plc	0.63	0.47	0.15
Sydbank A/S	0.64	0.54	0.14
Crescent Point Energy Corp.	0.68	0.68	0.13
Unipol Gruppo S.p.A.	0.39	0.29	0.12
Jyske Bank A/S	0.76	0.62	0.11

## Top 10 Leading Detractors

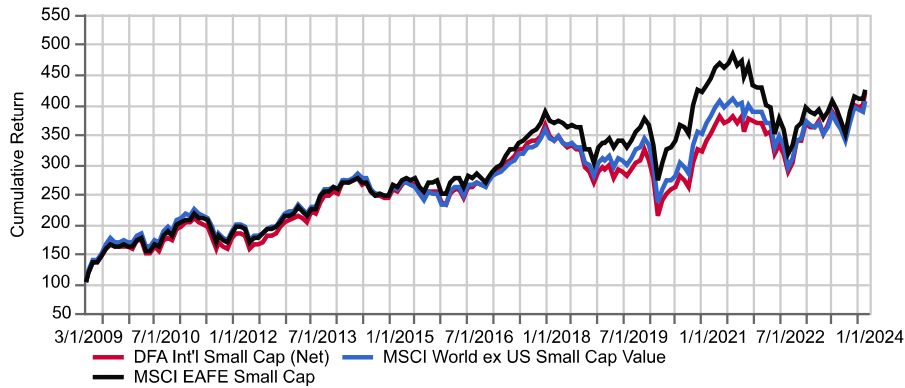
	Avg. Weights	Relative Weights	Active Return
SSR Mining Inc.	0.24	0.24	-0.28
Adecco Group AG	0.67	0.67	-0.21
SCREEN Holdings Co., Ltd.	0.00	-0.33	-0.16
Close Brothers Group plc	0.17	0.13	-0.16
Forvia SE	0.29	0.18	-0.13
B2Gold Corp.	0.37	0.37	-0.12
Ebara Corporation	0.00	-0.25	-0.12
Asics Corporation	0.00	-0.22	-0.11
Telecom Italia S.p.A.	0.34	0.34	-0.10
thyssenkrupp AG	0.35	0.21	-0.10

## Sector Attribution

	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	-1.7	-2.3	1.1	0.0	-0.1	-0.1
Consumer Discretionary	-0.7	4.6	3.1	0.0	0.1	0.2
Consumer Staples	-1.3	1.9	1.5	0.0	0.0	0.0
Energy	3.6	8.7	4.7	0.1	0.2	0.3
Financials	10.5	10.6	9.0	0.6	0.3	1.0
Health Care	-4.2	0.9	-1.6	0.2	0.1	0.2
Industrials	-0.2	7.4	4.4	0.0	0.6	0.7
Information Technology	-6.3	7.6	1.9	0.0	0.2	0.3
Materials	9.3	2.1	0.9	-0.1	0.1	0.1
Real Estate	-7.0	-6.7	-4.0	0.5	-0.1	0.4
Utilities	-1.8	-3.7	-0.2	0.1	0.0	0.0
Total	0.0	5.7	2.5	1.4	1.4	3.1

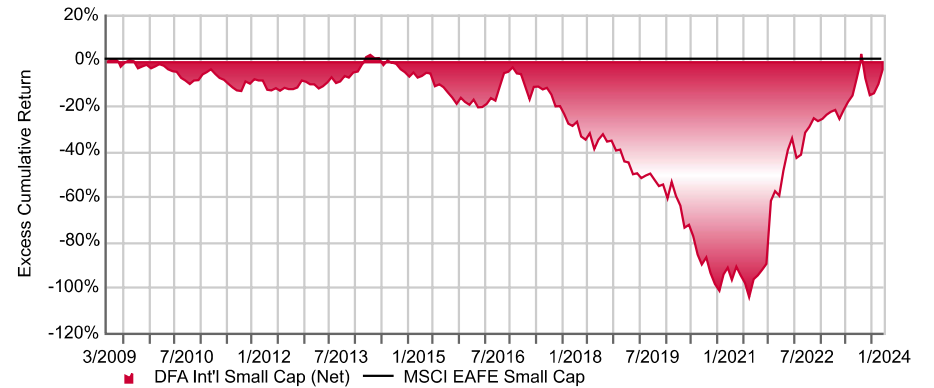
# DFA International Inception Performance & Statistics

## Investment Growth – 15 Years



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## Relative Cumulative Performance – 15 Years

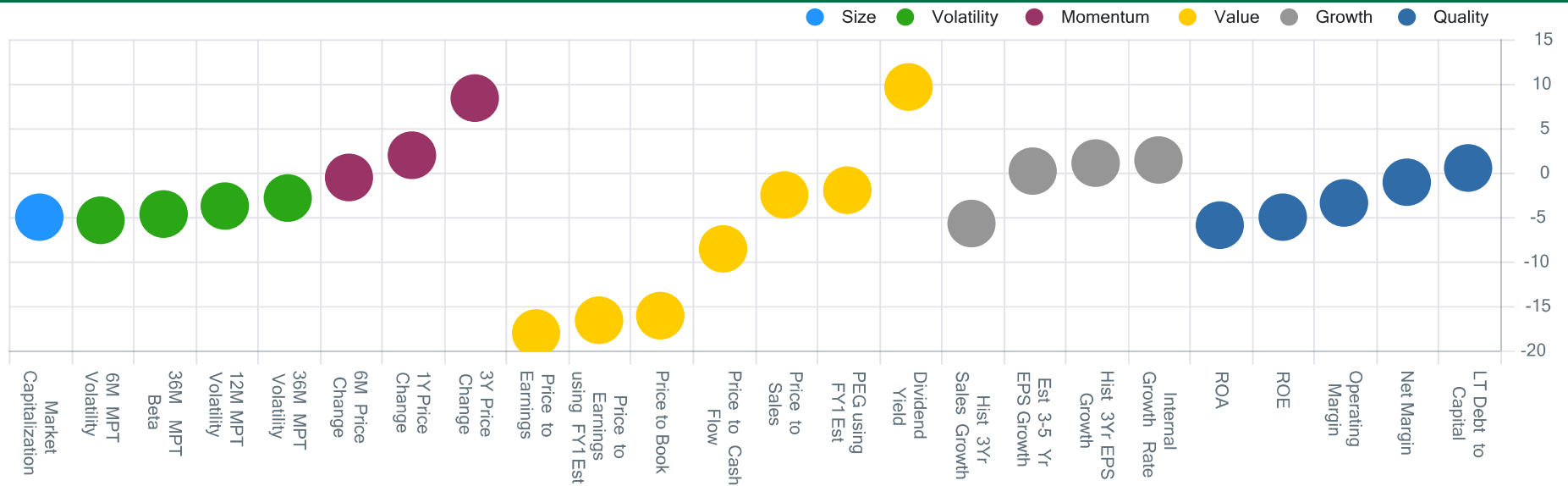


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## Risk – 15 Years

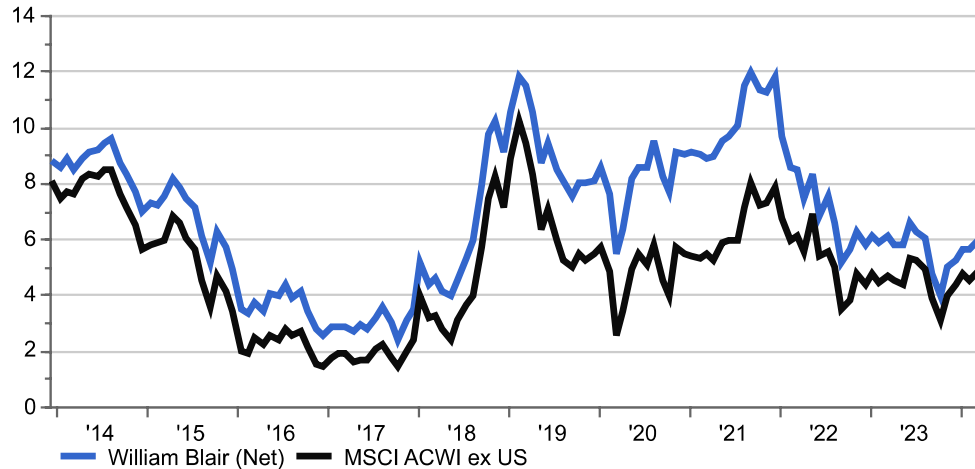
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
DFA Int'l Small Cap (Net)	10.0	18.7	-0.2	0.5	0.0	4.5	1.0
MSCI EAFE Small Cap	9.8	17.5	--	0.5	--	--	1.0
MSCI World ex US Small Cap Value	10.1	18.1	--	0.5	--	--	1.0

## Characteristics Tilt vs Benchmark 3/31/2024



# William Blair Portfolio Snapshot – March 31, 2024

## Rolling Returns Since Inception 1/1/2004 (Ten Year, One Month Shift)



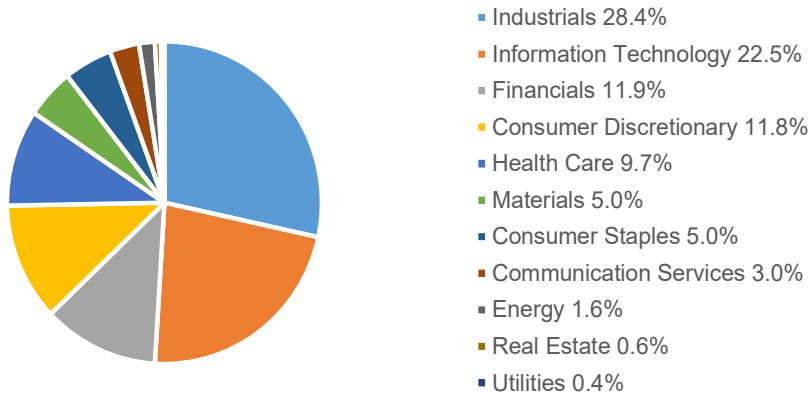
## Top 10 Holdings

	Portfolio Weight	Quarterly Return
ASML Holding NV	2.35	28.17
Novo Nordisk A/S	2.30	24.25
Taiwan Semi Mfg. Co. Ltd.	1.88	26.54
Airbus SE	1.59	19.41
Safran SA	1.47	28.79
London Stock Exchange Group plc	1.42	1.40
Keyence Corporation	1.39	4.50
Tokyo Electron Ltd.	1.28	46.76
Linde Plc	1.24	13.39
Canadian Pacific Kansas City Limited	1.24	11.70

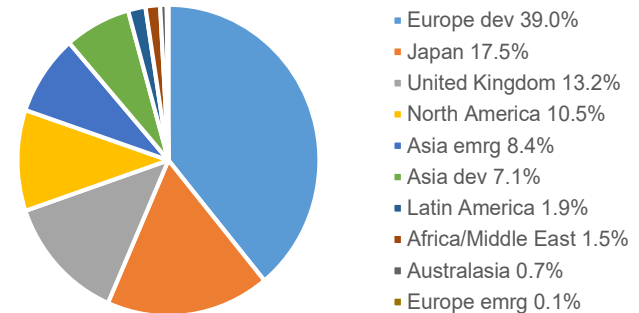
## Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
William Blair (Net)	6.8	14.0	-0.1	8.3	5.9	10.3
MSCI ACWI ex US	4.8	13.8	2.4	6.5	4.7	8.4
MSCI ACWI ex US Growth	6.0	11.5	-0.5	6.6	5.5	8.7

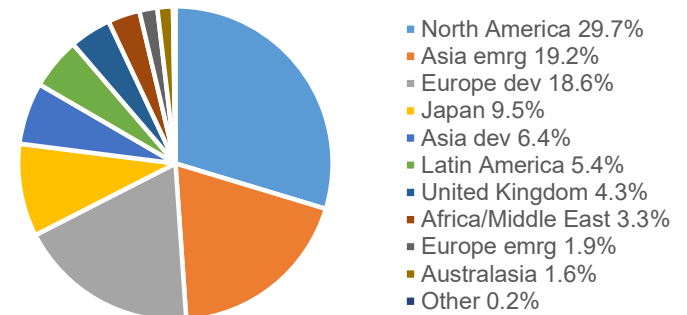
## Equity Sector Exposure (GICS)



## Regional Exposure by Domicile



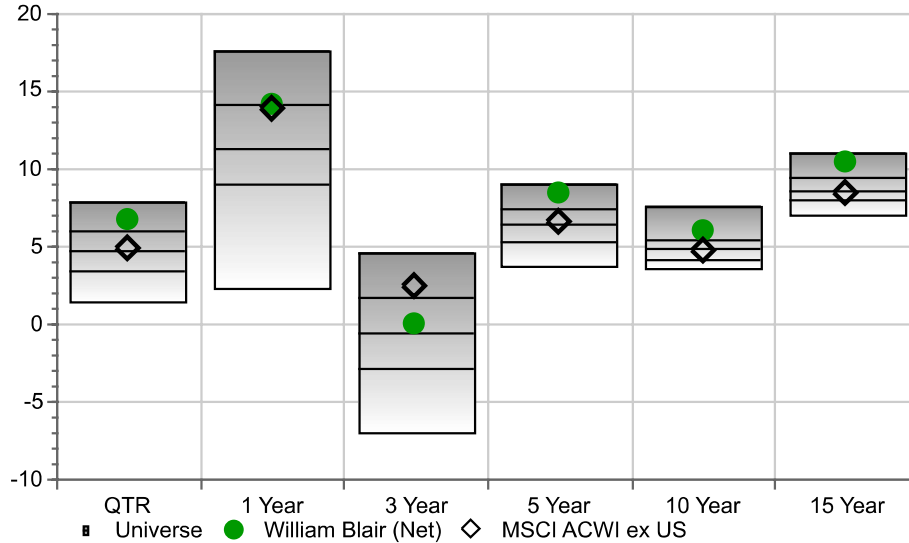
## Regional Exposure by Source of Revenue



# William Blair vs Universe & Benchmark

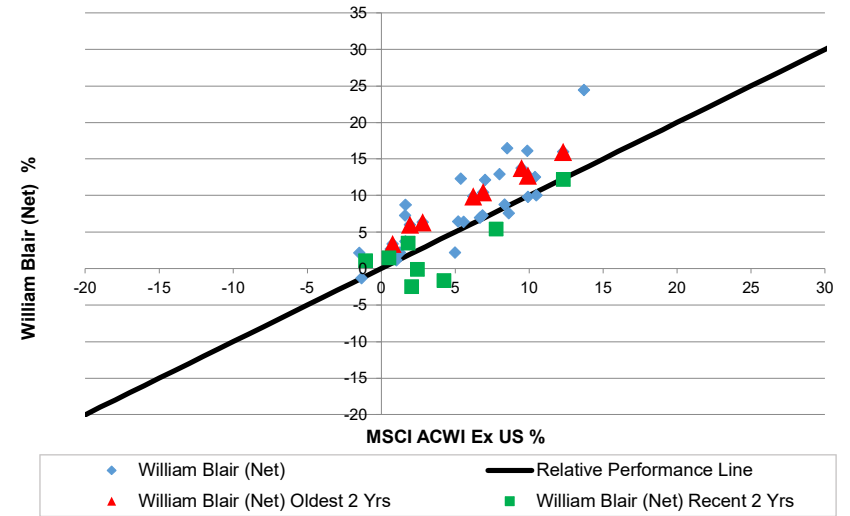
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US:International Multi-Cap Growth



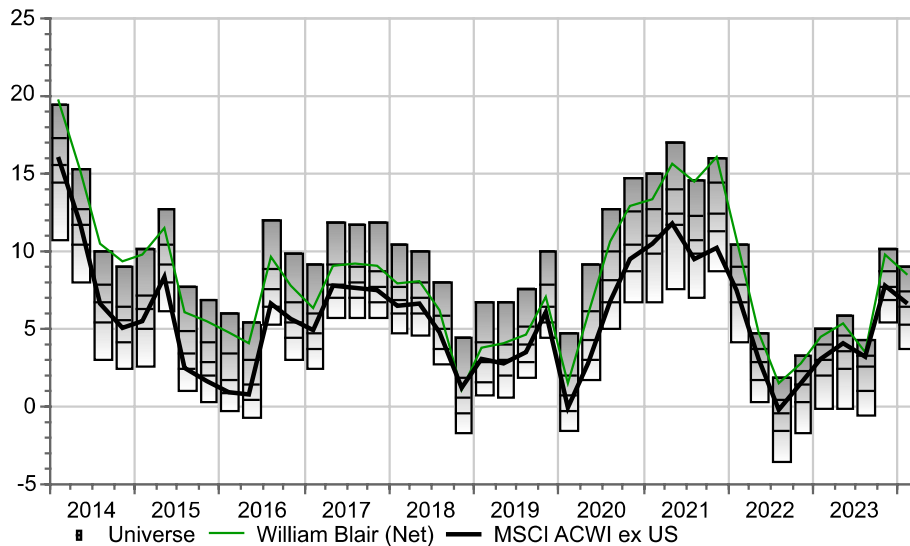
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## Three-Year Rolling Return Versus Benchmark



## Rolling Returns 7/1/2008 – 3/31/2024 (5 Year, 3 Month Shift)

Universe: Lipper US:International Multi-Cap Growth



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## Over/Under Benchmark Analysis

<b>31</b>	Outperform
<b>9</b>	Underperform
<b>40</b>	# Observations
<b>78%</b>	% Outperform



## William Blair Attribution Analysis – March 31, 2024

### Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
DISCO Corporation	0.78	0.68	0.33
Safran SA	1.30	1.04	0.29
Tokyo Electron Ltd.	1.05	0.67	0.28
ASML Holding NV	2.19	0.83	0.22
Airbus SE	1.45	1.08	0.20
Tokio Marine Holdings, Inc.	1.00	0.80	0.20
ICON plc	0.98	0.98	0.18
SCREEN Holdings Co., Ltd.	0.36	0.36	0.17
Japan Exchange Group, Inc.	0.66	0.61	0.17
Sumitomo Mitsui Financial Group, Inc.	1.02	0.76	0.16

### Top 10 Leading Detractors

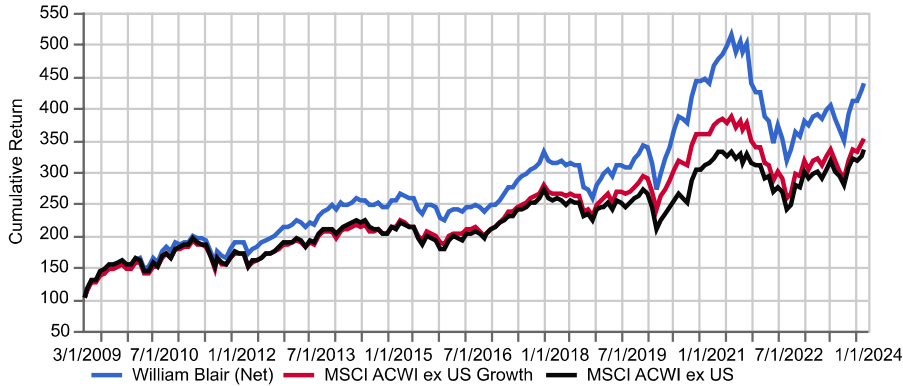
	Avg. Weights	Relative Weights	Active Return
lululemon athletica inc.	0.74	0.74	-0.19
Dassault Systemes S.A.	1.40	1.27	-0.11
SHIFT, Inc.	0.20	0.20	-0.10
Infineon Technologies AG	0.65	0.46	-0.09
BayCurrent Consulting, Inc.	0.15	0.14	-0.08
AIA Group Limited	0.70	0.33	-0.08
TechnoPro Holdings, Inc.	0.27	0.27	-0.07
Amadeus IT Group SA	0.73	0.61	-0.07
Taiwan Semi Mfg. Co. Ltd.	1.72	-0.28	-0.07
InMode Ltd.	0.07	0.07	-0.10

### Sector Attribution

	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	-2.4	12.7	2.1	0.1	0.3	0.4
Consumer Discretionary	0.2	6.7	7.2	0.0	-0.2	0.0
Consumer Staples	-2.3	-3.2	-3.2	0.2	0.0	0.2
Energy	-3.7	4.0	5.3	0.0	0.0	-0.1
Financials	-7.6	6.9	5.9	-0.1	0.2	0.0
Health Care	-0.4	8.3	3.7	0.0	0.5	0.4
Industrials	13.5	7.0	6.9	0.4	-0.3	0.3
Information Technology	7.8	10.5	11.4	0.6	-0.2	0.3
Materials	-3.0	8.0	-1.7	0.2	0.4	0.7
Real Estate	-1.1	-5.7	-0.4	0.1	-0.1	0.0
Utilities	-2.6	-0.7	-3.0	0.2	0.0	0.2
Cash	1.5	1.3	0.0	-0.1	0.0	0.0
<b>Total</b>	<b>0.0</b>	<b>7.1</b>	<b>4.7</b>	<b>1.6</b>	<b>0.5</b>	<b>2.4</b>

# William Blair 15 Year Performance & Statistics

## Investment Growth – 15 Years



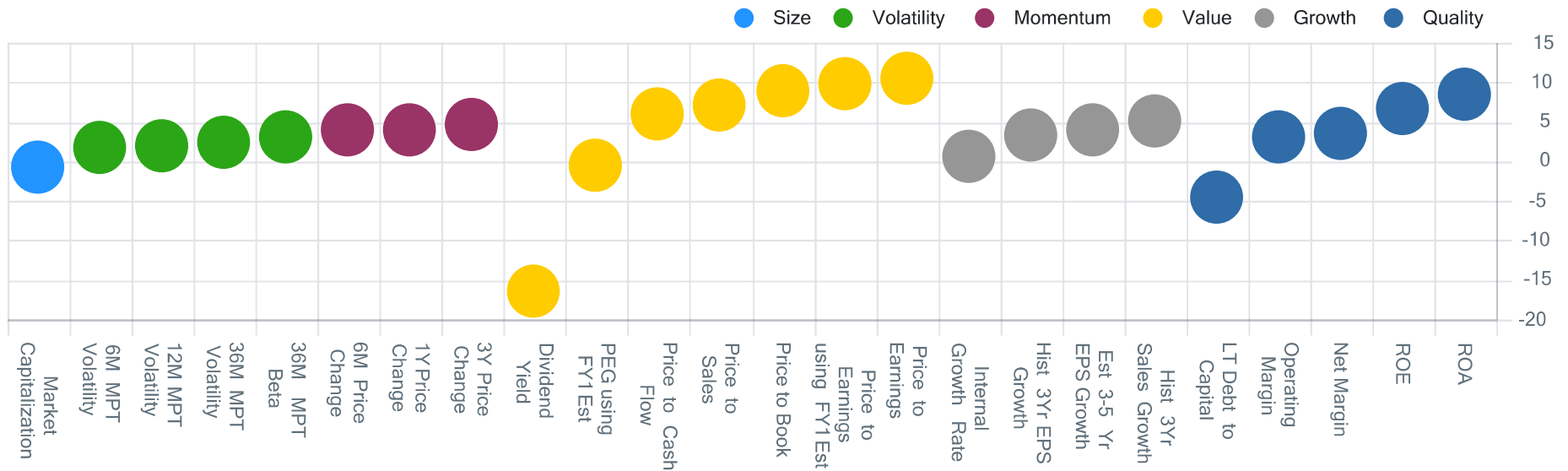
## Relative Cumulative Performance – 15 Years



## Risk – 15 Years

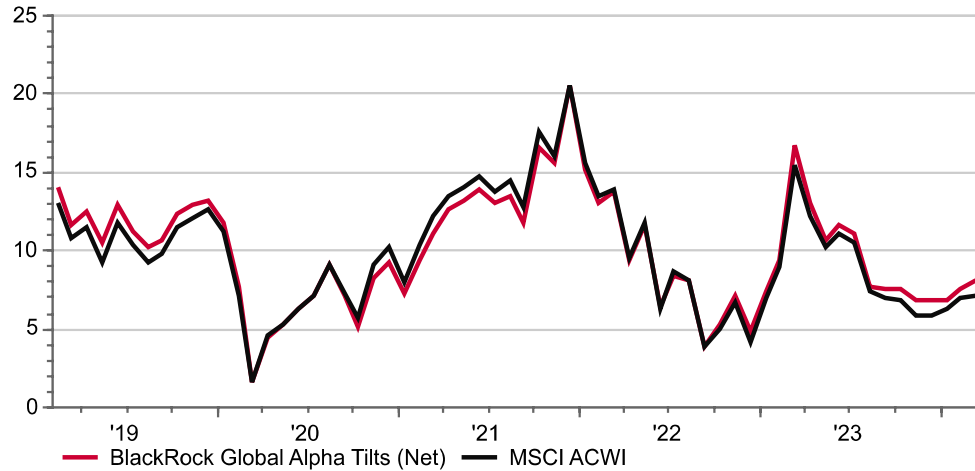
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
William Blair (Net)	10.3	16.4	2.2	0.6	0.4	5.4	1.0
MSCI ACWI ex US	8.4	16.3	--	0.5	--	--	1.0
MSCI ACWI ex US Growth	8.7	16.0	--	0.5	--	--	1.0

## Characteristics Tilt vs Benchmark 3/31/2024



# BlackRock Global Portfolio Snapshot – March 31, 2024

## Rolling Returns Since Inception 3/1/2016 (Three Year, One Month Shift)



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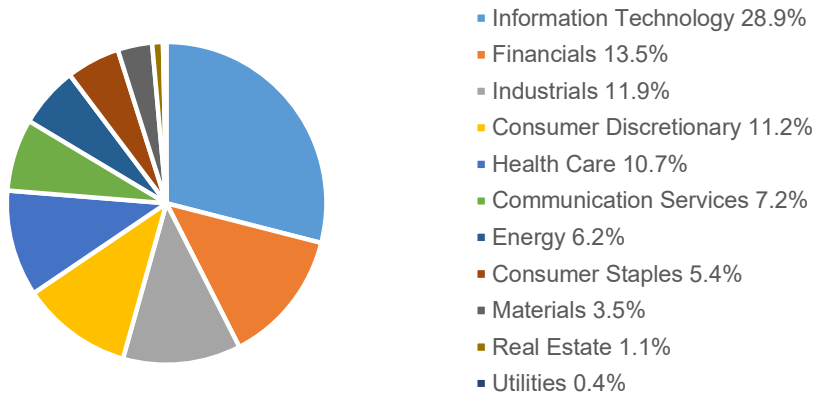
## Top 10 Holdings

	Portfolio Weight	Quarterly Return
Microsoft Corporation	5.09	12.08
Apple Inc.	4.52	-10.82
NVIDIA Corporation	3.46	82.46
Amazon.com, Inc.	3.38	18.72
Alphabet Inc.	2.22	8.04
Novo Nordisk A/S	1.72	24.25
Mastercard Incorporated	1.65	13.08
QUALCOMM Incorporated	1.33	17.65
Nestle S.A.	1.30	-8.24
Applied Materials, Inc.	1.30	27.45

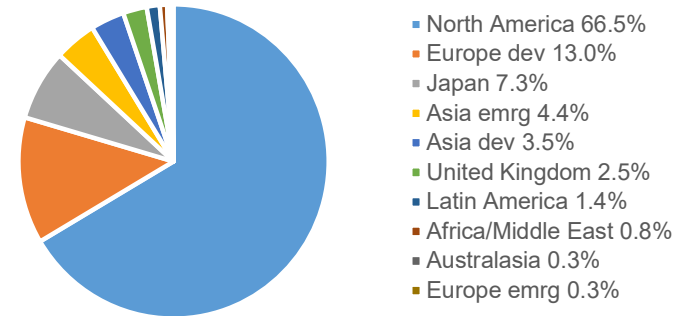
## Trailing Returns

	QTR	1 Year	3 Year	5 Year	Inception 3/1/2016
BlackRock Global Alpha Tilts (Net)	9.0	24.8	8.0	11.5	12.4
MSCI ACWI	8.2	23.2	7.0	10.9	11.7

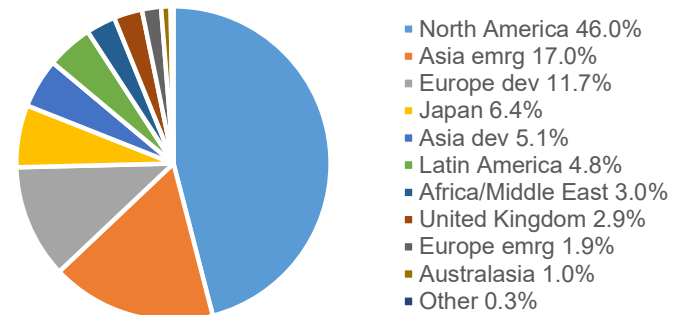
## Equity Sector Exposure (GICS)



## Regional Exposure by Domicile



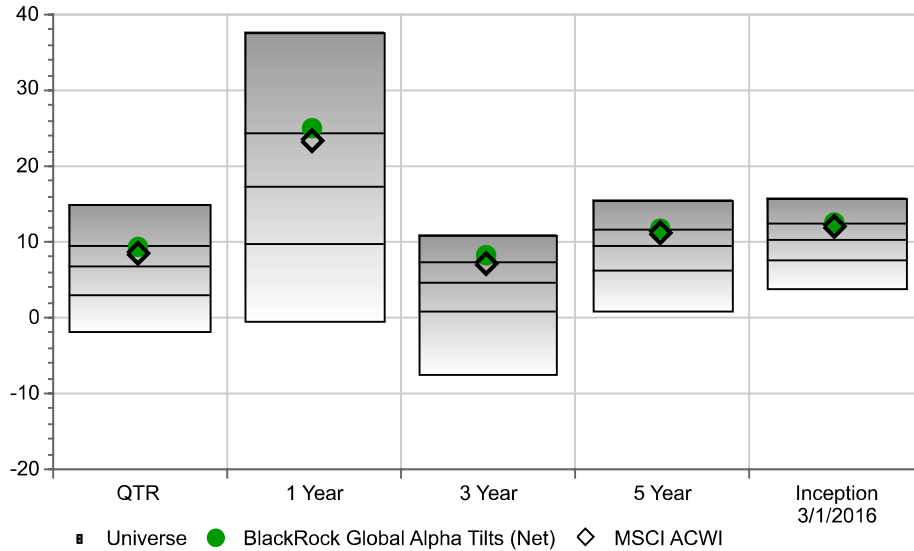
## Regional Exposure by Source of Revenue



# BlackRock Global vs Universe & Benchmark

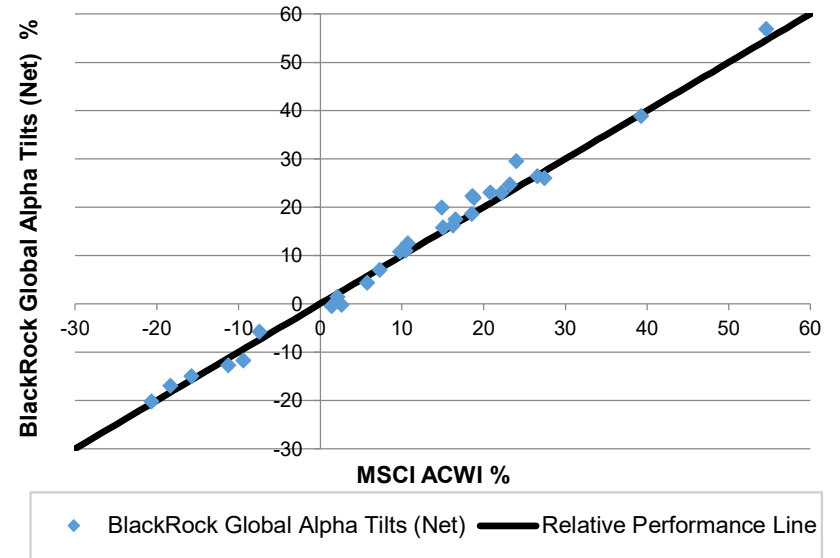
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US:Global



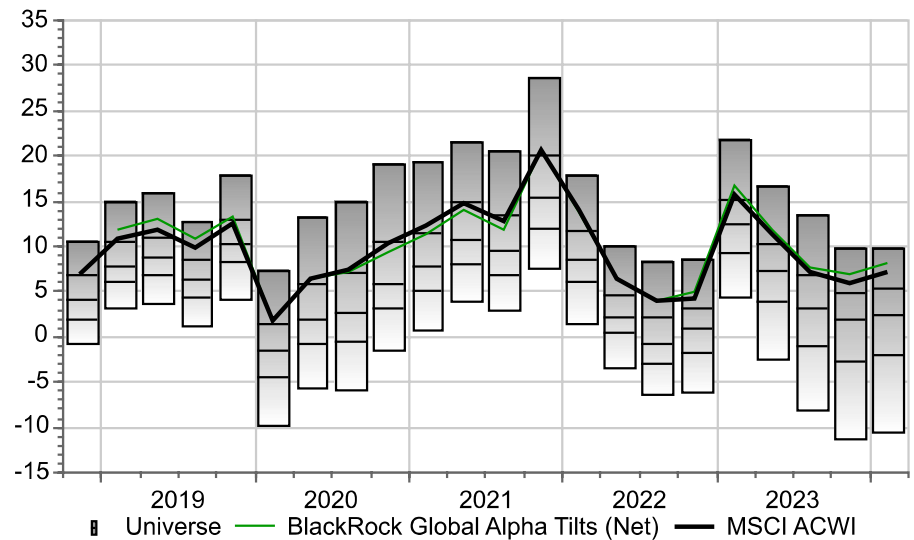
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## One-Year Rolling Return Versus Benchmark



## Rolling Returns 3/1/2016 – 3/31/2024 (3 Year, 3 Month Shift)

Universe: Lipper US Global Equity



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## Over/Under Benchmark Analysis

**19** Outperform  
**10** Underperform  
**29** # Observations  
**66%** % Outperform

# BlackRock Global Attribution Analysis – March 31, 2024

## Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
NVIDIA Corporation	2.93	0.65	0.53
Marathon Petroleum Corporation	0.85	0.75	0.28
Tesla, Inc.	0.07	-0.82	0.28
Applied Materials, Inc.	1.22	1.00	0.27
Valero Energy Corporation	0.41	0.34	0.22
EMCOR Group, Inc.	0.35	0.35	0.20
UniCredit S.p.A.	0.54	0.47	0.18
Micron Technology, Inc.	0.26	0.12	0.18
Amazon.com, Inc.	3.09	0.90	0.17
QUALCOMM Incorporated	1.21	0.96	0.17

## Top 10 Leading Detractors

	Avg. Weights	Relative Weights	Active Return
Meta Platforms, Inc.	0.71	-0.62	-0.26
JPMorgan Chase & Co.	0.11	-0.64	-0.11
Newmont Corporation	0.21	0.15	-0.10
Adobe Inc.	1.01	0.62	-0.10
Nestle S.A.	1.48	1.03	-0.10
Archer-Daniels-Midland Company	0.12	0.08	-0.09
Apple Inc.	4.95	0.70	-0.08
Netflix, Inc.	0.09	-0.27	-0.08
Meituan	0.08	0.01	-0.07
Costco Wholesale Corporation	0.03	-0.38	-0.08

## Sector Attribution

	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	-1.3	5.3	11.4	0.0	-0.3	-0.4
Consumer Discretionary	3.0	9.7	5.9	-0.1	0.4	0.4
Consumer Staples	-0.3	-0.6	2.7	0.0	-0.2	-0.2
Energy	-0.5	18.7	9.6	0.1	0.4	0.5
Financials	-1.6	10.6	9.4	0.0	0.2	0.1
Health Care	-1.8	7.5	7.1	0.0	0.1	0.0
Industrials	1.0	7.5	9.1	0.0	-0.1	-0.2
Information Technology	4.2	13.2	12.0	0.1	0.3	0.5
Materials	-0.3	0.8	1.9	0.0	0.0	-0.1
Real Estate	-0.9	6.5	-0.8	0.1	0.1	0.2
Utilities	-1.4	-2.7	1.6	0.1	-0.1	0.0
Total	0.0	9.2	8.2	0.2	0.8	0.9

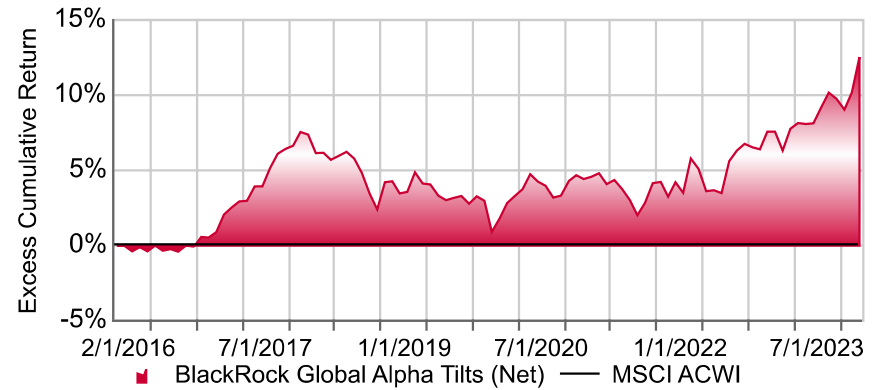
# BlackRock Global Inception Performance & Statistics

## Investment Growth Since Inception 3/1/2016



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## Relative Cumulative Performance Since Inception 3/1/2016

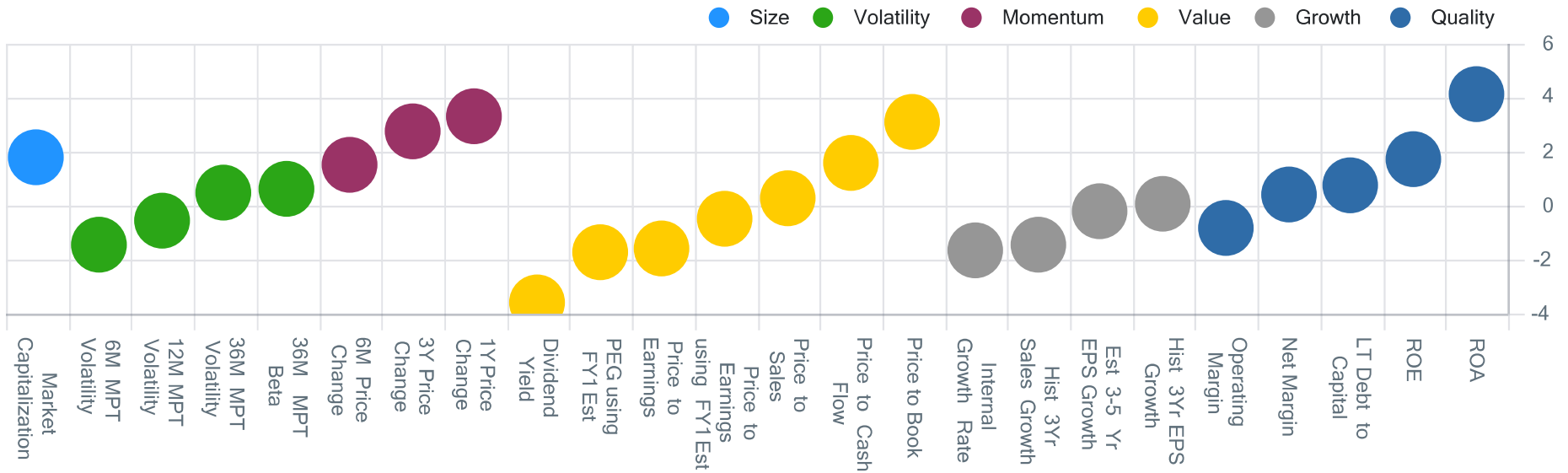


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## Risk Since Inception 3/1/2016

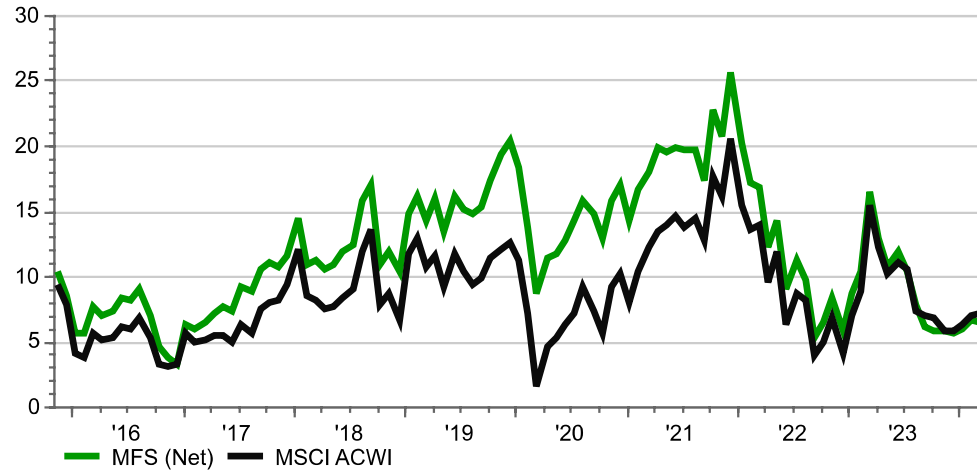
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
BlackRock Global Alpha Tilts (Net)	12.4	15.5	0.5	0.7	0.4	1.6	1.0
MSCI ACWI	11.7	15.3	--	0.7	--	--	1.0

## Characteristics Tilt vs Benchmark 3/31/2024



# MFS Portfolio Snapshot – March 31, 2024

## Rolling Returns Since Inception 12/1/2012 (Three Year, One Month Shift)



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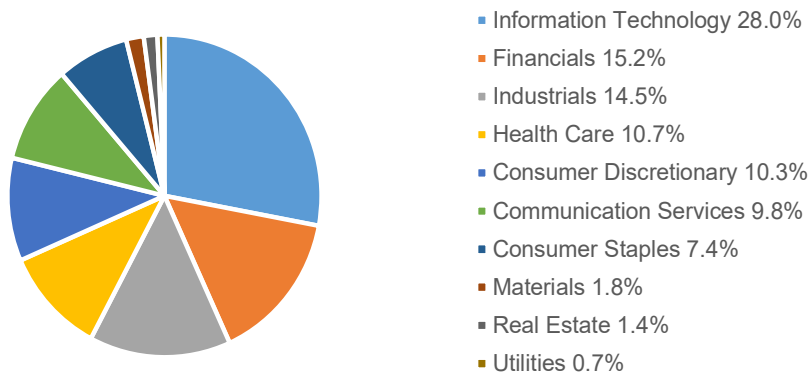
## Top 10 Holdings

	Portfolio Weight	Quarterly Return
Microsoft Corporation	7.11	12.08
Visa Inc.	3.41	7.39
Alphabet Inc.	3.06	8.05
Taiwan Semi Mfg. Co. Ltd.	2.94	26.54
Canadian Pacific Kansas City Limited	2.52	11.70
Accenture plc	2.51	-0.88
Tencent Holdings Limited	2.46	3.24
Agilent Technologies, Inc.	2.21	4.66
NVIDIA Corporation	2.15	82.46
Amphenol Corporation	2.13	16.58

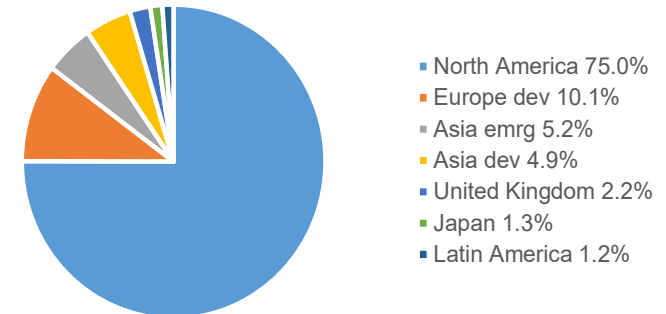
## Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	Inception 12/1/2012
MFS (Net)	6.4	18.6	6.4	12.5	11.2	12.0
MSCI ACWI	8.2	23.2	7.0	10.9	8.7	9.9
MSCI ACWI Growth	9.5	28.2	6.7	13.6	11.0	11.9

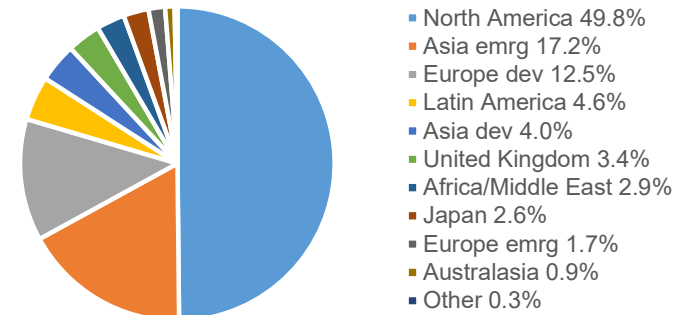
## Equity Sector Exposure (GICS)



## Regional Exposure by Domicile



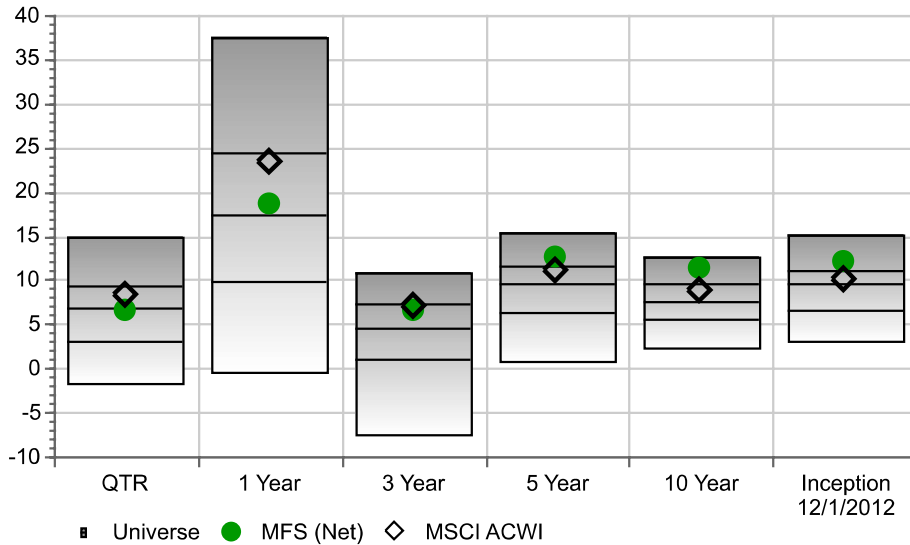
## Regional Exposure by Source of Revenue



# MFS vs Universe & Benchmark

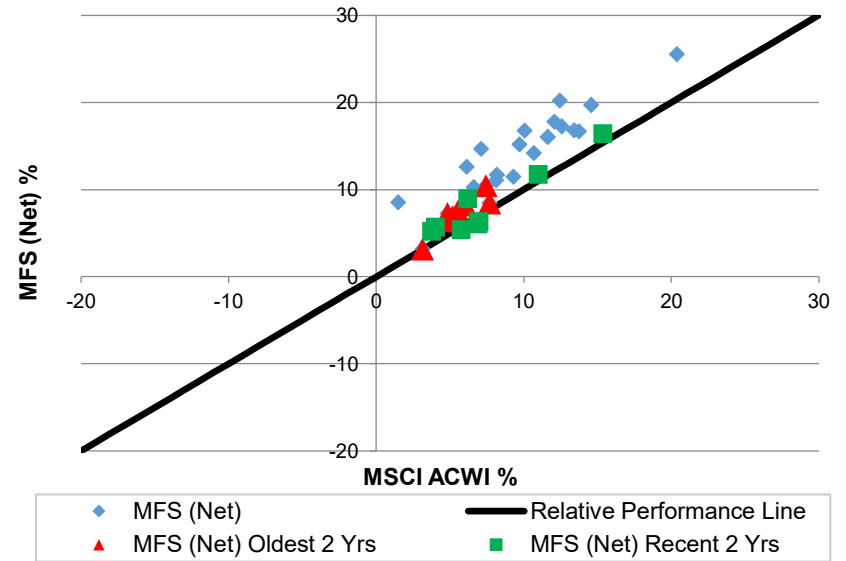
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US:Global



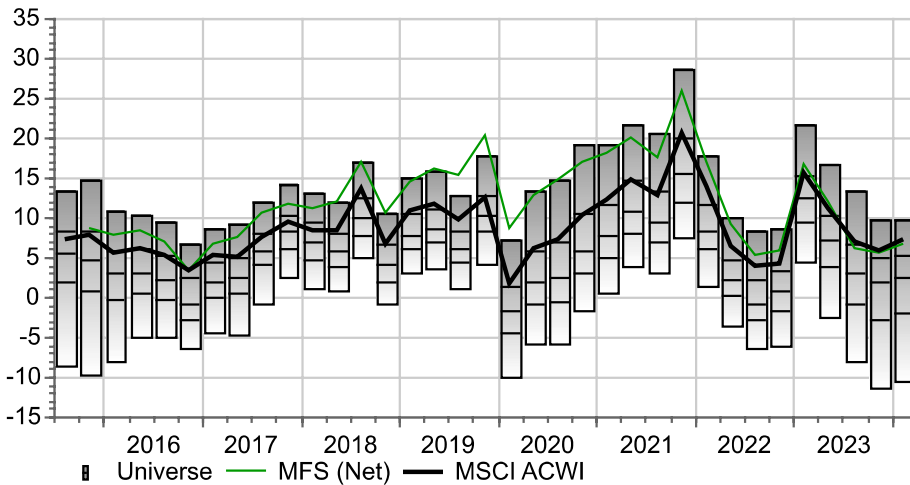
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## Three-Year Rolling Return Versus Benchmark



## Rolling Returns 12/1/2012 – 3/31/2024 (3 Year, 3 Month Shift)

Universe: Lipper US Global Equity



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### Over/Under Benchmark Analysis

<b>31</b>	Outperform
<b>3</b>	Underperform
<b>34</b>	# Observations
<b>91%</b>	% Outperform



# MFS Attribution Analysis – March 31, 2024

## Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Taiwan Semi Mfg. Co. Ltd.	2.61	1.87	0.48
Eaton Corporation plc	1.68	1.53	0.44
Microsoft Corporation	7.02	2.94	0.35
Amphenol Corporation	2.20	2.11	0.34
ICON plc	1.76	1.76	0.32
Walt Disney Company	1.18	0.91	0.30
Hubbell Incorporated	1.16	1.13	0.29
Fiserv, Inc.	1.53	1.40	0.27
Boston Scientific Corporation	1.60	1.47	0.27
Canadian Pacific Kansas City Limited	2.44	2.33	0.27

## Top 10 Leading Detractors

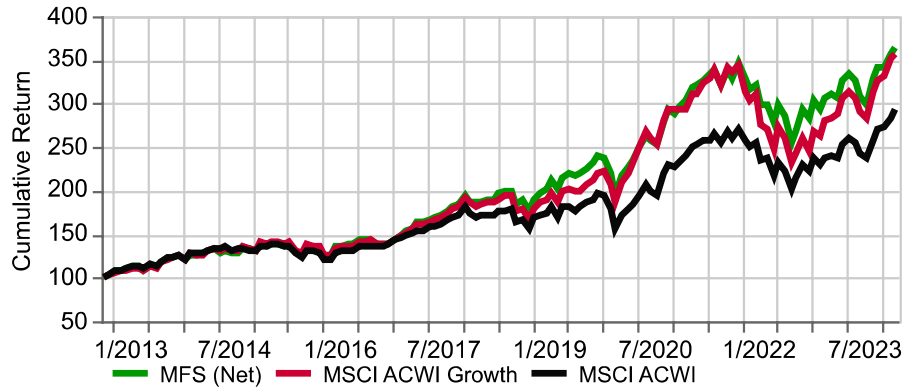
	Avg. Weights	Relative Weights	Active Return
NVIDIA Corporation	1.58	-0.70	-0.48
Meta Platforms, Inc.	0.00	-1.33	-0.45
Amazon.com, Inc.	0.00	-2.19	-0.40
NAVER Corp.	1.56	1.53	-0.36
HDFC Bank Ltd.	1.57	1.48	-0.29
Eli Lilly and Company	0.00	-0.78	-0.24
NIKE, Inc.	1.63	1.44	-0.22
Xcel Energy Inc.	1.31	1.26	-0.18
DAIKIN INDUSTRIES, LTD.	0.92	0.86	-0.15
Broadcom Inc.	0.00	-0.78	-0.15

## Sector Attribution

	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	1.8	2.4	11.4	0.1	-0.8	-0.8
Consumer Discretionary	-0.1	-0.5	5.9	0.0	-0.8	-0.7
Consumer Staples	1.2	4.3	2.7	-0.1	0.1	0.0
Energy	-4.5	0.0	9.6	0.0	0.0	-0.1
Financials	-1.5	6.5	9.4	0.0	-0.6	-0.4
Health Care	-0.9	8.3	7.1	0.0	0.0	0.1
Industrials	3.3	13.1	9.1	0.1	0.4	0.6
Information Technology	4.0	10.0	12.0	0.1	-0.5	-0.4
Materials	-2.3	3.3	1.9	0.1	0.0	0.2
Real Estate	-0.8	-8.5	-0.8	0.1	-0.1	0.0
Utilities	-1.2	-12.5	1.6	0.1	-0.2	-0.1
Cash	1.1	1.3	0.0	-0.1	0.0	-0.1
Total	0.0	6.6	8.2	0.3	-2.6	-1.7

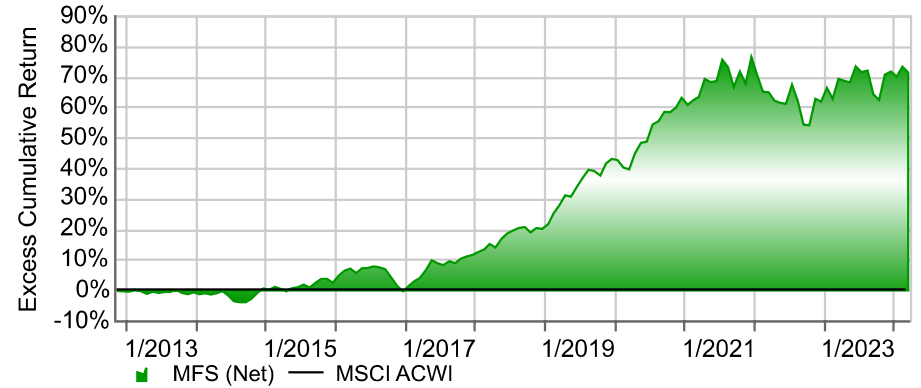
# MFS Inception Performance & Statistics

## Investment Growth Since Inception 12/1/2012



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## Relative Cumulative Performance Since Inception 12/1/2012

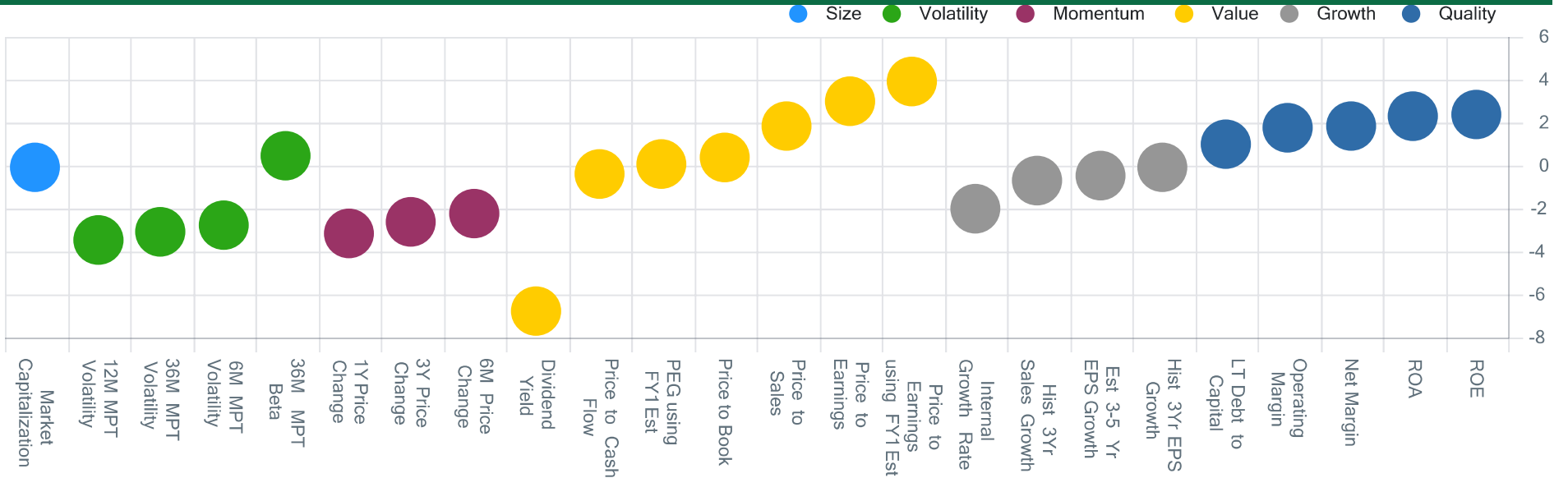


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## Risk Since Inception 12/1/2012

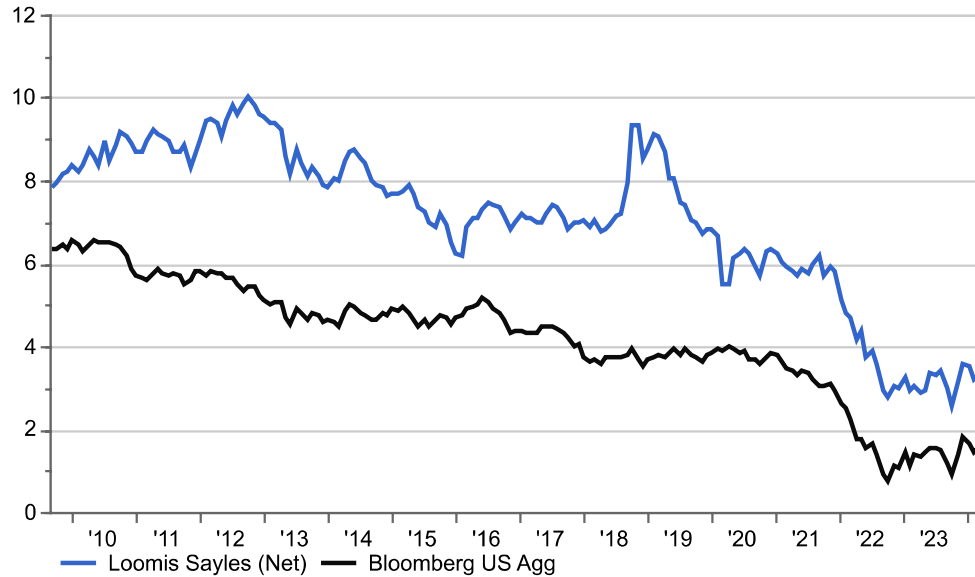
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
MFS (Net)	12.0	14.3	2.1	0.8	0.7	3.2	1.0
MSCI ACWI	9.9	14.2	--	0.6	--	--	1.0
MSCI ACWI Growth	11.9	15.3	--	0.7	--	--	1.0

## Characteristics Tilt vs Benchmark 3/31/2024



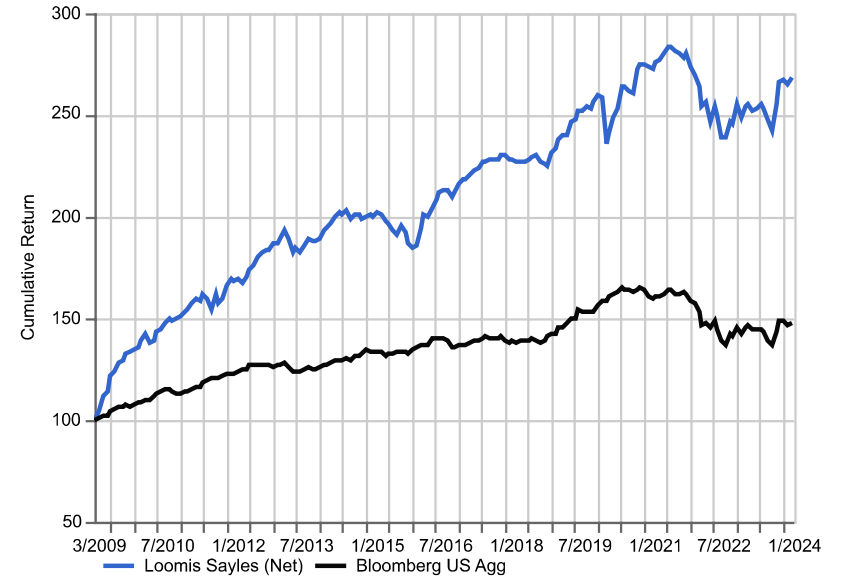
# Loomis Sayles Portfolio Snapshot – March 31, 2024

## Rolling Returns Since 10/1/1999 (Ten Year, One Month Shift)



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## Investment Growth – 15 Years



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## Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
Loomis Sayles (Net)	0.6	5.6	-0.6	2.5	3.3	6.8
Bloomberg US Aggregate	-0.8	1.7	-2.5	0.4	1.5	2.6

## Risk – 15 Years

	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
Loomis Sayles (Net)	6.8	6.7	4.2	0.9	0.8	5.3	1.0
Bloomberg US Aggregate	2.6	4.2	--	0.4	--	--	1.0

## Relative Cumulative Performance – 15 Years

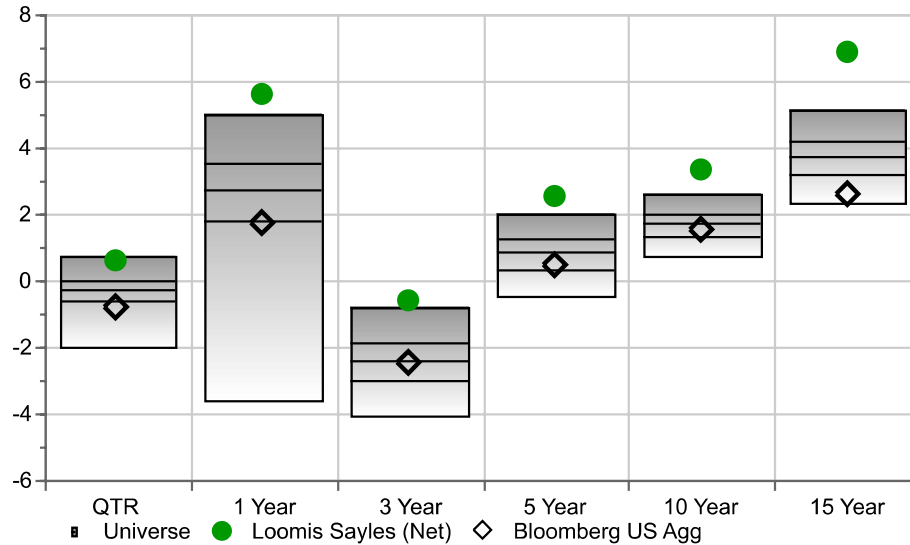


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# Loomis Sayles vs Universe & Benchmark

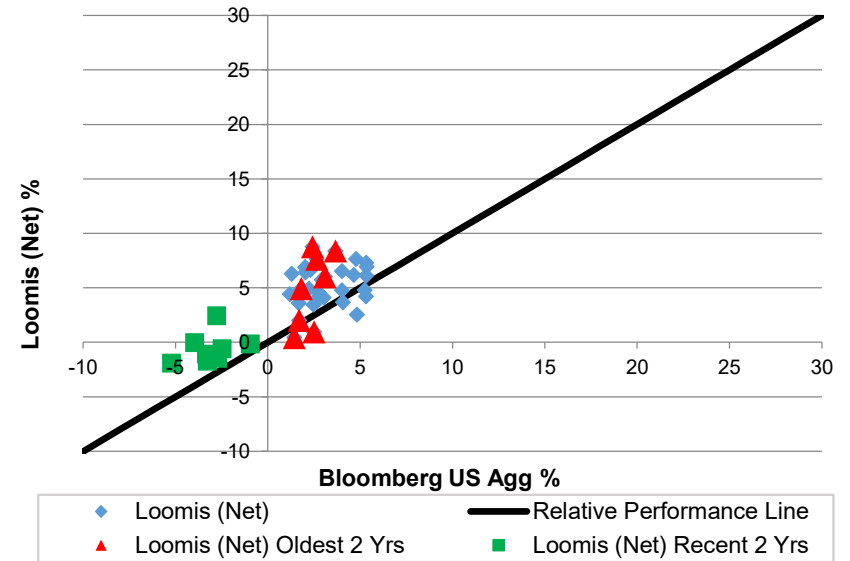
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US Core Plus Bond



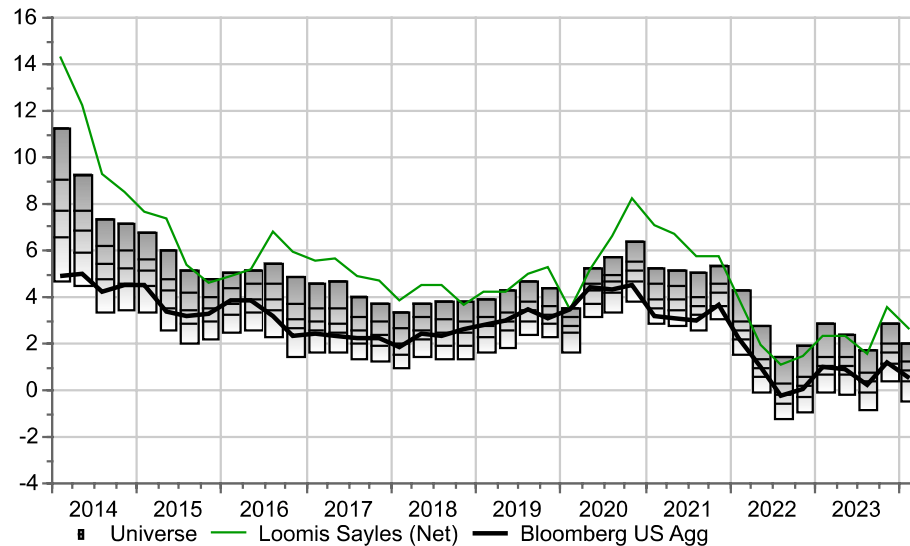
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## Three-Year Rolling Return Versus Benchmark



## Rolling Returns 7/1/2008 – 3/31/2024 (5 Year, 3 Month Shift)

Universe: Lipper US:Core Plus Bond



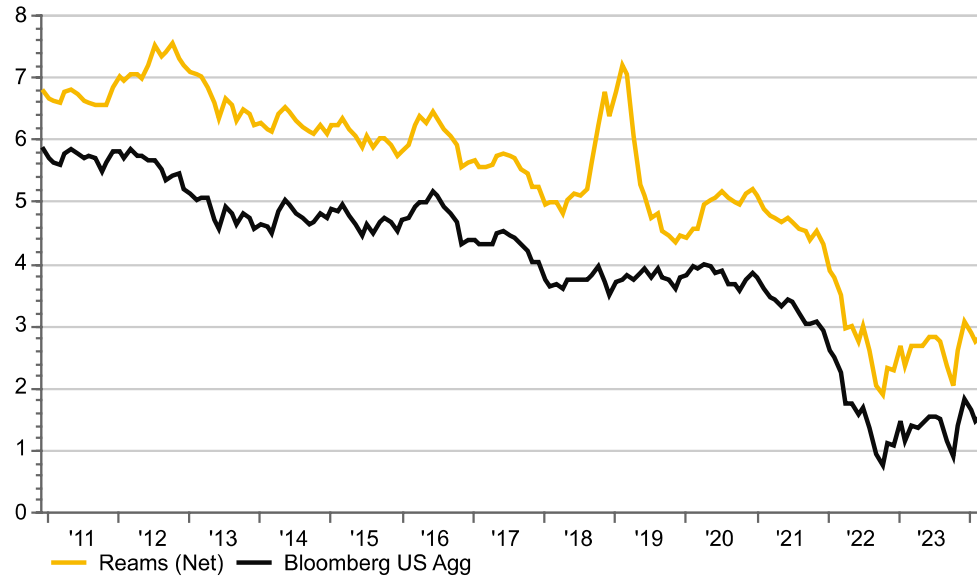
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## Over/Under Benchmark Analysis

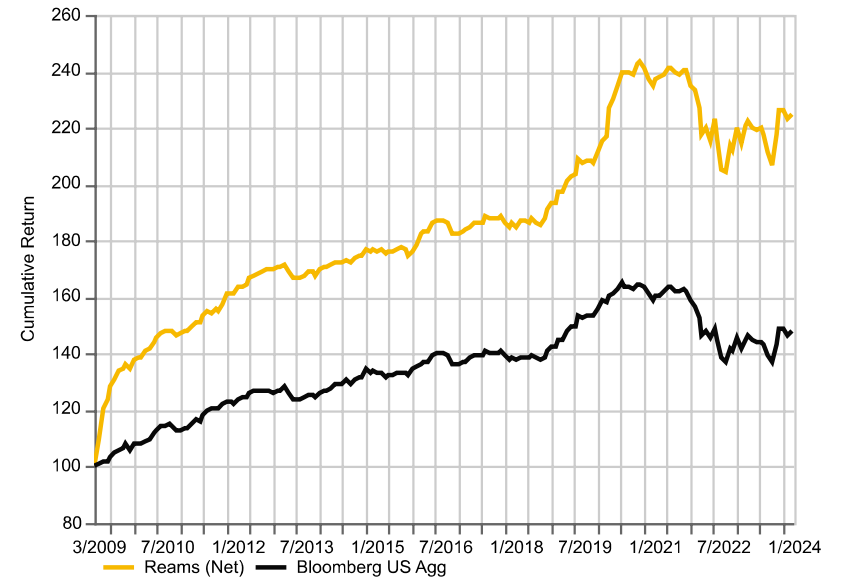
<b>34</b>	Outperform
<b>6</b>	Underperform
<b>40</b>	# Observations
<b>85%</b>	% Outperform

# Reams Portfolio Snapshot – March 31, 2024

## Rolling Returns Since Inception 1/1/2001 (Ten Year, One Month Shift)



## Investment Growth – 15 Years



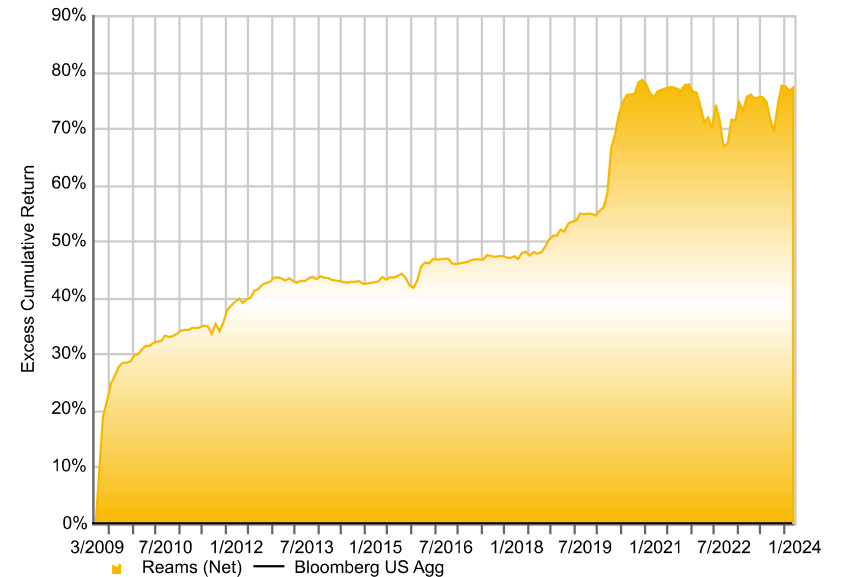
## Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
Reams (Net)	-0.7	1.9	-1.4	2.7	2.8	5.5
Bloomberg US Aggregate	-0.8	1.7	-2.5	0.4	1.5	2.6

## Risk – 15 Years

	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
Reams (Net)	5.5	5.9	2.7	0.8	0.8	3.7	1.1
Bloomberg US Aggregate	2.6	4.2	--	0.4	--	--	1.0

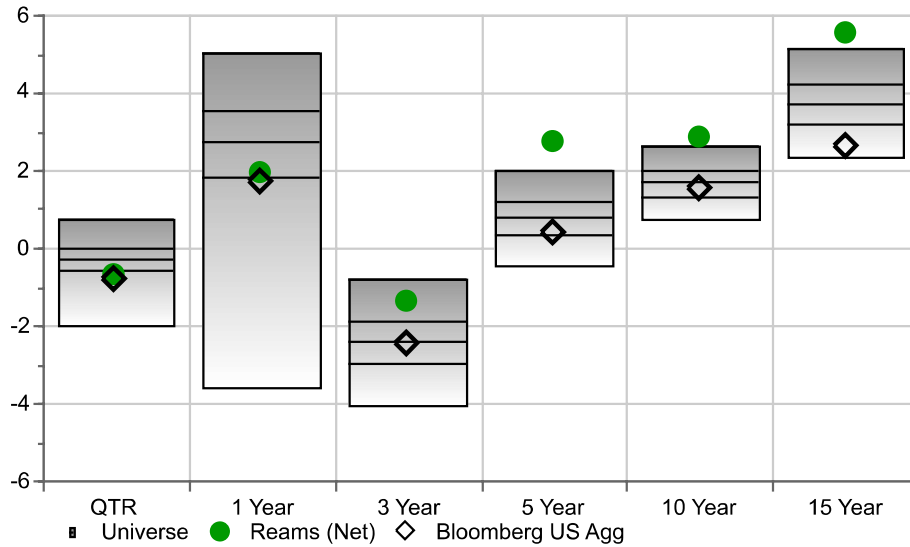
## Relative Cumulative Performance – 15 Years



# Reams vs Universe & Benchmark

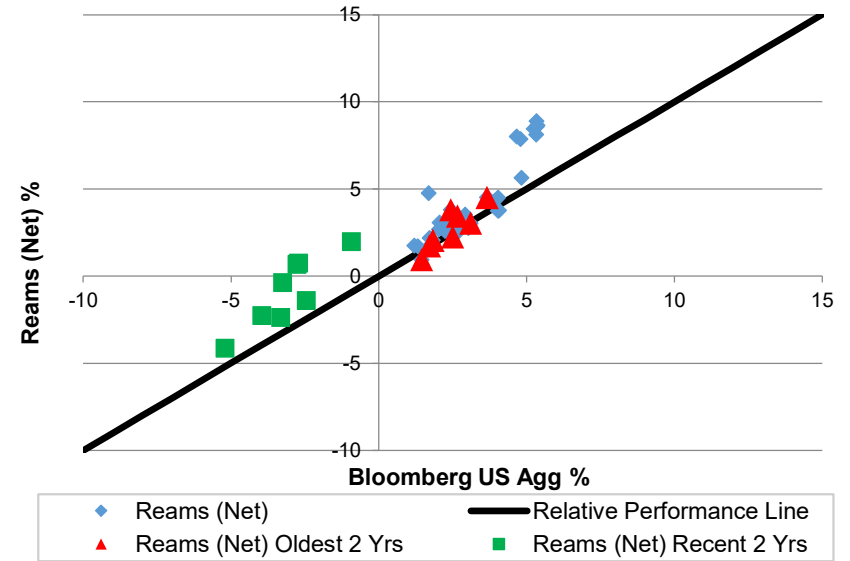
## Performance Relative to Peer Group as of 3/31/2024

Universe: Lipper US Core Plus Bond



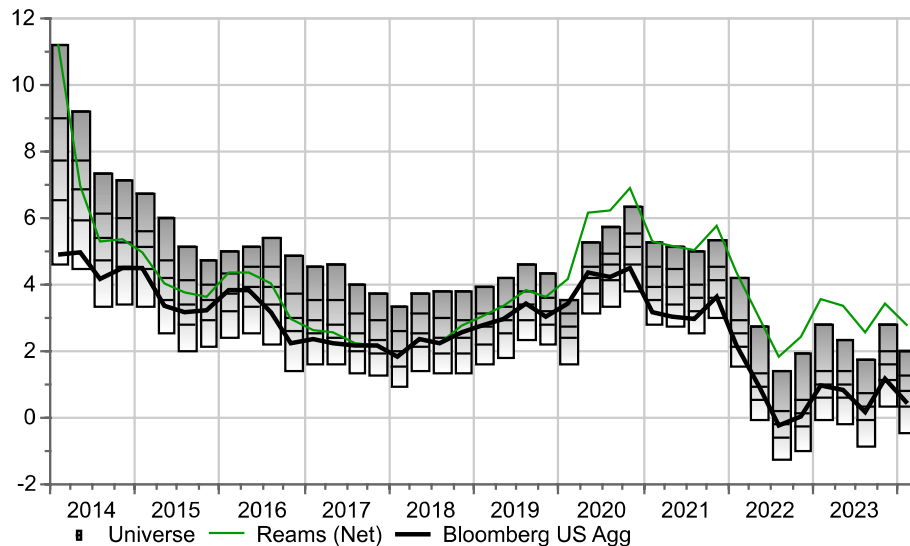
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## Three-Year Rolling Return Versus Benchmark



## Rolling Returns 7/1/2008 – 3/31/2024 (5 Year, 3 Month Shift)

Universe: Lipper US Core Plus Bond




©FactSet Research Systems

### Over/Under Benchmark Analysis

<b>33</b>	Outperform
<b>7</b>	Underperform
<b>40</b>	# Observations
<b>83%</b>	% Outperform

December 31, 2023



## City of Milwaukee Employees' Retirement System

Investment Measurement Service  
Quarterly Review

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### December 31, 2023

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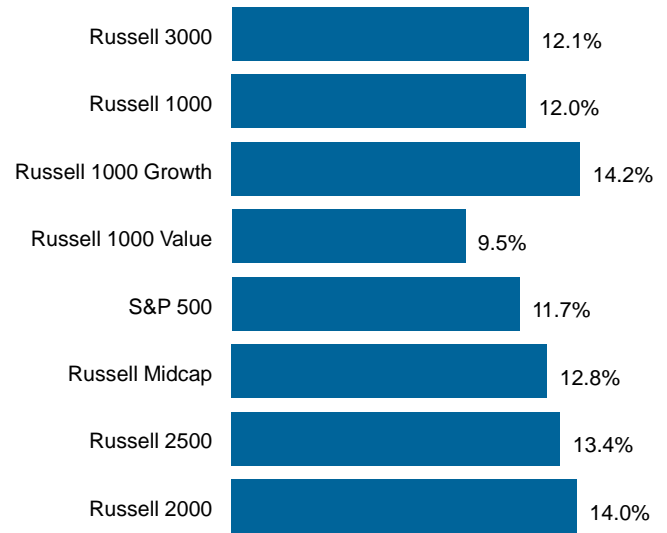


**U.S. EQUITY**

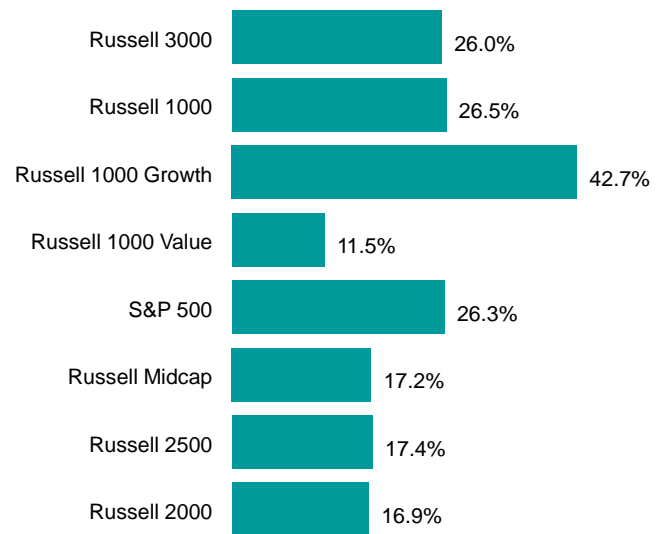
**End-of-the-year rally**

- U.S. equity markets rebounded in the last two months of the year as the impact of possible rate cuts in 2024 started to get priced in.
- The S&P 500 Index approached a record high as the year closed. Of note, 2023 was the first year since 2012 that the S&P failed to reach a high-water mark. That said, the index was up an impressive 11.7% in 4Q and 26.3% for the year.
- The tech sector was the clear winner for the quarter and the year (+17.2%; +57.8%) while Energy (-6.9%; -1.3%) was the only sector to register both a 4Q and 2023 decline.
- 2023 saw the narrowest breadth of leadership (“the Magnificent Seven”) since 1987, with just 27% of stocks outperforming the S&P 500. Historically, such concentrated leadership has not been the sign of a healthy market.
- Fourth quarter and 2023 returns for the bunch were impressive: Alphabet: +6.8%, +58.8%; Amazon: +19.5%, +80.9%; Apple: +12.6%, +49.0%; Meta: +17.9%; +194.1%; Microsoft: +19.3%, +58.2%; NVIDIA: +13.9%, +239.0%; Tesla: -0.7%, +101.7%.
- The index would have been up only about 10% for the year without these stocks, and the equal-weighted S&P 500 returned 11.9% in 4Q and 13.9% in 2023.
- However, gains started broadening out in the last two months of the year with the equal-weighted S&P index outperforming the capitalization-weighted version.
- Smaller cap stocks also outperformed their large cap counterparts in 4Q23, further proof of the broadening out of returns.
- For the full year, large cap stocks outperformed small cap stocks by almost 10 percentage points.
- Growth vs. value performance was mixed across market capitalization during the quarter. Within large cap, growth outperformed value, while the opposite was true within small cap.

**U.S. Equity: Quarterly Returns**

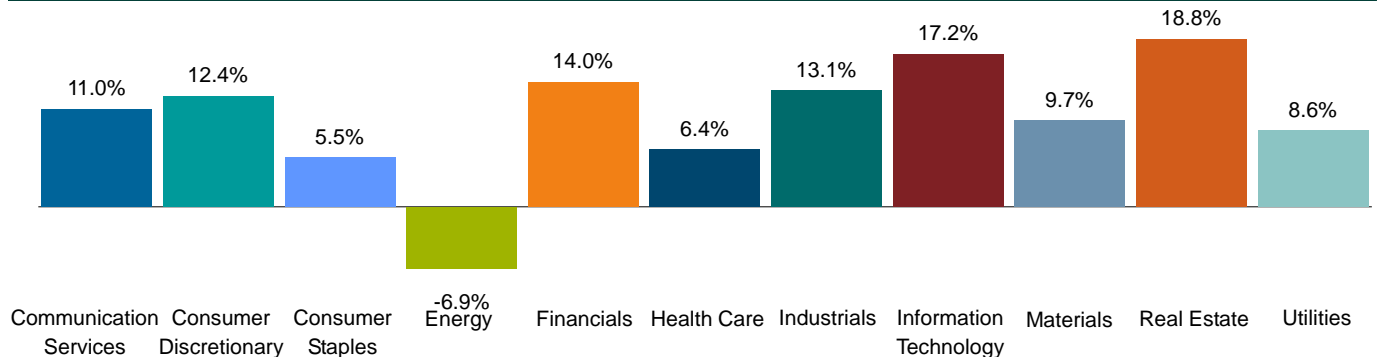


**U.S. Equity: One-Year Returns**



Sources: FTSE Russell, S&P Dow Jones Indices

**S&P Sector Returns, Quarter Ended 12/31/23**



Source: S&P Dow Jones Indices

**Global markets in the black for 4Q**

**Broad market**

- Dovish signaling from central banks and dropping yields led to a broad market rally in 4Q23.
- Global ex-U.S. small caps reclaimed some of their lagging performance in 4Q but ended the year as the worst-performing broad-based index, albeit up over 12%. Elevated borrowing costs and the persistent risk of a recession have kept investors away.
- Japan's low rates have benefited exporters, and the threat of being delisted spurred a stock buy-back spree. Coupled with an increased focus on governance, this spurred Japan to a multi-decade high.

**Emerging markets**

- Emerging markets underperformed developed markets.
- India's rally couldn't overcome China's weakness, whose economic growth was near the government's target, but investor concerns around stimulus and a surprisingly sluggish reopening drove stocks lower.

**Growth vs. value**

- Energy, a volatile area in the market, pulled back value's rally after having a strong 3Q. Global ex-U.S. growth rallied on lowering yields but couldn't overcome earlier underperformance and ended the year behind its value peers in both emerging and developed markets.

**U.S. dollar vs. other currencies**

- The U.S. dollar weakened in 4Q as investors believed that U.S. interest rates would fall faster than much of the developed world.

**China: Danger or opportunity?**

**Long-term growth potential**

- China has the second-largest GDP and the world's largest population of consumers.

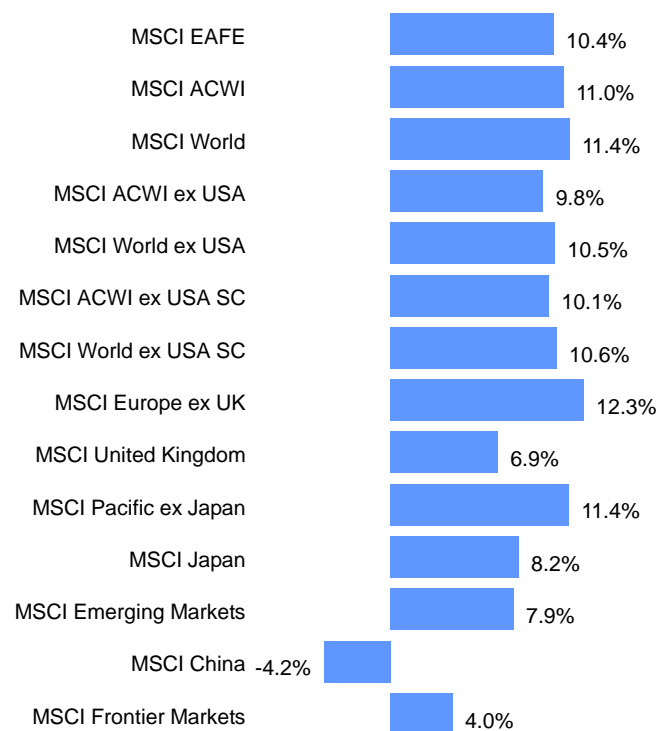
**Valuation**

- Valuations remain attractive on a forward P/E basis.

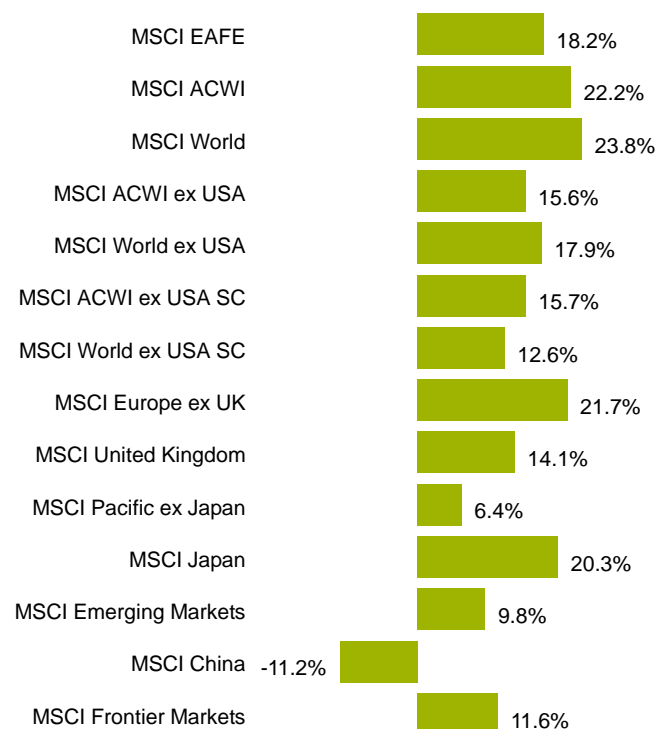
**Structural challenges**

- Inbound foreign direct investment (FDI) for China went negative for the first time as local markets remained weak and geopolitical tensions persisted.
- China is run by an authoritarian regime that may act against investors' best interests.

**Global Equity: Quarterly Returns**



**Global Equity: One-Year Returns**



Source: MSCI

**U.S. FIXED INCOME**

**Strong returns at end of year**

- Driven by falling rates and strong risk-on sentiment, the Agg returned 6.8%, the highest quarterly return since 2Q89 (when the 90-day T-bill was over 8% and inflation hit 14% earlier in the decade)!
- 10-year U.S. Treasury yield closed the year at 3.88%
- A round trip from December 2022, masking significant volatility during the year
- High was 4.98% in October and low was 3.30% in April
- Corporates and mortgages outperformed Treasuries for the quarter and year.
- High yield corporates soared as defaults remained low and the economy resilient.

**U.S. Treasury yield curve remained inverted, but less so**

- 106 bps as of 6/30; 44 bps as of 9/30; 35 bps as of 12/31

**Fed kept Fed Funds rate on hold and softened language**

- Pivoted from “higher for longer” to projected rate cuts in 2024
- Inflation over past six months below Fed’s 2% target
- Core PCE Price Index was 1.9% annualized in November.
- Markets expect six rate cuts in 2024 versus three in the Fed’s Summary of Economic Projections.

**Valuations**

- Investment grade and high yield corporate spreads now below 10-year averages

**MUNICIPAL BONDS**

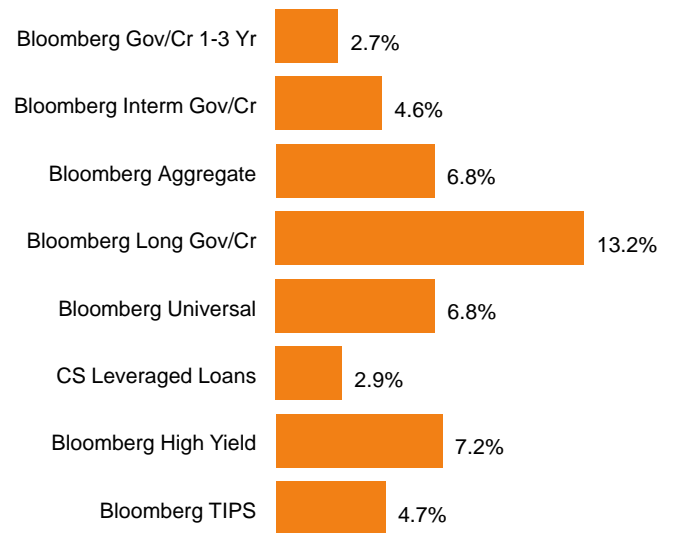
**Gains in 4Q and a superb November**

- November was the best month since August 1982.
- Helped by falling yields, muted issuance, and strong demand
- Reversed the -1.4% year-to-date return as of 9/30

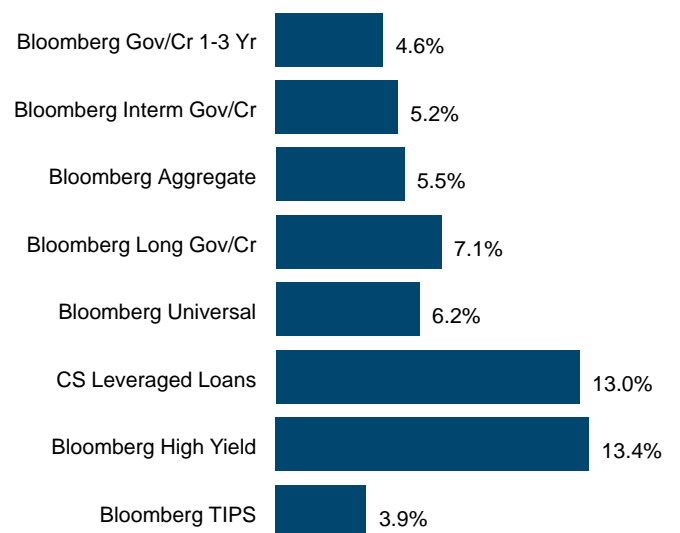
**BBBs performed best for quarter and year**

- AAA: +8.4%; +5.8%
- AA: +7.6%; +5.9%
- A: +8.0%; +7.3%
- BBB: +9.2%; +8.9%

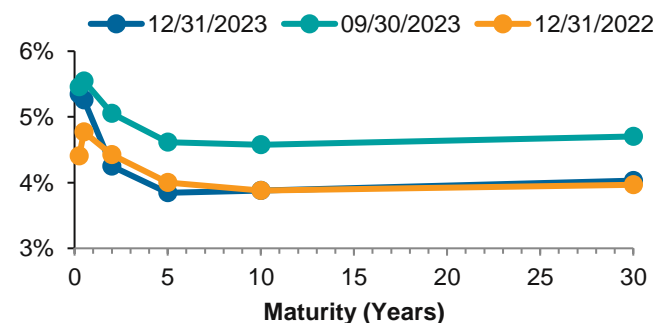
**U.S. Fixed Income: Quarterly Returns**



**U.S. Fixed Income: One-Year Returns**



**U.S. Treasury Yield Curves**



Sources: Bloomberg, Credit Suisse

**MUNICIPAL BONDS (continued)**

**Valuations**

- Credit spreads close to historical averages
- Mortgage spreads widened on interest rate volatility and slowing prepayments.

**Valuations vs. U.S. Treasuries richened**

- 10-year AAA Muni/10-year U.S. Treasury yield ratio 59%, down from 75% as of 9/30
- Well below 10-year median of 87%
- After-tax yields remain attractive at 5.4% (source: Morgan Stanley).

**Fundamentals for state, local governments remain sound**

- Upgrades exceeded downgrades in 2023.

**GLOBAL FIXED INCOME**

**Falling rates bolstered 4Q returns globally**

- Central banks seen as moving closer to cutting rates as inflation moderated
- Gains were broad-based across countries with the U.S. lagging other developed markets in unhedged terms.
- Emerging markets also posted strong results with gains across most countries.

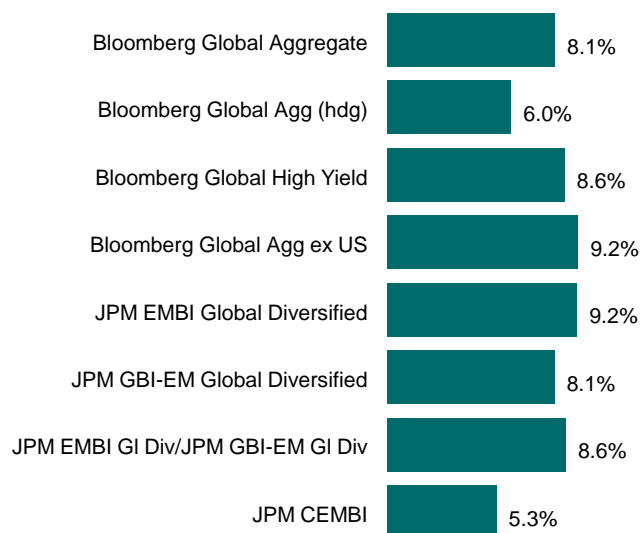
**U.S. dollar weakened**

- Major currencies rose compared to the dollar in 4Q.

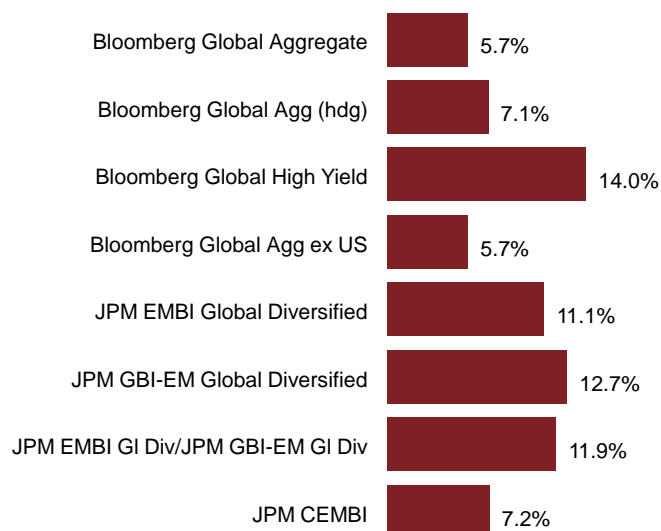
**Emerging markets also posted strong results**

- Gains across most countries

**Global Fixed Income: Quarterly Returns**

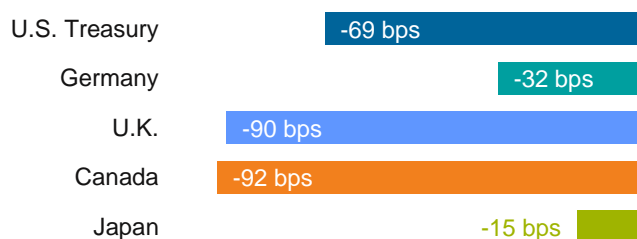


**Global Fixed Income: One-Year Returns**



**Change in 10-Year Global Government Bond Yields**

**3Q23 to 4Q23**



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, 2023, with the distribution as of September 30, 2023. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

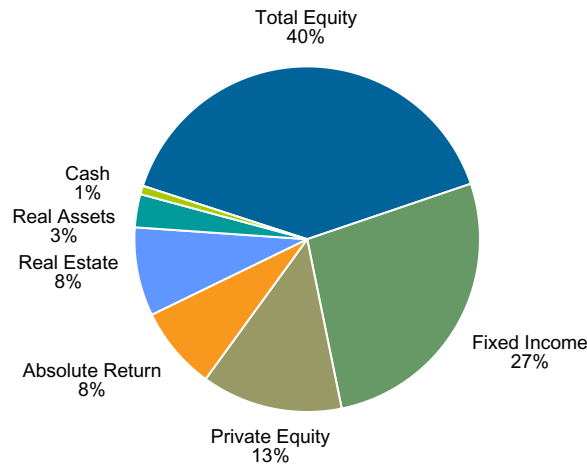
### Asset Distribution Across Investment Managers

	December 31, 2023			September 30, 2023		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>Total Domestic Equity</b>	<b>\$1,012,685,609</b>	<b>17.73%</b>	<b>\$0</b>	<b>\$107,251,715</b>	<b>\$905,433,894</b>	<b>16.55%</b>
BlackRock Russell 1000 Value	192,775,335	3.37%	0	16,734,202	176,041,134	3.22%
DFA Large Cap Value	138,559,629	2.43%	0	11,613,660	126,945,970	2.32%
Northern Trust Global	194,667,407	3.41%	0	20,373,500	174,293,907	3.19%
Polen Capital Management	120,511,155	2.11%	0	15,133,946	105,377,208	1.93%
Earnest Partners LLC	102,253,552	1.79%	0	11,730,907	90,522,645	1.65%
DFA Small Cap Value	184,500,232	3.23%	0	24,699,988	159,800,243	2.92%
CastleArk Management	79,418,299	1.39%	0	6,965,513	72,452,787	1.32%
<b>Total Global Equity</b>	<b>\$447,185,223</b>	<b>7.83%</b>	<b>\$0</b>	<b>\$45,717,219</b>	<b>\$401,468,004</b>	<b>7.34%</b>
BlackRock Global Alpha Tilts	249,877,437	4.37%	0	25,709,915	224,167,523	4.10%
MFS Investment Management	197,307,785	3.45%	0	20,007,305	177,300,481	3.24%
<b>Total International Equity</b>	<b>\$814,282,492</b>	<b>14.26%</b>	<b>\$(450,364)</b>	<b>\$81,297,321</b>	<b>\$733,435,535</b>	<b>13.40%</b>
AQR Emerging Markets	106,458,055	1.86%	(182,991)	10,038,620	96,602,426	1.77%
Brandes Investment Partners	321,977,810	5.64%	0	31,217,347	290,760,463	5.31%
William Blair & Company	223,661,694	3.92%	(98,772)	26,018,391	197,742,076	3.61%
DFA International Small Cap	162,184,933	2.84%	(168,601)	14,022,964	148,330,570	2.71%
<b>Total Fixed Income</b>	<b>\$1,543,832,923</b>	<b>27.03%</b>	<b>\$(47,000,000)</b>	<b>\$102,574,929</b>	<b>\$1,488,257,994</b>	<b>27.20%</b>
BlackRock US Govt Bond	359,087,888	6.29%	(47,000,000)	20,262,803	385,825,084	7.05%
Reams Asset Management	728,182,399	12.75%	0	49,694,791	678,487,609	12.40%
Loomis, Sayles & Company, L.P.	456,562,636	7.99%	0	32,617,335	423,945,301	7.75%
<b>Total Private Equity</b>	<b>\$754,362,272</b>	<b>13.21%</b>	<b>\$905,711</b>	<b>\$(14,868,058)</b>	<b>\$768,324,619</b>	<b>14.04%</b>
Abbott Capital Management 2010	17,995,036	0.32%	(1,047,084)	(1,562,628)	20,604,748	0.38%
Abbott Capital Management 2011	37,093,473	0.65%	(540,570)	(3,059,893)	40,693,936	0.74%
Abbott Capital Management 2012	33,721,670	0.59%	(794,245)	(1,939,166)	36,455,081	0.67%
Abbott Capital Management 2013	32,411,892	0.57%	(868,275)	(1,778,590)	35,058,757	0.64%
Abbott Capital Management 2014	36,805,385	0.64%	(686,496)	(2,046,729)	39,538,610	0.72%
Abbott Capital Management 2015	30,618,899	0.54%	(918,750)	(413,928)	31,951,577	0.58%
Abbott Capital Management 2016	27,236,252	0.48%	(790,000)	(86,321)	28,112,573	0.51%
Abbott Capital Management 2018	23,287,292	0.41%	625,000	(143,638)	22,805,930	0.42%
Abbott Capital Management 2019	20,444,935	0.36%	830,000	(122,541)	19,737,476	0.36%
Abbott Capital Management 2020	26,892,058	0.47%	1,150,000	30,691	25,711,367	0.47%
Abbott Capital Management 2021	9,160,930	0.16%	1,187,500	(13,907)	7,987,337	0.15%
Abbott Capital Management 2022	9,466,007	0.17%	546,875	(130,035)	9,049,167	0.17%
Abbott Capital Management 2023	1,944,500	0.03%	0	(5,500)	1,950,000	0.04%
Mesirow V	35,710,296	0.63%	(3,000,000)	(2,137,988)	40,848,284	0.75%
Mesirow VI	62,075,467	1.09%	(3,180,000)	(3,010,093)	68,265,560	1.25%
Mesirow VII	123,347,995	2.16%	(2,500,000)	498,941	125,349,054	2.29%
Mesirow VIII	62,463,859	1.09%	5,400,000	(828,138)	57,891,997	1.06%
NB Secondary Opp Fund III	6,708,863	0.12%	(1,186,497)	123,846	7,771,514	0.14%
NB Secondary Opp Fund IV	17,383,395	0.30%	(340,905)	(102,363)	17,826,663	0.33%
NB Secondary Opp Fund V	40,082,567	0.70%	5,601,026	512,585	33,968,956	0.62%
Private Advisors VI	20,787,369	0.36%	0	298,238	20,489,131	0.37%
Private Advisors VII	13,614,386	0.24%	(733,227)	177,817	14,169,796	0.26%
Private Advisors VIII	19,464,400	0.34%	0	323,330	19,141,070	0.35%
Private Advisors IX	34,916,616	0.61%	0	330,443	34,586,173	0.63%
Apogem Capital X	10,728,730	0.19%	2,151,357	217,511	8,359,862	0.15%
<b>Absolute Return</b>	<b>\$443,098,146</b>	<b>7.76%</b>	<b>\$(30,000,000)</b>	<b>\$10,309,532</b>	<b>\$462,788,614</b>	<b>8.46%</b>
Aptitude	171,755,489	3.01%	0	3,472,520	168,282,969	3.08%
UBS A & Q	271,342,657	4.75%	(30,000,000)	6,837,012	294,505,645	5.38%
<b>Real Assets</b>	<b>\$175,601,312</b>	<b>3.07%</b>	<b>\$(260,714)</b>	<b>\$11,907,740</b>	<b>\$163,954,286</b>	<b>3.00%</b>
Principal DRA	175,601,312	3.07%	(260,714)	11,907,740	163,954,286	3.00%
<b>Total Real Estate</b>	<b>\$474,058,982</b>	<b>8.30%</b>	<b>\$(1,506,236)</b>	<b>\$(17,794,490)</b>	<b>\$493,359,709</b>	<b>9.02%</b>
Real Estate	474,058,982	8.30%	(1,506,236)	(17,794,490)	493,359,709	9.02%
<b>Total Cash</b>	<b>\$47,056,593</b>	<b>0.82%</b>	<b>\$(8,341,072)</b>	<b>\$629,970</b>	<b>\$54,767,695</b>	<b>1.00%</b>
Cash	47,056,593	0.82%	(8,341,072)	629,970	54,767,695	1.00%
<b>Total Fund</b>	<b>\$5,712,163,552</b>	<b>100.0%</b>	<b>\$(86,652,676)</b>	<b>\$327,025,878</b>	<b>\$5,471,790,350</b>	<b>100.0%</b>

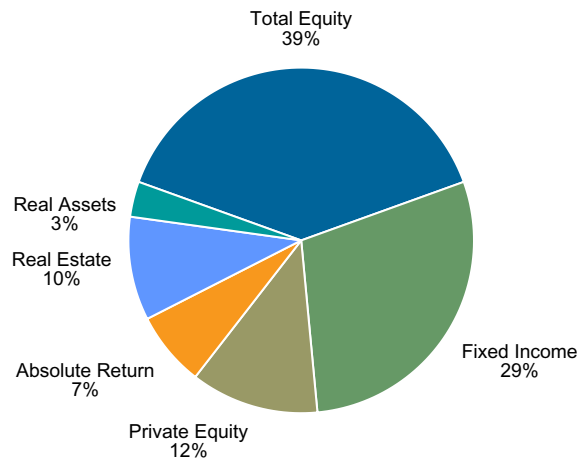
## Actual vs Target Asset Allocation As of December 31, 2023

The first chart below shows the Fund's asset allocation as of December 31, 2023. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

### Actual Asset Allocation



### Target Asset Allocation



Asset Class	\$000s Actual	Weight Actual	Target	Percent Difference	\$000s Difference
Total Equity	2,274,153	39.8%	39.0%	0.8%	46,410
Fixed Income	1,543,833	27.0%	29.0%	(2.0%)	(112,694)
Private Equity	754,362	13.2%	12.0%	1.2%	68,903
Absolute Return	443,098	7.8%	7.0%	0.8%	43,247
Real Estate	474,059	8.3%	9.7%	(1.4%)	(80,021)
Real Assets	175,601	3.1%	3.3%	(0.2%)	(12,900)
Cash	47,057	0.8%	0.0%	0.8%	47,057
Total	5,712,164	100.0%	100.0%		

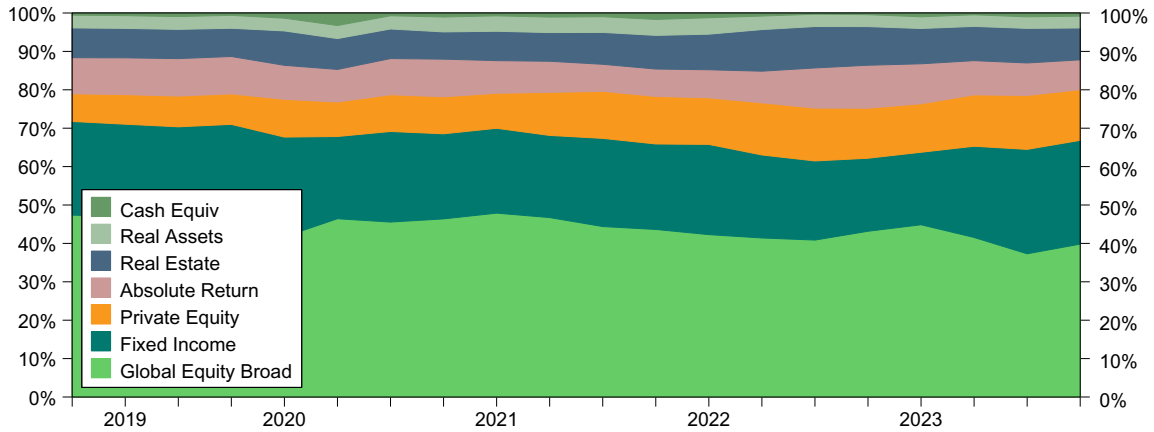
\* Current Quarter Target = 39.0% MSCI ACWI IMI, 29.0% Blmbg:Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 7.0% 3-month Treasury Bill+3.0% and 3.3% Principal DRA Blend Index.



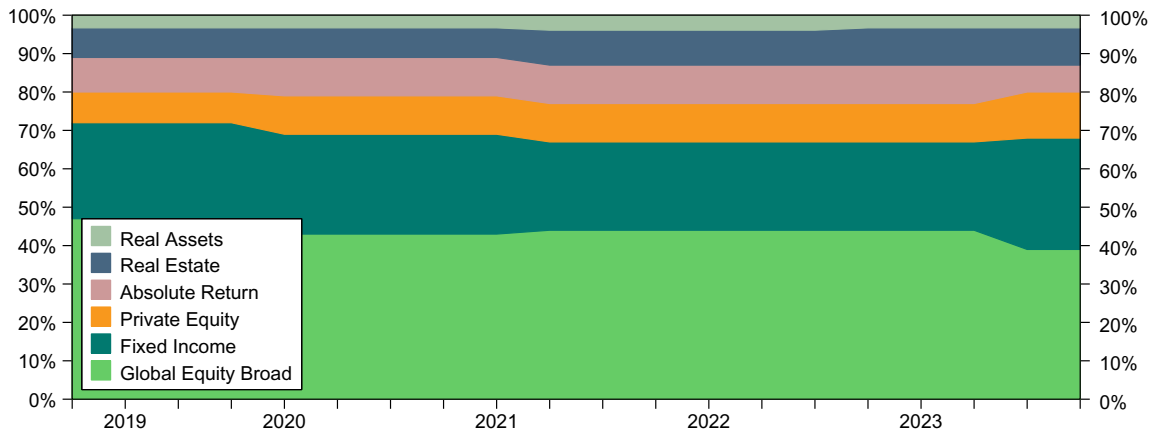
## Actual vs Target Historical Asset Allocation

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.

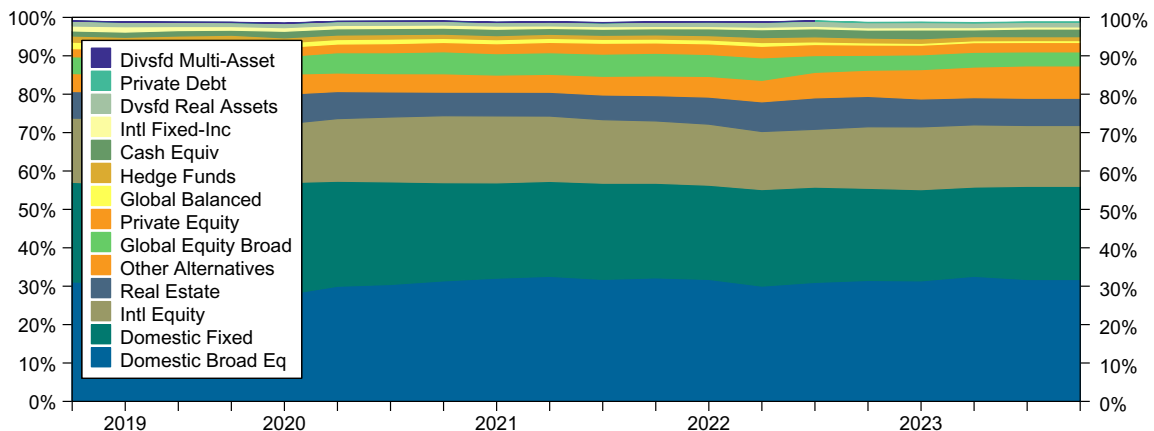
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



### Average Callan Public Fund Sponsor Database Historical Asset Allocation



\* Current Quarter Target = 39.0% MSCI ACWI IMI, 29.0% Blmbg:Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 7.0% 3-month Treasury Bill+3.0% and 3.3% Principal DRA Blend Index.

# Total Fund

## Period Ended December 31, 2023

### 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 = 39.0% MSCI ACWI IMI, 29.0% Blmbg Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 7.0% 3-month Treasury Bill+3.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.3% Principal Blended Benchmark.

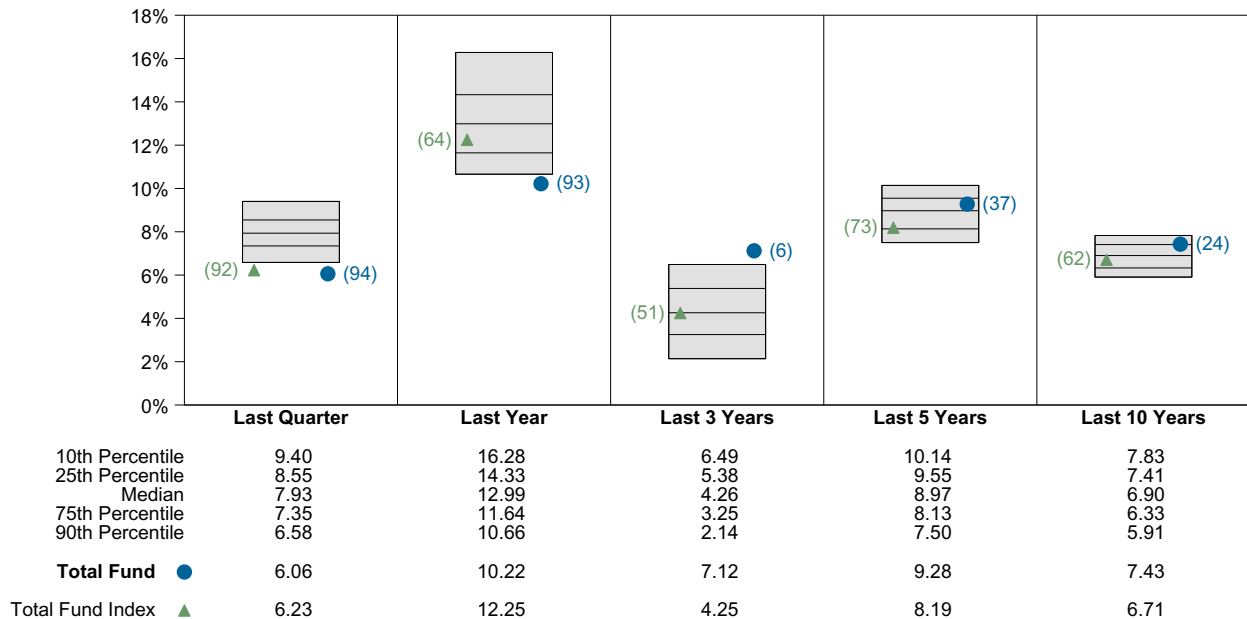
### Quarterly Summary and Highlights

- Total Fund's portfolio posted a 6.06% return for the quarter placing it in the 94 percentile of the Callan Public Fund Sponsor Database group for the quarter and in the 93 percentile for the last year.
- Total Fund's portfolio underperformed the Total Fund Index by 0.17% for the quarter and underperformed the Total Fund Index for the year by 2.03%.

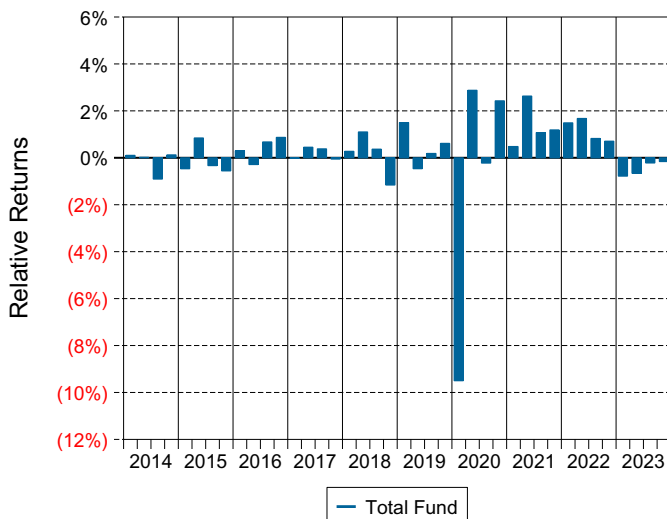
### Quarterly Asset Growth

Beginning Market Value	\$5,471,790,350
Net New Investment	\$-86,652,676
Investment Gains/(Losses)	\$327,025,878
Ending Market Value	\$5,712,163,552

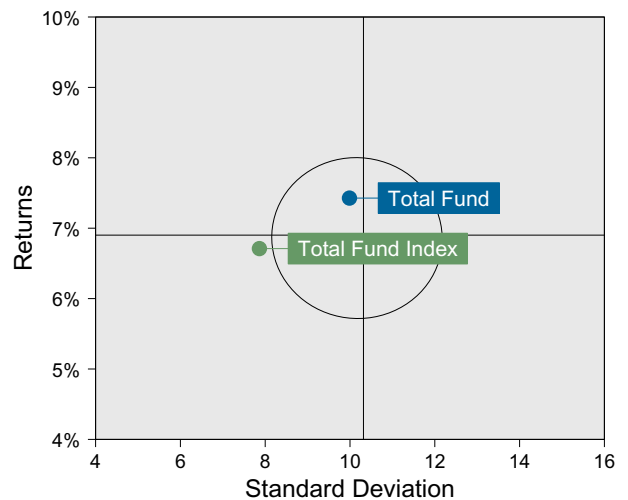
### Performance vs Callan Public Fund Sponsor Database (Gross)



### Relative Return vs Total Fund Index



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

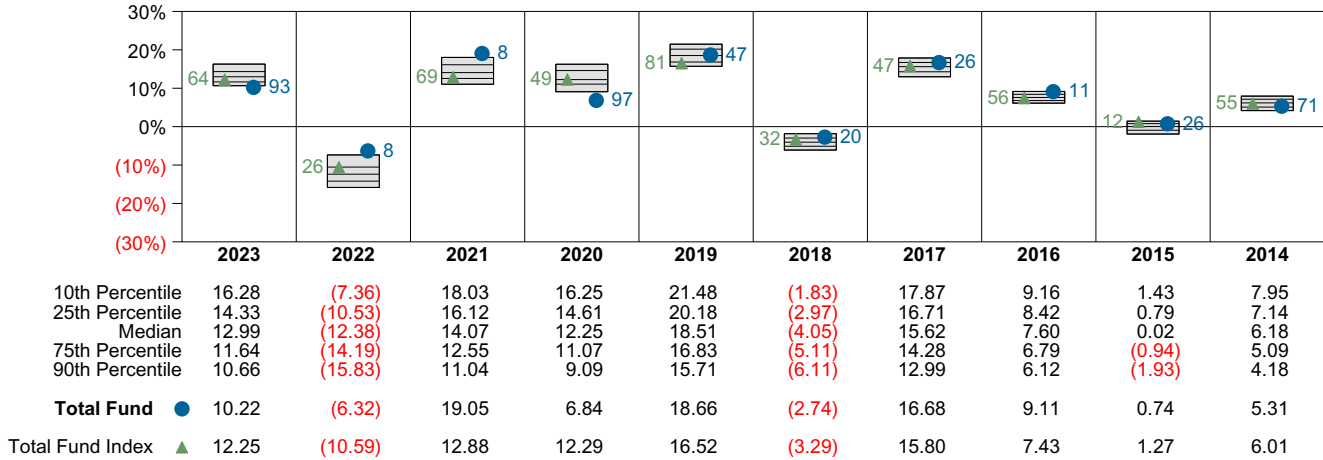


# Total Fund Return Analysis Summary

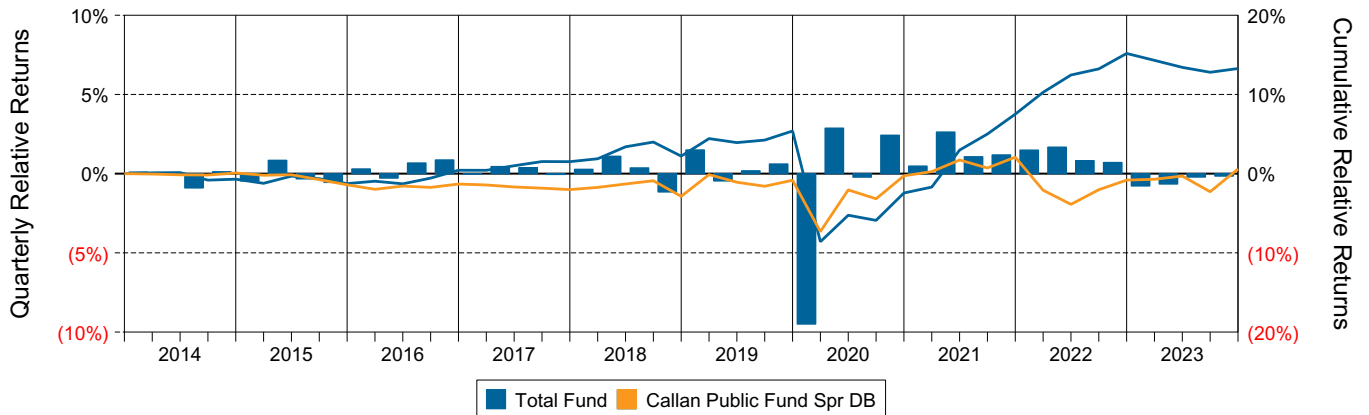
## Return Analysis

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.

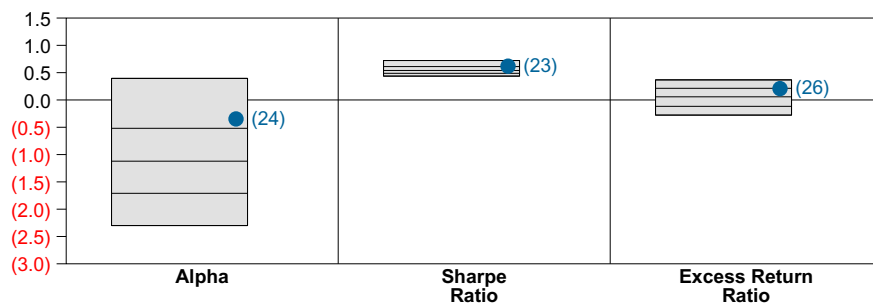
### Performance vs Callan Public Fund Sponsor Database (Gross)



### Cumulative and Quarterly Relative Returns vs Total Fund Index



### Risk Adjusted Return Measures vs Total Fund Index Rankings Against Callan Public Fund Sponsor Database (Gross) Ten Years Ended December 31, 2023



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.40	0.72	0.37
25th Percentile	(0.52)	0.61	0.21
Median	(1.12)	0.54	0.06
75th Percentile	(1.71)	0.49	(0.12)
90th Percentile	(2.30)	0.44	(0.28)
<b>Total Fund</b>	● (0.35)	0.62	0.21

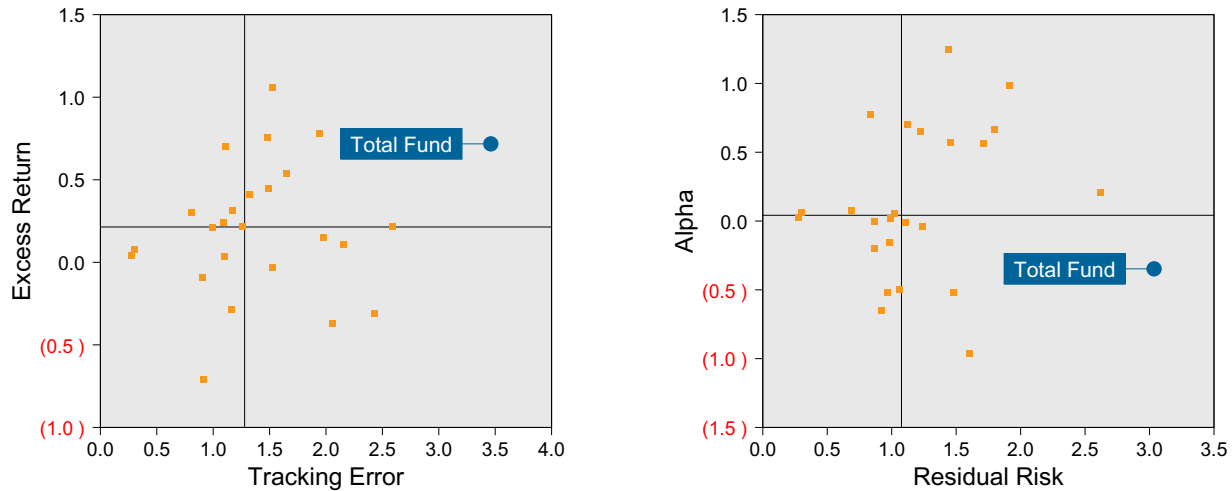
# Total Fund

## Total Fund vs Target Risk Analysis

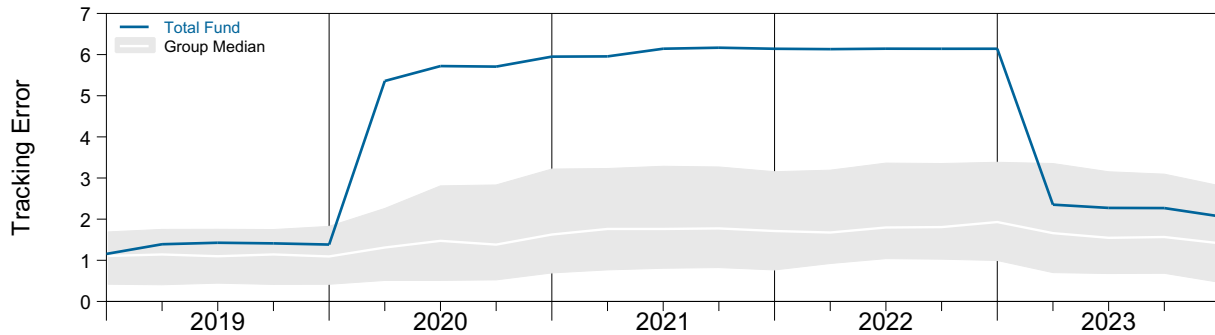
### Risk Analysis

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.

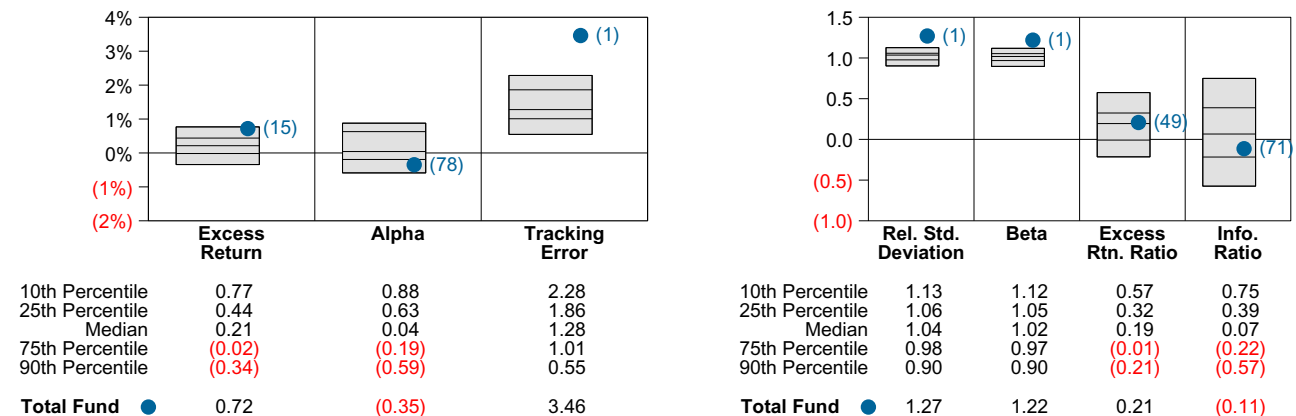
### Risk Analysis vs Callan Public Fund Sponsor Database Ten Years Ended December 31, 2023



### 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, 2023



## 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, 2023. 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, 2023

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
<b>Total Public Equity</b>	<b>11.48%</b>		<b>21.40%</b>		<b>7.33%</b>		<b>12.48%</b>		<b>10.49%</b>	(1/16)
MSCI ACWI IMI	11.14%		21.58%		5.46%		11.49%		9.59%	(1/16)
<b>Total Domestic Equity</b>	<b>11.85%</b>	<b>48</b>	<b>19.73%</b>	<b>92</b>	<b>8.96%</b>	<b>32</b>	<b>14.23%</b>	<b>64</b>	<b>8.09%</b>	(7/98)
Russell 3000 Index	12.07%	33	25.96%	14	8.54%	50	15.16%	21	7.90%	(7/98)
Pub Pln- Dom Equity	11.81%		23.72%		8.54%		14.57%		-	
BlackRock Russell 1000 Value	9.51%	63	11.47%	65	8.86%	89	11.06%	86	8.27%	(4/17)
Russell 1000 Value Index	9.50%	64	11.46%	66	8.86%	90	10.91%	87	8.12%	(4/17)
Callan Large Cap Value	10.04%		12.99%		11.11%		12.61%		-	
DFA Large Cap Value	9.15%	75	12.33%	54	10.83%	55	11.18%	80	7.83%	(11/17)
Russell 1000 Value Index	9.50%	64	11.46%	66	8.86%	90	10.91%	87	8.02%	(11/17)
Callan Large Cap Value	10.04%		12.99%		11.11%		12.61%		-	
Northern Trust Global	11.69%	58	26.30%	48	10.01%	58	15.71%	50	10.80%	(8/88)
S&P 500 Index	11.69%	58	26.29%	48	10.00%	58	15.69%	50	10.75%	(8/88)
Callan Large Cap Core	11.88%		26.16%		10.33%		15.69%		-	
Polen Capital Management	14.36%	42	38.20%	60	2.43%	87	15.06%	83	15.02%	(7/12)
S&P 500 Index	11.69%	93	26.29%	89	10.00%	16	15.69%	74	13.68%	(7/12)
Callan Large Cap Growth	14.19%		40.49%		6.74%		17.14%		-	
Earnest Partners LLC	12.96%	28	17.57%	50	7.96%	48	16.19%	6	11.28%	(5/05)
Russell MidCap Index	12.82%	29	17.23%	51	5.92%	56	12.68%	62	9.68%	(5/05)
Callan Mid Capitalization	11.47%		17.62%		7.40%		13.51%		-	
DFA Small Cap Value	15.46%	18	21.85%	13	18.98%	4	15.75%	8	12.00%	(11/96)
Russell 2000 Value Index	15.26%	20	14.65%	65	7.94%	81	10.00%	89	9.04%	(11/96)
Callan Small Cap Value	13.54%		16.62%		11.09%		12.33%		-	
CastleArk Management	9.61%	74	10.32%	86	(3.83%)	66	9.73%	82	9.71%	(9/13)
Russell 2000 Growth Index	12.75%	26	18.66%	47	(3.50%)	62	9.22%	86	8.44%	(9/13)
Callan Small Cap Growth	11.13%		17.88%		(1.53%)		12.21%		-	
<b>Total Global Equity</b>	<b>11.39%</b>	<b>45</b>	<b>22.29%</b>	<b>47</b>	<b>6.36%</b>	<b>49</b>	<b>13.37%</b>	<b>31</b>	<b>9.44%</b>	(4/10)
MSCI World	11.42%	44	23.79%	35	7.27%	35	12.80%	44	9.37%	(4/10)
Callan Global Equity	11.26%		21.72%		6.34%		12.62%		-	
BlackRock Global Alpha Tilts	11.47%	43	23.27%	40	6.79%	42	12.48%	54	11.85%	(3/16)
MSCI ACWI Gross	11.15%	51	22.81%	43	6.25%	52	12.27%	56	11.53%	(3/16)
Callan Global Equity	11.26%		21.72%		6.34%		12.62%		-	
MFS Investment Management	11.28%	49	21.00%	53	5.80%	58	14.76%	12	12.19%	(12/12)
MSCI ACWI Gross	11.15%	51	22.81%	43	6.25%	52	12.27%	56	9.91%	(12/12)
Callan Global Equity	11.26%		21.72%		6.34%		12.62%		-	
<b>Total International Equity</b>	<b>11.08%</b>	<b>2</b>	<b>22.82%</b>	<b>1</b>	<b>5.54%</b>	<b>4</b>	<b>9.66%</b>	<b>11</b>	<b>7.08%</b>	(5/96)
MSCI EAFE	10.42%	7	18.24%	15	4.02%	17	8.16%	49	4.76%	(5/96)
Pub Pln- Intl Equity	9.70%		16.51%		1.82%		8.11%		-	
AQR Emerging Markets	10.39%	10	18.78%	12	(1.41%)	24	6.44%	27	6.00%	(8/16)
MSCI EM Gross	7.93%	59	10.27%	59	(4.71%)	50	4.08%	78	5.01%	(8/16)
Callan Emerging Broad	8.20%		11.91%		(4.84%)		5.38%		-	
Brandes Investment Partners	10.74%	35	31.34%	1	11.89%	1	9.78%	25	8.06%	(2/98)
MSCI EAFE	10.42%	41	18.24%	46	4.02%	41	8.16%	69	4.83%	(2/98)
Callan NonUS Eq	10.07%		18.08%		3.36%		8.86%		-	
William Blair & Company	13.16%	9	16.06%	74	(2.08%)	90	10.18%	20	7.47%	(12/03)
MSCI ACWIxUS Gross	9.82%	55	16.21%	72	2.04%	65	7.60%	78	6.53%	(12/03)
Callan NonUS Eq	10.07%		18.08%		3.36%		8.86%		-	
DFA International Small Cap	9.45%	85	18.04%	20	7.59%	5	8.97%	32	5.12%	(5/06)
MSCI EAFE Small	11.14%	30	13.16%	68	(0.69%)	61	6.58%	70	4.22%	(5/06)
Callan Intl Small Cap	10.88%		15.06%		(0.01%)		7.77%		-	

## 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, 2023. 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, 2023

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
<b>Total Fixed Income</b>	<b>6.98%</b>	<b>42</b>	<b>6.63%</b>	<b>49</b>	<b>(0.34%)</b>	<b>12</b>	<b>1.68%</b>	<b>72</b>	<b>6.59%</b>	(12/87)
Blmbg Aggregate	6.82%	52	5.53%	92	(3.31%)	90	1.10%	95	5.46%	(12/87)
Pub Pln- Dom Fixed	6.87%		6.60%		(2.23%)		2.04%		-	
BlackRock US Govt Bond	5.54%	100	4.24%	99	-	-	-		(4.43%)	(12/21)
Blmbg Government	5.62%	100	4.09%	99	(3.74%)	98	0.56%	100	(4.53%)	(12/21)
Callan Core Bond FI	6.95%		6.17%		(2.92%)		1.68%		-	
Reams Asset Management	7.32%	33	6.76%	57	(2.24%)	27	3.58%	4	5.02%	(1/01)
Blmbg Aggregate	6.82%	81	5.53%	96	(3.31%)	90	1.10%	98	3.73%	(1/01)
Callan Core Plus FI	7.17%		6.90%		(2.52%)		2.23%		-	
Loomis, Sayles & Company, L.P.	7.69%	4	8.56%	2	(0.86%)	5	3.61%	4	8.12%	(12/87)
Blmbg Aggregate	6.82%	81	5.53%	96	(3.31%)	90	1.10%	98	5.46%	(12/87)
Callan Core Plus FI	7.17%		6.90%		(2.52%)		2.23%		-	
<b>Total Private Equity</b>	<b>(1.93%)</b>		<b>2.89%</b>		<b>17.95%</b>		<b>18.51%</b>		<b>12.66%</b>	(6/10)
Private Equity Benchmark (3)	(2.66%)		22.76%		11.80%		11.95%		-	
Abbott Capital Management 2010	(7.84%)		(6.70%)		8.69%		13.23%		1.02%	(6/10)
Abbott Capital Management 2011	(7.59%)		(7.55%)		9.71%		15.33%		4.17%	(6/11)
Abbott Capital Management 2012	(5.39%)		(3.85%)		13.02%		17.04%		11.19%	(7/12)
Abbott Capital Management 2013	(5.15%)		(2.85%)		13.10%		17.65%		11.96%	(5/13)
Abbott Capital Management 2014	(5.23%)		(3.96%)		15.16%		18.26%		11.39%	(4/14)
Abbott Capital Management 2015	(1.32%)		3.60%		21.80%		19.40%		13.84%	(4/15)
Abbott Capital Management 2016	(0.31%)		5.24%		22.81%		19.38%		13.08%	(3/16)
Abbott Capital Management 2018	(0.62%)		3.96%		17.99%		16.67%		14.55%	(7/18)
Abbott Capital Management 2019	(0.60%)		3.43%		20.48%		-		17.78%	(1/20)
Abbott Capital Management 2020	0.12%		1.70%		19.24%		-		19.24%	(1/21)
Abbott Capital Management 2021	(0.16%)		2.00%		-		-		5.08%	(2/21)
Abbott Capital Management 2022	(1.36%)		4.87%		-		-		(1.19%)	(2/22)
Abbott Capital Management 2023	(0.28%)		-		-		-		(0.28%)	(7/23)
Mesirov V	(5.36%)		(0.80%)		12.50%		14.99%		14.24%	(6/10)
Mesirov VI	(4.51%)		(0.52%)		17.49%		20.77%		13.14%	(7/13)
Mesirov VII	0.40%		5.78%		18.97%		15.16%		3.75%	(6/17)
Mesirov VIII	(1.36%)		0.22%		2.60%		-		(1.78%)	(9/20)
NB Secondary Opp Fund III	1.91%		17.34%		14.31%		11.80%		12.18%	(12/13)
NB Secondary Opp Fund IV	(0.58%)		4.64%		16.00%		15.51%		19.25%	(4/17)
NB Secondary Opp Fund V	1.39%		21.41%		-		-		76.15%	(3/22)
Private Advisors VI	1.46%		4.68%		28.38%		23.81%		13.86%	(4/15)
Private Advisors VII	1.32%		7.32%		25.80%		18.15%		14.93%	(1/17)
Private Advisors VIII	1.69%		9.80%		27.30%		18.03%		19.34%	(8/18)
Private Advisors IX	0.96%		13.33%		24.48%		-		24.83%	(2/20)
Apogem Capital X	2.07%		-		-		-		29.18%	(5/23)
<b>Absolute Return</b>	<b>2.35%</b>		<b>6.09%</b>		<b>13.46%</b>		<b>7.21%</b>		<b>5.94%</b>	(6/14)
90 Day T-Bill + 3%	2.08%		8.01%		5.15%		4.88%		4.30%	(6/14)
Aptitude	2.06%	57	5.24%	53	-	-	-		6.15%	(9/22)
1-month LIBOR + 4%	2.35%	30	9.38%	1	6.41%	19	6.03%	31	8.95%	(9/22)
Callan Abs Rtn Hedge FoF	2.11%		5.75%		5.49%		5.34%		-	
UBS A & Q	2.52%	28	6.48%	40	7.80%	10	9.01%	8	6.39%	(12/14)
1-month LIBOR + 4%	2.35%	30	9.38%	1	6.41%	19	6.03%	31	5.54%	(12/14)
Callan Abs Rtn Hedge FoF	2.11%		5.75%		5.49%		5.34%		-	
<b>Real Assets</b>	<b>7.26%</b>		<b>3.95%</b>		<b>5.20%</b>		<b>7.06%</b>		<b>5.49%</b>	(1/16)
Principal DRA	7.26%	10	3.95%	48	5.20%	74	7.06%	68	5.49%	(1/16)
Principal DRA Blend Index (1)	7.55%	10	4.31%	47	4.69%	79	6.11%	74	4.94%	(1/16)
Callan Alternative Inv DB	0.92%		3.03%		10.73%		8.32%		-	
<b>Total Real Estate</b>	<b>(3.61%)</b>		<b>(10.23%)</b>		<b>8.18%</b>		<b>6.26%</b>		<b>6.65%</b>	(7/86)
Real Estate	(3.61%)	91	(10.23%)	71	8.18%	20	6.26%	28	6.65%	(7/86)
Blended Benchmark (2)	(2.12%)	86	(13.08%)	85	6.69%	33	5.22%	44	-	
Callan Tot Real Est DB	(0.14%)		(5.53%)		5.07%		4.70%		-	
<b>Total Fund</b>	<b>6.06%</b>	<b>94</b>	<b>10.22%</b>	<b>93</b>	<b>7.12%</b>	<b>6</b>	<b>9.28%</b>	<b>37</b>	<b>-</b>	
Total Fund Index*	6.23%	92	12.25%	64	4.25%	51	8.19%	73	-	
Callan Public Fund Spr DB	7.93%		12.99%		4.26%		8.97%		-	

\* Current Quarter Target = 39.0% MSCI ACWI IMI, 29.0% Blmbg:Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 7.0% 3-month Treasury Bill+3.0% and 3.3% Principal DRA Blend Index.

(1) Current Principal DRA Blend Index = 15% Bloomberg US TIPS Idx, 15% Bloomberg Commodity Idx, 30% S&P Global Infrastructure Idx, 15% S&P Global Natural Resources Idx and 25% 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.

(3) Private Equity Benchmark = Russell 3000 Index lagged 3 months+3.0% through 12/31/19, Russell 3000 Index lagged 3 months+2.0% 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.

	2023		2022		2021		2020		2019	
<b>Total Public Equity</b>	<b>21.40%</b>		<b>(15.78%)</b>		<b>20.92%</b>		<b>14.78%</b>		<b>26.90%</b>	
MSCI ACWI IMI	21.58%		(18.40%)		18.22%		16.25%		26.35%	
<b>Total Domestic Equity</b>	<b>19.73%</b>	<b>92</b>	<b>(15.68%)</b>	<b>12</b>	<b>28.12%</b>	<b>16</b>	<b>16.35%</b>	<b>72</b>	<b>29.24%</b>	<b>74</b>
Russell 3000 Index	25.96%	14	(19.21%)	80	25.66%	54	20.89%	24	31.02%	25
Pub Pln- Dom Equity	23.72%		(17.91%)		25.85%		18.58%		30.20%	
BlackRock Russell 1000 Value	11.47%	65	(7.54%)	80	25.18%	80	3.28%	47	26.79%	48
Russell 1000 Value Index	11.46%	66	(7.54%)	79	25.16%	80	2.80%	52	26.54%	51
Callan Large Cap Value	12.99%		(5.04%)		28.39%		3.04%		26.58%	
DFA Large Cap Value	12.33%	54	(4.95%)	49	27.52%	65	(1.56%)	90	26.71%	48
Russell 1000 Value Index	11.46%	66	(7.54%)	79	25.16%	80	2.80%	52	26.54%	51
Callan Large Cap Value	12.99%		(5.04%)		28.39%		3.04%		26.58%	
Northern Trust Global	26.30%	48	(18.08%)	58	28.69%	54	18.42%	52	31.54%	39
S&P 500 Index	26.29%	48	(18.11%)	58	28.71%	54	18.40%	52	31.49%	40
Callan Large Cap Core	26.16%		(17.42%)		29.05%		18.84%		30.46%	
Polen Capital Management	38.20%	60	(37.72%)	89	24.84%	43	35.13%	55	38.85%	11
S&P 500 Index	26.29%	89	(18.11%)	6	28.71%	21	18.40%	98	31.49%	76
Callan Large Cap Growth	40.49%		(30.18%)		24.26%		35.57%		34.43%	
Earnest Partners LLC	17.57%	50	(15.13%)	52	26.09%	48	21.61%	41	38.38%	12
Russell MidCap Index	17.23%	51	(17.32%)	58	22.58%	58	17.10%	48	30.54%	52
Callan Mid Capitalization	17.62%		(14.34%)		25.38%		16.17%		31.00%	
DFA Small Cap Value	21.85%	13	(1.69%)	10	40.61%	16	3.85%	45	18.79%	89
Russell 2000 Value Index	14.65%	65	(14.48%)	84	28.27%	64	4.63%	37	22.39%	64
Callan Small Cap Value	16.62%		(10.51%)		31.82%		2.88%		24.31%	
CastleArk Management	10.32%	86	(28.21%)	62	12.30%	42	45.10%	46	23.28%	86
Russell 2000 Growth Index	18.66%	47	(26.36%)	44	2.83%	80	34.63%	73	28.48%	54
Callan Small Cap Growth	17.88%		(27.10%)		10.91%		44.48%		30.24%	
<b>Total Global Equity</b>	<b>22.29%</b>	<b>47</b>	<b>(17.35%)</b>	<b>47</b>	<b>19.03%</b>	<b>54</b>	<b>18.78%</b>	<b>43</b>	<b>31.05%</b>	<b>27</b>
MSCI World	23.79%	35	(18.14%)	52	21.82%	28	15.90%	55	27.67%	49
Callan Global Equity	21.72%		(17.81%)		19.46%		17.02%		27.49%	
BlackRock Global Alpha Tilts	23.27%	40	(16.80%)	43	18.73%	56	16.53%	52	26.86%	53
MSCI ACWI Gross	22.81%	43	(17.96%)	51	19.04%	54	16.82%	51	27.30%	51
Callan Global Equity	21.72%		(17.81%)		19.46%		17.02%		27.49%	
MFS Investment Management	21.00%	53	(18.14%)	52	19.56%	49	22.42%	32	37.31%	4
MSCI ACWI Gross	22.81%	43	(17.96%)	51	19.04%	54	16.82%	51	27.30%	51
Callan Global Equity	21.72%		(17.81%)		19.46%		17.02%		27.49%	
<b>Total International Equity</b>	<b>22.82%</b>	<b>1</b>	<b>(15.36%)</b>	<b>23</b>	<b>13.08%</b>	<b>14</b>	<b>10.84%</b>	<b>70</b>	<b>21.68%</b>	<b>71</b>
MSCI EAFE	18.24%	15	(14.45%)	18	11.26%	23	7.82%	90	22.01%	62
Pub Pln- Intl Equity	16.51%		(16.85%)		8.94%		12.71%		22.89%	
AQR Emerging Markets	18.78%	12	(20.29%)	38	1.23%	36	18.26%	49	20.54%	64
MSCI EM Gross	10.27%	59	(19.74%)	35	(2.22%)	55	18.69%	44	18.90%	72
Callan Emerging Broad	11.91%		(22.16%)		(0.59%)		18.17%		22.26%	
Brandes Investment Partners	31.34%	1	(6.79%)	4	14.42%	18	(1.30%)	96	15.31%	98
MSCI EAFE	18.24%	46	(14.45%)	43	11.26%	52	7.82%	65	22.01%	66
Callan NonUS Eq	18.08%		(15.29%)		11.50%		11.19%		23.78%	
William Blair & Company	16.06%	74	(28.57%)	95	13.27%	30	31.44%	6	31.58%	10
MSCI ACWIxUS Gross	16.21%	72	(15.57%)	51	8.29%	71	11.13%	50	22.13%	64
Callan NonUS Eq	18.08%		(15.29%)		11.50%		11.19%		23.78%	
DFA International Small Cap	18.04%	20	(9.42%)	5	16.47%	14	1.47%	91	21.62%	83
MSCI EAFE Small	13.16%	68	(21.39%)	52	10.10%	72	12.34%	46	24.96%	51
Callan Intl Small Cap	15.06%		(20.63%)		12.78%		11.29%		24.99%	

## 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.

	2023		2022		2021		2020		2019	
<b>Total Fixed Income</b>	<b>6.63%</b>	<b>49</b>	<b>(6.83%)</b>	<b>9</b>	<b>(0.36%)</b>	<b>45</b>	<b>(1.82%)</b>	<b>98</b>	<b>11.82%</b>	<b>5</b>
Blmbg Aggregate	5.53%	92	(13.01%)	73	(1.54%)	91	7.51%	67	8.72%	58
Pub Plin- Dom Fixed	6.60%		(12.24%)		(0.57%)		8.53%		8.98%	
BlackRock US Govt Bond	4.24%	99	(12.43%)	22	-	-	-	-	-	-
Blmbg Government	4.09%	99	(12.32%)	17	(2.28%)	100	7.94%	85	6.83%	100
Callan Core Bond FI	6.17%		(12.91%)		(1.03%)		8.71%		9.17%	
Reams Asset Management	6.76%	57	(11.39%)	13	(1.23%)	91	17.28%	2	8.82%	92
Blmbg Aggregate	5.53%	96	(13.01%)	41	(1.54%)	97	7.51%	93	8.72%	93
Callan Core Plus FI	6.90%		(13.27%)		(0.27%)		9.27%		10.01%	
Loomis, Sayles & Company, L.P.	8.56%	2	(12.12%)	18	2.13%	5	7.14%	94	14.42%	1
Blmbg Aggregate	5.53%	96	(13.01%)	41	(1.54%)	97	7.51%	93	8.72%	93
Callan Core Plus FI	6.90%		(13.27%)		(0.27%)		9.27%		10.01%	
<b>Total Private Equity</b>	<b>2.89%</b>		<b>(4.88%)</b>		<b>67.66%</b>		<b>22.14%</b>		<b>16.63%</b>	
Private Equity Benchmark (3)	22.76%		(15.10%)		34.08%		17.99%		6.65%	
Abbott Capital Management 2010	(6.70%)		(16.87%)		65.55%		24.43%		16.52%	
Abbott Capital Management 2011	(7.55%)		(18.97%)		76.29%		29.13%		19.64%	
Abbott Capital Management 2012	(3.85%)		(13.14%)		72.85%		29.04%		17.91%	
Abbott Capital Management 2013	(2.85%)		(12.51%)		70.21%		28.65%		21.13%	
Abbott Capital Management 2014	(3.96%)		(9.41%)		75.52%		26.51%		19.74%	
Abbott Capital Management 2015	3.60%		(0.79%)		75.81%		16.62%		15.14%	
Abbott Capital Management 2016	5.24%		2.90%		71.04%		20.02%		9.08%	
Abbott Capital Management 2018	3.96%		7.44%		47.06%		22.73%		7.26%	
Abbott Capital Management 2019	3.43%		7.54%		57.22%		10.04%		-	
Abbott Capital Management 2020	1.70%		0.81%		65.36%		-		-	
Abbott Capital Management 2021	2.00%		1.72%		-		-		-	
Abbott Capital Management 2022	4.87%		-		-		-		-	
Mesirov V	(0.80%)		(19.60%)		78.52%		21.39%		16.29%	
Mesirov VI	(0.52%)		(13.41%)		88.26%		29.10%		22.73%	
Mesirov VII	5.78%		(0.68%)		60.27%		16.43%		3.33%	
Mesirov VIII	0.22%		(2.15%)		10.14%		-		-	
NB Secondary Opp Fund III	17.34%		(2.34%)		30.34%		4.23%		12.18%	
NB Secondary Opp Fund IV	4.64%		0.29%		48.73%		14.80%		14.76%	
NB Secondary Opp Fund V	21.41%		-		-		-		-	
Private Advisors VI	4.68%		9.97%		83.78%		16.54%		17.98%	
Private Advisors VII	7.32%		21.61%		52.55%		3.97%		11.23%	
Private Advisors VIII	9.80%		27.61%		47.25%		15.78%		(4.08%)	
Private Advisors IX	13.33%		24.00%		37.25%		-		-	
<b>Absolute Return</b>	<b>6.09%</b>		<b>26.46%</b>		<b>8.87%</b>		<b>(14.04%)</b>		<b>12.79%</b>	
90 Day T-Bill + 3%	8.01%		4.46%		3.05%		3.67%		5.28%	
Aptitude	5.24%	53	-		-		-		-	
1-month LIBOR + 4%	9.38%	1	5.80%	21	4.11%	77	4.63%	45	6.32%	30
Callan Abs Rtn Hedge FoF	5.75%		3.34%		6.76%		4.03%		4.71%	
UBS A & Q	6.48%	40	8.85%	13	8.08%	44	12.18%	14	9.53%	4
1-month LIBOR + 4%	9.38%	1	5.80%	21	4.11%	77	4.63%	45	6.32%	30
Callan Abs Rtn Hedge FoF	5.75%		3.34%		6.76%		4.03%		4.71%	
<b>Real Assets</b>	<b>3.95%</b>		<b>(5.29%)</b>		<b>18.24%</b>		<b>4.69%</b>		<b>15.39%</b>	
Principal DRA	3.95%	48	(5.29%)	84	18.24%	43	4.69%	24	15.39%	15
Principal DRA Blend Index (1)	4.31%	47	(5.07%)	83	15.87%	45	2.08%	32	14.86%	16
Callan Alternative Inv DB	3.03%		9.37%		13.64%		(0.39%)		7.82%	
<b>Total Real Estate</b>	<b>(10.23%)</b>		<b>13.88%</b>		<b>23.85%</b>		<b>0.76%</b>		<b>6.21%</b>	
Real Estate	(10.23%)	71	13.88%	26	23.85%	34	0.76%	55	6.21%	65
Blended Benchmark (2)	(13.08%)	85	21.68%	15	14.83%	57	0.89%	53	5.26%	73
Callan Tot Real Est DB	(5.53%)		8.26%		18.84%		1.40%		7.71%	
<b>Total Fund</b>	<b>10.22%</b>	<b>93</b>	<b>(6.32%)</b>	<b>8</b>	<b>19.05%</b>	<b>8</b>	<b>6.84%</b>	<b>97</b>	<b>18.66%</b>	<b>47</b>
Total Fund Index*	12.25%	64	(10.59%)	26	12.88%	69	12.29%	49	16.52%	81
Callan Public Fund Spr DB	12.99%		(12.38%)		14.07%		12.25%		18.51%	

\* Current Quarter Target = 39.0% MSCI ACWI IMI, 29.0% Blmbg:Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 7.0% 3-month Treasury Bill+3.0% and 3.3% Principal DRA Blend Index.

(1) Current Principal DRA Blend Index = 15% Bloomberg US TIPS Idx, 15% Bloomberg Commodity Idx, 30% S&P Global Infrastructure Idx, 15% S&P Global Natural Resources Idx and 25% 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.

(3) Private Equity Benchmark = Russell 3000 Index lagged 3 months+3.0% through 12/31/19, Russell 3000 Index lagged 3 months+2.0% 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, 2023. 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, 2023

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Net of Fee Returns</b>					
<b>Total Domestic Equity</b>	<b>11.76%</b>	<b>19.38%</b>	<b>8.69%</b>	<b>13.96%</b>	<b>10.60%</b>
Russell 3000 Index	12.07%	25.96%	8.54%	15.16%	11.48%
BlackRock Russell 1000 Value Russell 1000 Value Index	9.50%	11.46%	8.85%	11.05%	-
	9.50%	11.46%	8.86%	10.91%	8.40%
DFA Large Cap Value Russell 1000 Value Index	9.10%	12.12%	10.65%	10.96%	-
	9.50%	11.46%	8.86%	10.91%	8.40%
Northern Trust Global S&P 500 Index	11.69%	26.29%	10.00%	15.70%	12.05%
	11.69%	26.29%	10.00%	15.69%	12.03%
Polen Capital Management S&P 500 Index	14.25%	37.75%	2.04%	14.61%	14.02%
	11.69%	26.29%	10.00%	15.69%	12.03%
Earnest Partners LLC Russell MidCap Index	12.81%	16.95%	7.43%	15.60%	11.53%
	12.82%	17.23%	5.92%	12.68%	9.42%
DFA Small Cap Value Russell 2000 Value Index	15.27%	21.04%	18.48%	15.39%	8.83%
	15.26%	14.65%	7.94%	10.00%	6.76%
CastleArk Management Russell 2000 Growth Index	9.43%	9.58%	(4.42%)	9.03%	7.40%
	12.75%	18.66%	(3.50%)	9.22%	7.16%
<b>Total Global Equity</b>	<b>11.29%</b>	<b>21.88%</b>	<b>6.08%</b>	<b>13.05%</b>	<b>9.06%</b>
MSCI World	11.42%	23.79%	7.27%	12.80%	8.60%
BlackRock Global Alpha Tilts MSCI ACWI Gross	11.38%	22.93%	6.63%	12.28%	-
	11.15%	22.81%	6.25%	12.27%	8.48%
MFS Investment Management MSCI ACWI Gross	11.17%	20.50%	5.35%	14.27%	10.55%
	11.15%	22.81%	6.25%	12.27%	8.48%
<b>Total International Equity</b>	<b>10.96%</b>	<b>22.25%</b>	<b>5.06%</b>	<b>9.14%</b>	<b>4.99%</b>
MSCI EAFE Index	10.42%	18.24%	4.02%	8.16%	4.28%
AQR Emerging Markets MSCI EM Gross	10.20%	17.92%	(2.15%)	5.64%	-
	7.93%	10.27%	(4.71%)	4.08%	3.05%
Brandes Investment Partners MSCI EAFE Index	10.63%	30.84%	11.47%	9.35%	5.24%
	10.42%	18.24%	4.02%	8.16%	4.28%
William Blair & Company MSCI ACWI ex-US Index	13.02%	15.50%	(2.53%)	9.68%	5.13%
	9.82%	16.21%	2.04%	7.60%	4.32%
DFA International Small Cap MSCI EAFE Small	9.34%	17.52%	7.10%	8.43%	4.61%
	11.14%	13.16%	(0.69%)	6.58%	4.80%

\*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 ended December 31, 2023. 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, 2023

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Net of Fee Returns</b>					
<b>Total Fixed Income</b>	<b>6.95%</b>	<b>6.52%</b>	<b>(0.44%)</b>	<b>1.57%</b>	<b>2.06%</b>
Blmbg Aggregate	6.82%	5.53%	(3.31%)	1.10%	1.81%
BlackRock US Govt Bond Blmbg Government	5.54%	4.22%	-	-	-
Reams Asset Management Blmbg Aggregate	5.62%	4.09%	(3.74%)	0.56%	1.27%
Reams Asset Management Blmbg Aggregate	7.29%	6.62%	(2.36%)	3.44%	3.08%
Loomis, Sayles & Company, L.P. Blmbg Aggregate	6.82%	5.53%	(3.31%)	1.10%	1.81%
<b>Total Private Equity</b>	<b>(1.93%)</b>	<b>2.89%</b>	<b>17.95%</b>	<b>18.51%</b>	<b>16.76%</b>
Private Equity Benchmark	(2.66%)	22.76%	11.80%	11.95%	-
Abbott Capital Management 2010	(7.84%)	(6.70%)	8.69%	13.23%	14.79%
Abbott Capital Management 2011	(7.59%)	(7.55%)	9.71%	15.33%	15.04%
Abbott Capital Management 2012	(5.39%)	(3.85%)	13.02%	17.04%	14.26%
Abbott Capital Management 2013	(5.15%)	(2.85%)	13.10%	17.65%	13.43%
Abbott Capital Management 2014	(5.23%)	(3.96%)	15.16%	18.26%	-
Abbott Capital Management 2015	(1.32%)	3.60%	21.80%	19.40%	-
Abbott Capital Management 2016	(0.31%)	5.24%	22.81%	19.38%	-
Abbott Capital Management 2018	(0.62%)	3.96%	17.99%	16.67%	-
Abbott Capital Management 2019	(0.60%)	3.43%	20.48%	-	-
Abbott Capital Management 2020	0.12%	1.70%	19.24%	-	-
Abbott Capital Management 2021	(0.16%)	2.00%	-	-	-
Abbott Capital Management 2022	(1.36%)	4.87%	-	-	-
Abbott Capital Management 2023	(0.28%)	-	-	-	-
Mesirow V	(5.36%)	(0.80%)	12.50%	14.99%	16.61%
Mesirow IV	(4.51%)	(0.52%)	17.49%	20.77%	13.86%
Mesirow VII	0.40%	5.78%	18.97%	15.16%	-
Mesirow VIII	(1.36%)	0.22%	2.60%	-	-
NB Secondary Opp Fund III	1.91%	17.34%	14.31%	11.80%	16.05%
NB Secondary Opp Fund IV	(0.58%)	4.64%	16.00%	15.51%	-
NB Secondary Opp Fund V	1.39%	21.41%	-	-	-
Private Advisors VI	1.46%	4.68%	28.38%	23.81%	-
Private Advisors VII	1.32%	7.32%	25.80%	18.15%	-
Private Advisors VIII	1.69%	9.80%	27.30%	18.03%	-
Private Advisors IX	0.96%	13.33%	24.48%	-	-
Apogem Capital X	2.07%	-	-	-	-
<b>Absolute Return</b>	<b>2.35%</b>	<b>6.09%</b>	<b>13.43%</b>	<b>7.09%</b>	<b>-</b>
90 Day T-Bill + 3%	2.08%	8.01%	5.15%	4.88%	4.25%
Aptitude	2.06%	5.24%	-	-	-
1-month LIBOR + 4%	2.35%	9.38%	6.41%	6.03%	5.41%
UBS A & Q	2.52%	6.48%	7.80%	9.01%	-
1-month LIBOR + 4%	2.35%	9.38%	6.41%	6.03%	5.41%
<b>Real Assets</b>	<b>7.10%</b>	<b>3.31%</b>	<b>4.54%</b>	<b>6.42%</b>	<b>-</b>
Principal DRA	7.10%	3.31%	4.54%	6.42%	-
Principal DRA Blend Index	7.55%	4.31%	4.69%	6.11%	-
<b>Total Real Estate</b>	<b>(3.65%)</b>	<b>(10.54%)</b>	<b>7.85%</b>	<b>5.94%</b>	<b>8.49%</b>
Real Estate	(3.65%)	(10.54%)	7.85%	5.94%	8.49%
Blended Benchmark	(2.12%)	(13.08%)	6.69%	5.22%	7.53%
<b>Total Fund</b>	<b>6.00%</b>	<b>9.97%</b>	<b>6.89%</b>	<b>9.03%</b>	<b>7.16%</b>
Total Fund Index	6.23%	12.25%	4.25%	8.19%	6.71%

\*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.

	2023	2022	2021	2020	2019
<b>Net of Fee Returns</b>					
<b>Total Domestic Equity</b>	<b>19.38%</b>	<b>(15.89%)</b>	<b>27.88%</b>	<b>16.09%</b>	<b>28.94%</b>
Russell 3000 Index	25.96%	(19.21%)	25.66%	20.89%	31.02%
BlackRock Russell 1000 Value	11.46%	(7.55%)	25.17%	3.27%	26.77%
Russell 1000 Value Index	11.46%	(7.54%)	25.16%	2.80%	26.54%
DFA Large Cap Value	12.12%	(5.12%)	27.35%	(1.78%)	26.42%
Russell 1000 Value Index	11.46%	(7.54%)	25.16%	2.80%	26.54%
Northern Trust Global	26.29%	(18.09%)	28.68%	18.41%	31.53%
S&P 500 Index	26.29%	(18.11%)	28.71%	18.40%	31.49%
Polen Capital Management	37.75%	(37.97%)	24.34%	34.59%	38.27%
S&P 500 Index	26.29%	(18.11%)	28.71%	18.40%	31.49%
Earnest Partners LLC	16.95%	(15.58%)	25.59%	20.96%	37.65%
Russell MidCap Index	17.23%	(17.32%)	22.58%	17.10%	30.54%
DFA Small Cap Value	21.04%	(2.12%)	40.38%	3.74%	18.58%
Russell 2000 Value Index	14.65%	(14.48%)	28.27%	4.63%	22.39%
CastleArk Management	9.58%	(28.58%)	11.55%	44.12%	22.47%
Russell 2000 Growth Index	18.66%	(26.36%)	2.83%	34.63%	28.48%
<b>Total Global Equity</b>	<b>21.88%</b>	<b>(17.55%)</b>	<b>18.80%</b>	<b>18.48%</b>	<b>30.55%</b>
MSCI World	23.79%	(18.14%)	21.82%	15.90%	27.67%
BlackRock Global Alpha Tilts	22.93%	(16.89%)	18.67%	16.39%	26.48%
MSCI ACWI Gross	22.81%	(17.96%)	19.04%	16.82%	27.30%
MFS Investment Management	20.50%	(18.50%)	19.05%	21.88%	36.74%
MSCI ACWI Gross	22.81%	(17.96%)	19.04%	16.82%	27.30%
<b>Total International Equity</b>	<b>22.25%</b>	<b>(15.75%)</b>	<b>12.57%</b>	<b>10.28%</b>	<b>21.08%</b>
MSCI EAFE Index	18.24%	(14.45%)	11.26%	7.82%	22.01%
AQR Emerging Markets	17.92%	(20.93%)	0.47%	17.38%	19.64%
MSCI EM Gross	10.27%	(19.74%)	(2.22%)	18.69%	18.90%
Brandes Investment Partners	30.84%	(7.15%)	14.00%	(1.69%)	14.86%
MSCI EAFE Index	18.24%	(14.45%)	11.26%	7.82%	22.01%
William Blair & Company	15.50%	(28.91%)	12.77%	30.84%	31.01%
MSCI ACWI ex-US Index	16.21%	(15.57%)	8.29%	11.13%	22.13%
DFA International Small Cap	17.52%	(9.80%)	15.89%	0.81%	21.00%
MSCI EAFE Small	13.16%	(21.39%)	10.10%	12.34%	24.96%

\*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.

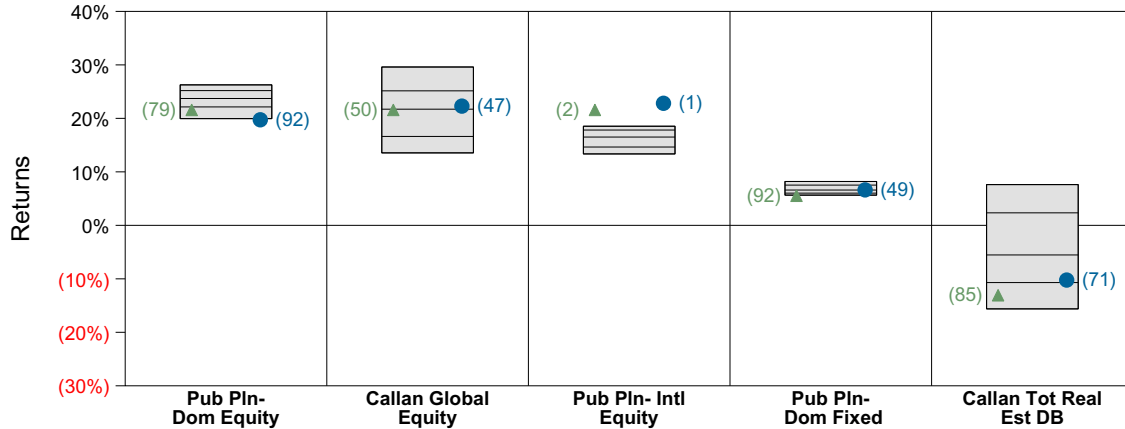
	2023	2022	2021	2020	2019
<b>Net of Fee Returns</b>					
<b>Total Fixed Income</b>	<b>6.52%</b>	<b>(6.93%)</b>	<b>(0.45%)</b>	<b>(1.91%)</b>	<b>11.68%</b>
Blmbg Aggregate	5.53%	(13.01%)	(1.54%)	7.51%	8.72%
BlackRock US Govt Bond	4.22%	(12.44%)	-	-	-
Blmbg Government	4.09%	(12.32%)	(2.28%)	7.94%	6.83%
Reams Asset Management	6.62%	(11.50%)	(1.36%)	17.11%	8.65%
Blmbg Aggregate	5.53%	(13.01%)	(1.54%)	7.51%	8.72%
Loomis, Sayles & Company, L.P.	8.41%	(12.26%)	1.98%	6.99%	14.25%
Blmbg Aggregate	5.53%	(13.01%)	(1.54%)	7.51%	8.72%
<b>Total Private Equity</b>	<b>2.89%</b>	<b>(4.88%)</b>	<b>67.66%</b>	<b>22.14%</b>	<b>16.63%</b>
Private Equity Benchmark	22.76%	(15.10%)	34.08%	17.99%	6.65%
Abbott Capital Management 2010	(6.70%)	(16.87%)	65.55%	24.43%	16.52%
Abbott Capital Management 2011	(7.55%)	(18.97%)	76.29%	29.13%	19.64%
Abbott Capital Management 2012	(3.85%)	(13.14%)	72.85%	29.04%	17.91%
Abbott Capital Management 2013	(2.85%)	(12.51%)	70.21%	28.65%	21.13%
Abbott Capital Management 2014	(3.96%)	(9.41%)	75.52%	26.51%	19.74%
Abbott Capital Management 2015	3.60%	(0.79%)	75.81%	16.62%	15.14%
Abbott Capital Management 2016	5.24%	2.90%	71.04%	20.02%	9.08%
Abbott Capital Management 2018	3.96%	7.44%	47.06%	22.73%	7.26%
Abbott Capital Management 2019	3.43%	7.54%	57.22%	10.04%	-
Abbott Capital Management 2020	1.70%	0.81%	65.36%	-	-
Abbott Capital Management 2021	2.00%	1.72%	-	-	-
Abbott Capital Management 2022	4.87%	-	-	-	-
Mesirow V	(0.80%)	(19.60%)	78.52%	21.39%	16.29%
Mesirow IV	(0.52%)	(13.41%)	88.26%	29.10%	22.73%
Mesirow VII	5.78%	(0.68%)	60.27%	16.43%	3.33%
Mesirow VIII	0.22%	(2.15%)	10.14%	-	-
NB Secondary Opp Fund III	17.34%	(2.34%)	30.34%	4.23%	12.18%
NB Secondary Opp Fund IV	4.64%	0.29%	48.73%	14.80%	14.76%
NB Secondary Opp Fund V	21.41%	-	-	-	-
Private Advisors VI	4.68%	9.97%	83.78%	16.54%	17.98%
Private Advisors VII	7.32%	21.61%	52.55%	3.97%	11.23%
Private Advisors VIII	9.80%	27.61%	47.25%	15.78%	(4.08%)
Private Advisors IX	13.33%	24.00%	37.25%	-	-
<b>Absolute Return</b>	<b>6.09%</b>	<b>26.46%</b>	<b>8.77%</b>	<b>(14.21%)</b>	<b>12.52%</b>
90 Day T-Bill + 3%	8.01%	4.46%	3.05%	3.67%	5.28%
Aptitude	5.24%	-	-	-	-
1-month LIBOR + 4%	9.38%	5.80%	4.11%	4.63%	6.32%
UBS A & Q	6.48%	8.85%	8.08%	12.18%	9.53%
1-month LIBOR + 4%	9.38%	5.80%	4.11%	4.63%	6.32%
<b>Real Assets</b>	<b>3.31%</b>	<b>(5.91%)</b>	<b>17.51%</b>	<b>4.02%</b>	<b>14.84%</b>
Principal DRA	3.31%	(5.91%)	17.51%	4.02%	14.84%
Principal DRA Blend Index	4.31%	(5.07%)	15.87%	2.08%	14.86%
<b>Total Real Estate</b>	<b>(10.54%)</b>	<b>13.58%</b>	<b>23.45%</b>	<b>0.39%</b>	<b>5.95%</b>
Real Estate	(10.54%)	13.58%	23.45%	0.39%	5.95%
Blended Benchmark	(13.08%)	21.68%	14.83%	0.89%	5.26%
<b>Total Fund</b>	<b>9.97%</b>	<b>(6.51%)</b>	<b>18.80%</b>	<b>6.59%</b>	<b>18.34%</b>
Total Fund Index	12.25%	(10.59%)	12.88%	12.29%	16.52%

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

## Asset Class Rankings

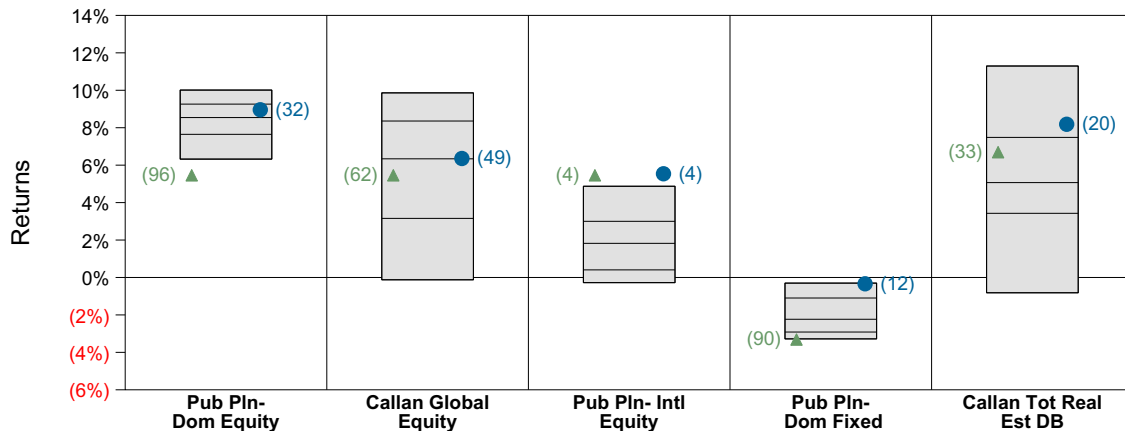
The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases.

### Total Asset Class Performance One Year Ended December 31, 2023



	Pub Pln-Dom Equity	Callan Global Equity	Pub Pln- Intl Equity	Pub Pln-Dom Fixed	Callan Tot Real Est DB
10th Percentile	26.26	29.60	18.53	8.20	7.62
25th Percentile	25.19	25.15	17.82	7.52	2.34
Median	23.72	21.72	16.51	6.60	(5.53)
75th Percentile	22.14	16.62	14.64	6.02	(10.70)
90th Percentile	19.95	13.55	13.35	5.65	(15.62)
<b>Asset Class Composite</b>	● 19.73	22.29	22.82	6.63	(10.23)
Composite Benchmark	▲ 21.58	21.58	21.58	5.53	(13.08)

### Total Asset Class Performance Three Years Ended December 31, 2023



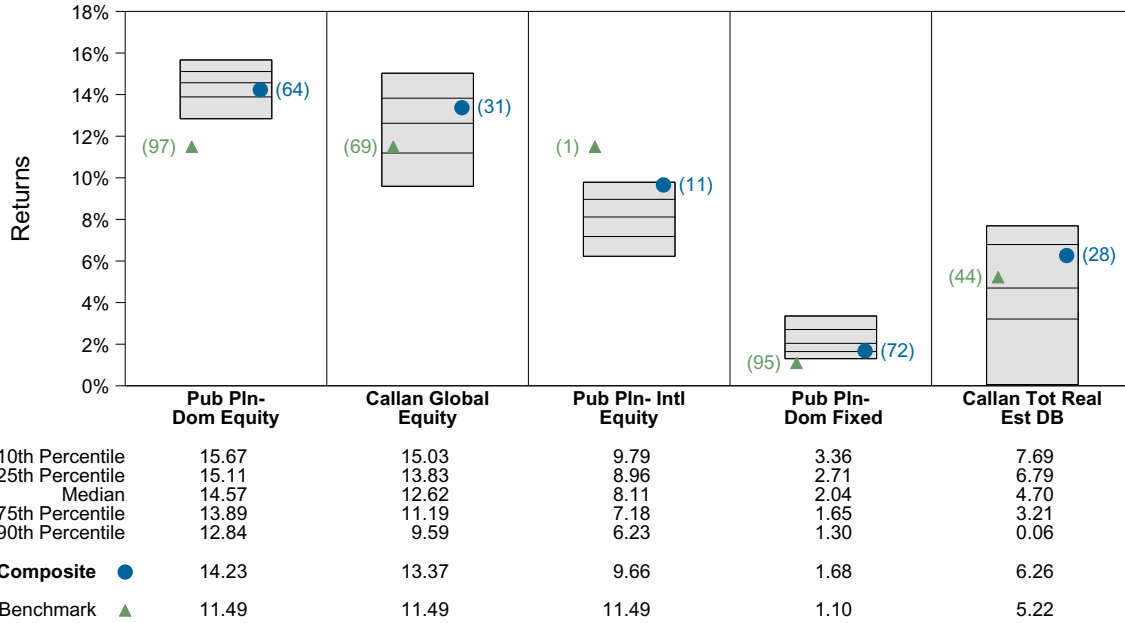
	Pub Pln-Dom Equity	Callan Global Equity	Pub Pln- Intl Equity	Pub Pln-Dom Fixed	Callan Tot Real Est DB
10th Percentile	10.01	9.86	4.87	(0.30)	11.30
25th Percentile	9.26	8.36	3.00	(1.10)	7.48
Median	8.54	6.34	1.82	(2.23)	5.07
75th Percentile	7.65	3.16	0.41	(2.91)	3.43
90th Percentile	6.32	(0.12)	(0.28)	(3.28)	(0.82)
<b>Asset Class Composite</b>	● 8.96	6.36	5.54	(0.34)	8.18
Composite Benchmark	▲ 5.46	5.46	5.46	(3.31)	6.69

\* Current Quarter Target = 39.0% MSCI ACWI IMI, 29.0% Blmbg:Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 7.0% 3-month Treasury Bill+3.0% and 3.3% Principal DRA Blend Index.

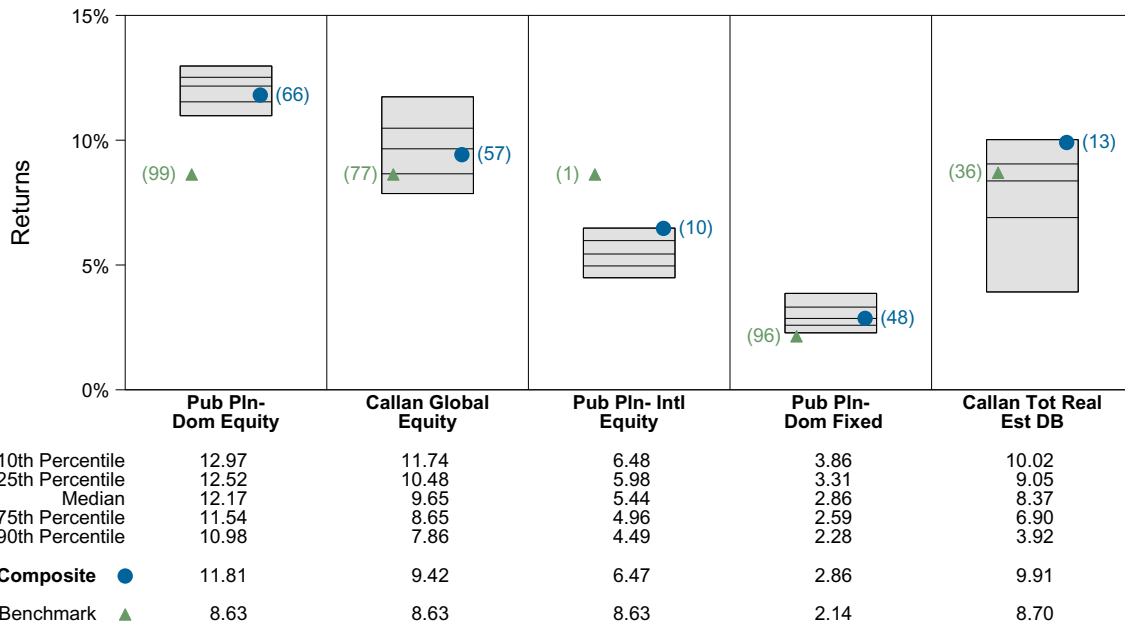
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases.

### Total Asset Class Performance Five Years Ended December 31, 2023



### Total Asset Class Performance Thirteen Years Ended December 31, 2023



\* Current Quarter Target = 39.0% MSCI ACWI IMI, 29.0% Blmbg:Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 7.0% 3-month Treasury Bill+3.0% and 3.3% Principal DRA Blend Index.



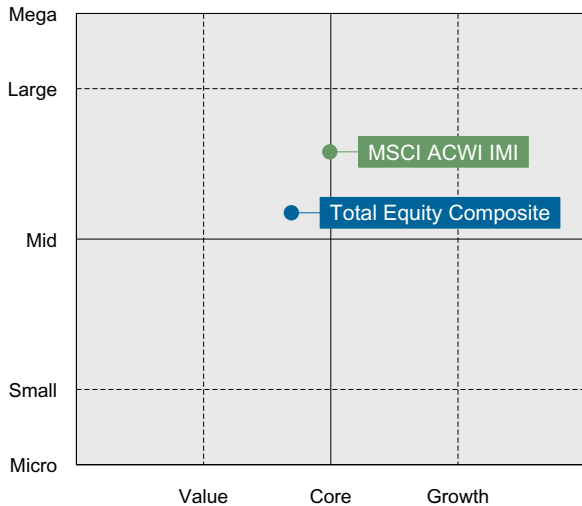
# Current Holdings Based Style Analysis

## Total Equity Composite

### As of December 31, 2023

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.

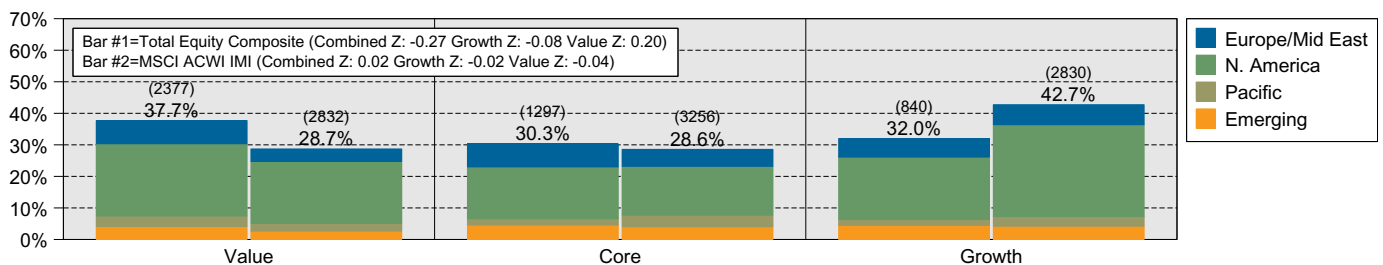
**Style Map vs Callan Public Fund Spr DB Holdings as of December 31, 2023**



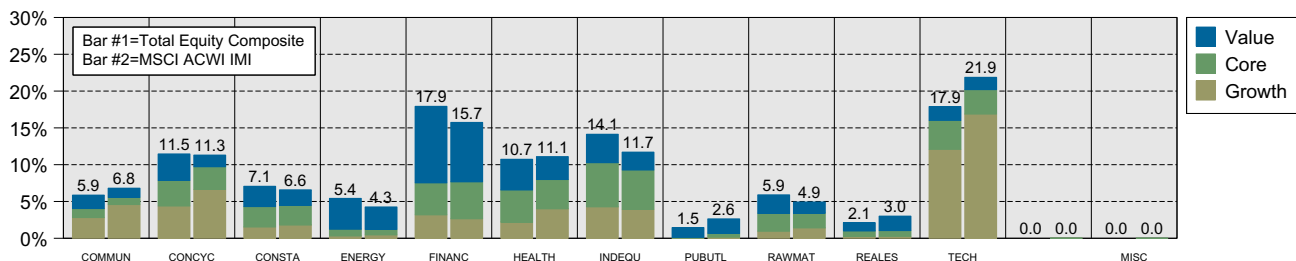
**Style Exposure Matrix Holdings as of December 31, 2023**

	Value	Core	Growth	Total
Europe/Mid East	7.4% (414)	7.3% (261)	5.9% (140)	20.5% (815)
	3.9% (440)	5.4% (513)	6.3% (470)	15.6% (1423)
N. America	22.9% (984)	16.5% (624)	19.8% (365)	59.2% (1973)
	19.7% (891)	15.5% (1057)	29.1% (709)	64.3% (2657)
Pacific	3.2% (798)	2.0% (248)	1.9% (124)	7.1% (1170)
	2.4% (501)	3.6% (524)	3.1% (495)	9.2% (1520)
Emerging	4.2% (181)	4.6% (164)	4.5% (211)	13.2% (556)
	2.7% (1000)	4.0% (1162)	4.2% (1156)	10.9% (3318)
<b>Total</b>	<b>37.7% (2377)</b>	<b>30.3% (1297)</b>	<b>32.0% (840)</b>	<b>100.0% (4514)</b>
	28.7% (2832)	28.6% (3256)	42.7% (2830)	100.0% (8918)

**Combined Z-Score Style Distribution Holdings as of December 31, 2023**



**Sector Weights Distribution Holdings as of December 31, 2023**





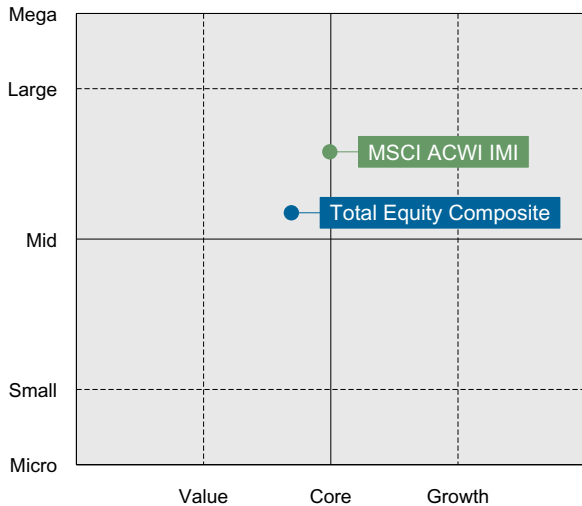
# Current Holdings Based Style Analysis

## Total Equity Composite

### As of December 31, 2023

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.

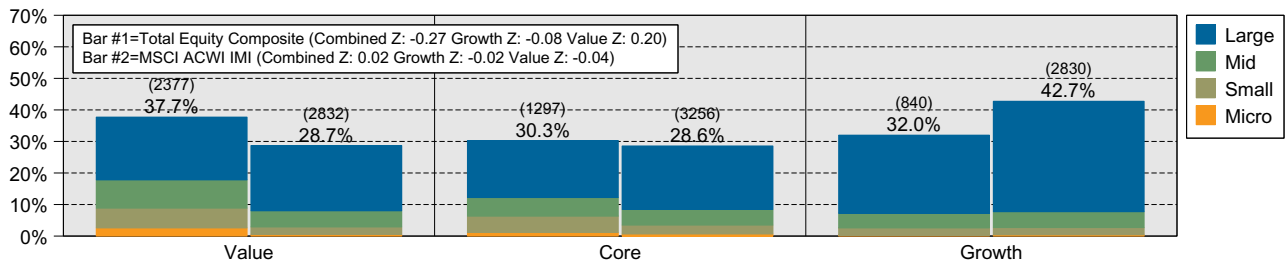
**Style Map vs Callan Public Fund Spr DB Holdings as of December 31, 2023**



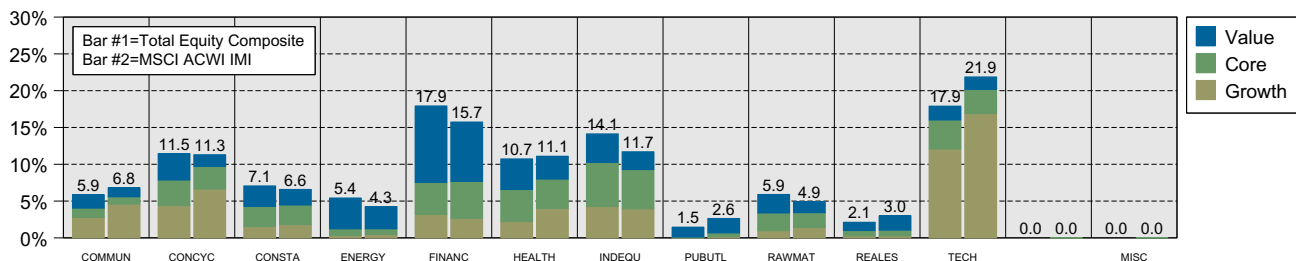
**Style Exposure Matrix Holdings as of December 31, 2023**

	Value	Core	Growth	Total
Large	19.9% (242)	18.1% (200)	24.8% (203)	62.8% (645)
	20.7% (311)	20.1% (271)	35.0% (309)	75.8% (891)
Mid	9.0% (337)	5.9% (270)	4.6% (262)	19.5% (869)
	5.1% (551)	5.0% (587)	5.0% (645)	15.2% (1783)
Small	6.3% (462)	5.2% (399)	2.3% (220)	13.7% (1081)
	2.4% (1074)	2.8% (1333)	2.3% (1162)	7.5% (3569)
Micro	2.6% (1336)	1.1% (428)	0.3% (155)	4.0% (1919)
	0.5% (896)	0.7% (1065)	0.4% (714)	1.6% (2675)
Total	37.7% (2377)	30.3% (1297)	32.0% (840)	100.0% (4514)
	28.7% (2832)	28.6% (3256)	42.7% (2830)	100.0% (8918)

**Combined Z-Score Style Distribution Holdings as of December 31, 2023**



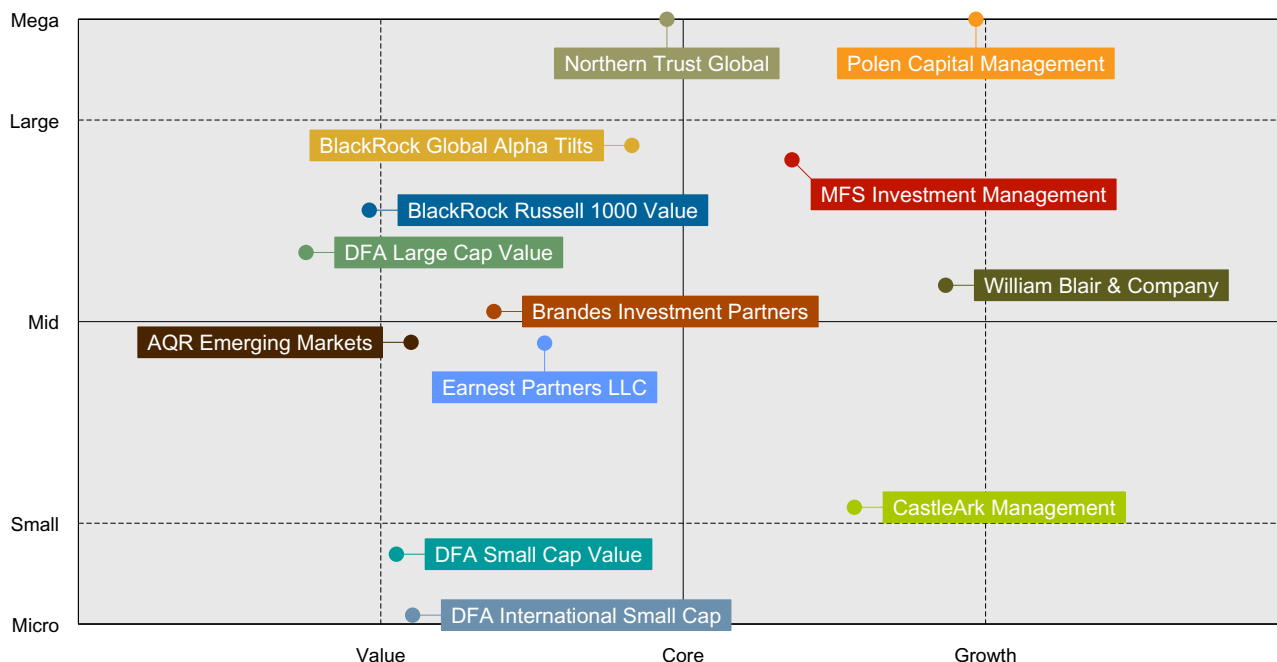
**Sector Weights Distribution Holdings as of December 31, 2023**



## Global Holdings Based Style Analysis For One Quarter Ended December 31, 2023

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, 2023



	Weight %	Wtd Median Mkt Cap	Combined Z-Score	Growth Z-Score	Value Z-Score	Number of Securities	Security Diversification
BlackRock Russell 1000 Value	8.48%	71.45	(0.97)	(0.40)	0.57	849	72.06
DFA Large Cap Value	6.09%	52.33	(1.17)	(0.33)	0.84	307	48.28
Northern Trust Global	8.56%	208.34	(0.03)	(0.03)	(0.01)	502	35.35
Polen Capital Management	5.30%	271.41	0.93	0.33	(0.60)	23	6.72
Earnest Partners LLC	4.50%	19.21	(0.42)	(0.24)	0.18	58	22.85
DFA Small Cap Value	8.11%	2.97	(0.89)	(0.17)	0.72	941	122.83
CastleArk Management	3.49%	4.91	0.55	0.08	(0.47)	109	38.80
MFS Investment Management	8.68%	94.20	0.36	(0.04)	(0.40)	73	21.19
BlackRock Global Alpha Tilts	10.99%	100.70	(0.14)	0.01	0.15	496	37.53
AQR Emerging Markets	4.68%	19.28	(0.84)	(0.09)	0.75	337	29.87
Brandes Investment Partners	14.16%	25.67	(0.58)	(0.15)	0.42	67	22.65
William Blair & Company	9.83%	37.51	0.84	0.23	(0.60)	273	48.49
DFA International Small Cap	7.13%	1.91	(0.84)	(0.12)	0.72	1838	149.69



## Quarterly Highlights

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

## New Research from Callan's Experts

**[2023 Nuclear Decommissioning Funding Study](#)** | Callan's annual study offers key insights into the status of nuclear decommissioning funding to make peer comparisons more accurate and relevant.

**[2023 Investment Management Fee Study](#)** | The purpose of the study is to provide a detailed analysis on fee levels and trends across multiple asset classes and mandate sizes, for both active and passive management.

**[2023 Asset Manager ESG Study](#)** | Callan's inaugural ESG Study analyzes responses to various environmental, social, and governance questions in Callan's manager database by firm size, asset class, country of domicile, and ownership structure.

## Webinar Replays

**[Research Cafe: Office-to-Residential Conversions](#)** | During this interview, Callan specialists Aaron Quach and Christine Mays of Callan's Real Assets Consulting Group discuss office-to-residential conversions.

**[Webinar: Callan's Retirement Conundrum](#)** | During this discussion, representatives from Callan and October Three (a human resource and actuarial consulting firm) discuss how a small provision in SECURE 2.0 has paved the way for cash-balance pension plans to meet retirement income needs.

## Blog Highlights

**[How Your Public DB Plan's Returns Compare](#)** | This 3Q23 update to our quarterly series of blog posts provides context for public defined benefit (DB) plans about their returns over time.

**[ILS on Pace for Banner Year in 2023](#)** | When reviewing hedge fund portfolios, those investing in insurance-linked securities (ILS) are finding that this oft-overlooked strategy is buoying performance.

## Quarterly Updates

**[Private Equity Update, 3Q23](#)** | A high-level summary of private equity activity in the quarter through all the investment stages

**[Active vs. Passive Charts, 3Q23](#)** | A comparison of active managers alongside relevant benchmarks over the long term

**[Market Pulse, 3Q23](#)** | 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, 3Q23](#)** | Analysis and a broad overview of the economy and public and private markets activity each quarter across a wide range of asset classes

**[Hedge Fund Update, 3Q23](#)** | Commentary on developments for hedge funds and multi-asset class (MAC) strategies

**[Real Assets Update, 3Q23](#)** | A summary of market activity for real assets and private real estate during the quarter

**[Private Credit Update, 3Q23](#)** | A review of performance and fundraising activity for private credit during the quarter

**[Callan Target Date Index™, 3Q23](#)** | Tracks the performance and asset allocation of available target date mutual funds and CITs

**[Callan DC Index™, 3Q23](#)** | Provides underlying fund performance, asset allocation, and cash flows of more than 100 large defined contribution plans representing approximately \$400 billion in assets

## Events

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

*Please mark your calendar and look forward to upcoming invitations:*

### 2024 National Conference

April 8-10, 2024 – San Francisco

### June Regional Workshops

June 25, 2024 – Atlanta

June 27, 2024 – San Francisco

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

## Education: By the Numbers

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**50+**

Unique pieces of research the Institute generates each year

**525**

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

**4,845**

Total attendees of the "Callan College" since 1994

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## Education

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

### Alternative Investments

Feb. 21-22, 2024 – Virtual

Alternative investments like private equity, hedge funds, and real estate can play a key role in any portfolio. In our "Callan College" on Alternatives, you will learn about the importance of allocations to alternatives, and how to consider integrating, evaluating, and monitoring them.

### Introduction to Investments

March 19-21, 2024 – Virtual

This program familiarizes institutional investor trustees and staff and asset management advisers with basic investment theory, terminology, and practices. This course is designed for individuals with less than two years of experience with asset-management oversight and/or support responsibilities.

Our virtual sessions are held over two to three days with virtual modules of 2.5-3 hours, while in-person sessions run either a full day or one-and-a-half days. 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-education](https://callan.com/events-education)



"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  
ABS Global Investments  
Acadian Asset Management LLC  
Adams Street Partners, LLC  
Aegon Asset Management  
AEW Capital Management, L.P.  
AllianceBernstein  
Allspring Global Investments, LLC  
Altrinsic Global Advisors, LLC  
American Century Investments  
Amundi US, Inc.  
Antares Capital LP  
Apollo Global Management, Inc.  
AQR Capital Management  
Ares Management LLC  
Ariel Investments, LLC  
Aristotle Capital Management, LLC  
Atlanta Capital Management Co., LLC

### Manager Name

AXA Investment Managers  
Baillie Gifford International, LLC  
Baird Advisors  
Barings LLC  
Baron Capital Management, Inc.  
Barrow, Hanley, Mewhinney & Strauss, LLC  
Belle Haven Investments L.P.  
BentallGreenOak  
Beutel, Goodman & Company Ltd.  
BlackRock  
Blackstone Group (The)  
Blue Owl Capital, Inc.  
BNY Mellon Asset Management  
Boston Partners  
Brandes Investment Partners, L.P.  
Brandywine Global Investment Management, LLC  
Brookfield Asset Management Inc.  
Brown Brothers Harriman & Company

**Manager Name**

Brown Investment Advisory &amp; Trust Company

Capital Group

CastleArk Management, LLC

CIBC Asset Management Inc.

ClearBridge Investments, LLC

Cohen &amp; Steers Capital Management, Inc.

Columbia Threadneedle Investments NA

Comvest Partners

Covenant Capital Group

CQS

Credit Suisse Asset Management, LLC

D.E. Shaw Investment Management, LLC

DePrince, Race &amp; Zollo, Inc.

Diamond Hill Capital Management, Inc.

Dimensional Fund Advisors L.P.

Doubleline

DWS

EARNEST Partners, LLC

Fayez Sarofim &amp; Company

Federated Hermes, Inc.

Fidelity Institutional Asset Management

Fiera Capital Corporation

First Eagle Investment Management, LLC

First Hawaiian Bank Wealth Management Division

First Sentier Investors

Fisher Investments

Franklin Templeton

Fred Alger Management, LLC

GAM (USA) Inc.

GlobeFlex Capital, L.P.

GoldenTree Asset Management, LP

Goldman Sachs

Golub Capital

Guggenheim Investments

GW&amp;K Investment Management

Harbor Capital Advisors

Harding Loevner LP

Hardman Johnston Global Advisors LLC

Heitman LLC

Hotchkis &amp; Wiley Capital Management, LLC

**Manager Name**

Impax Asset Management LLC

Income Research + Management

Insight Investment

Intech Investment Management LLC

Intercontinental Real Estate Corporation

Invesco

J.P. Morgan

Janus

Jennison Associates LLC

Jobs Peak Advisors

KeyCorp

Kohlberg Kravis Roberts &amp; Co. L.P. (KKR)

Lazard Asset Management

LGIM America

Lincoln National Corporation

Longview Partners

Loomis, Sayles &amp; Company, L.P.

Lord, Abbett &amp; Company

LSV Asset Management

MackKay Shields LLC

Macquarie Asset Management (MAM)

Manulife Investment Management

Marathon Asset Management, L.P.

MetLife Investment Management

MFS Investment Management

MidFirst Bank

Mondrian Investment Partners Limited

Montag &amp; Caldwell, LLC

Morgan Stanley Investment Management

MUFG Union Bank, N.A.

Natixis Investment Managers

Neuberger Berman

Newton Investment Management

Northern Trust Asset Management

Nuveen

Oaktree Capital Management, L.P.

P/E Investments

Pacific Investment Management Company

Pantheon Ventures

Parametric Portfolio Associates LLC



**Manager Name**

Partners Group (USA) Inc.

Pathway Capital Management, LP

PFM Asset Management LLC

PGIM DC Solutions

PGIM Fixed Income

PGIM Quantitative Solutions LLC

Pictet Asset Management

PineBridge Investments

Polen Capital Management, LLC

Pretium Partners, LLC

Principal Asset Management

Putnam Investments, LLC

Raymond James Investment Management

RBC Global Asset Management

Regions Financial Corporation

Robeco Institutional Asset Management, US Inc.

Rockpoint

S&amp;P Dow Jones Indices

Sands Capital Management

Schroder Investment Management North America Inc.

Segall Bryant &amp; Hamill

SLC Management

Smith Graham &amp; Co. Investment Advisors, L.P.

State Street Global Advisors

**Manager Name**

Strategic Global Advisors, LLC

T. Rowe Price Associates, Inc.

TD Global Investment Solutions – TD Epoch

The Carlyle Group

The TCW Group, Inc.

Thompson, Siegel &amp; Walmsley LLC

Top Tier Capital Partners

Tri-Star Trust Bank

Turning Rock Partners, L.P.

UBS Asset Management

VanEck

Versus Capital Group

Victory Capital Management Inc.

Virtus Investment Partners, Inc.

Vontobel Asset Management

Voya

Walter Scott &amp; Partners Limited

WCM Investment Management

Wellington Management Company, LLP

Western Asset Management Company LLC

Westfield Capital Management Company, LP

William Blair &amp; Company LLC

Xponance, Inc.

## Important Disclosures

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Past performance is no guarantee of future results.

March 31, 2024



## City of Milwaukee Employees' Retirement System

Investment Measurement Service  
Quarterly Review

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### March 31, 2024

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**U.S. EQUITIES**

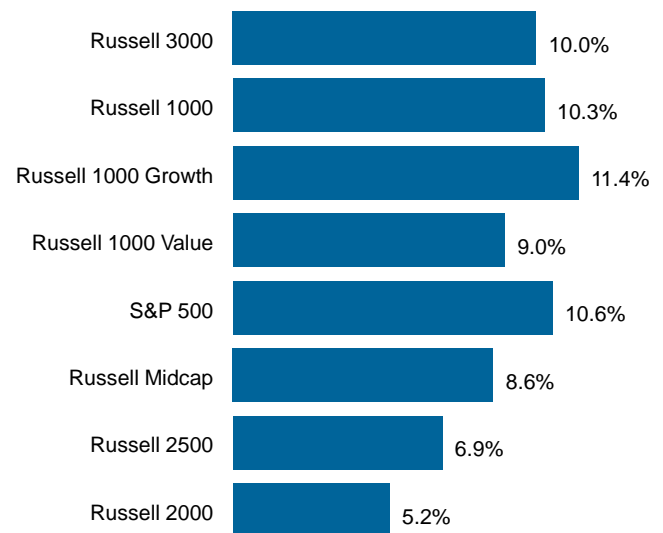
**Best first quarter in 5 years**

- The U.S. equity markets were off to an exceptional start with the S&P 500 posting a YTD gain of 11%, its best first quarter since 2019. Performance was buoyed by continued optimism around a “soft landing” scenario, strong corporate earnings, and the Fed’s projected interest rate cuts in mid-2024.
- Almost all of the 11 S&P 500 sectors posted gains in 1Q24. Real estate was the only sector that posted losses, challenged by the interest rate environment and continued negative sentiment around office real estate.
- The best-performing sector was Communication Services, which generated a nearly 16% return during the quarter. Energy, Financials, Information Technology, and Industrials also posted double-digit returns.

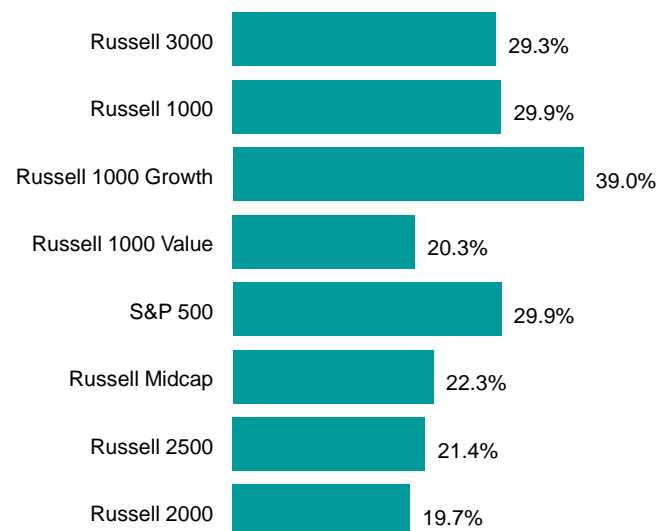
**Large cap stocks dominate again**

- Growth outpaced value across the market cap spectrum once again, and large cap stocks continued to outperform small cap stocks.
- The “Magnificent Seven” in aggregate continues to outpace the other constituents of the S&P 500 in terms of earnings growth and total returns.
- However, signs point to the broadening of returns within the index including: 1) The narrowing of dispersion in the premium gap of returns/earnings growth; as of 3/31/24, the premium gap of returns/earnings growth between the “Magnificent Seven” and the other 493 stocks in the index was 10%. In recent periods, the gap has been >25%; 2) Only two stocks of the “Magnificent Seven” (Meta and NVIDIA) were among the top 10 performers within the index for the quarter.
- Returns within the “Magnificent Seven” cohort also show signs of disaggregation. Three stocks—Tesla, Apple, and Alphabet—exhibited negative to single-digit returns vs. other constituents, which generated low to high double-digit returns in 1Q24. In 2023, the entire cohort demonstrated positive double- and triple-digit returns.

**U.S. Equity: Quarterly Returns**

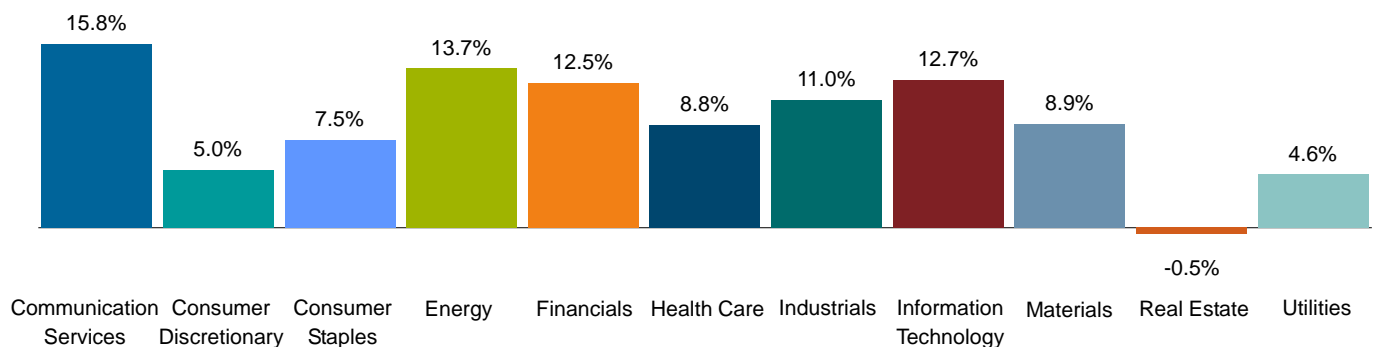


**U.S. Equity: One-Year Returns**



Sources: FTSE Russell, S&P Dow Jones Indices

**S&P Sector Returns, Quarter Ended 3/31/24**



Source: S&P Dow Jones Indices

**GLOBAL EQUITIES**

**Another strong quarter for Japan**

- Broad markets delivered strong returns on the decreasing expected probability of a recession in the U.S. and continued optimism around artificial intelligence.
- Small caps once again trailed large caps in a higher interest rate environment, which tends to more negatively impact smaller companies with more significant borrowing needs.
- Japan performed well yet again, beating the S&P 500 in 1Q24, driven by continued stock buybacks, economic resiliency, and a weakening yen, which helped exports.

**Emerging markets struggle but exporters thrive**

- Emerging markets underperformed developed markets as China struggled with increased regulatory scrutiny and a continued economic slowdown.
- Exporting countries such as Peru and Colombia benefited from increasing commodity prices. Turkey also performed well with a return to orthodox monetary policies after experimenting with counterintuitive methodologies.

**Value benefits from rising commodity prices**

- Energy’s volatility continued; after struggling in 4Q23, energy rebounded and helped deliver stronger performance in the commodity-heavy value space.

**U.S. dollar gains as rate cut expectations fall**

- The U.S. dollar rose in 1Q as investors recalibrated their interest rate expectations, with conventional wisdom now indicating that the U.S. may only enact one rate cut in 2024.

**Positive tailwinds**

- End of deflation
- Most prolonged stint of consumption gains since mid-1990s
- Increase in exports (positive impact to GDP)
- Reforms support the Japanese equity market through increased M&A and improved corporate governance

**Slow growth in China**

- Sluggish growth continues, with weak home sales and deflationary pressures.

**Market valuation in China**

- With Chinese markets now down 60% from a high-water mark in early 2021, Chinese equities are at decade-low allocations in global portfolios.

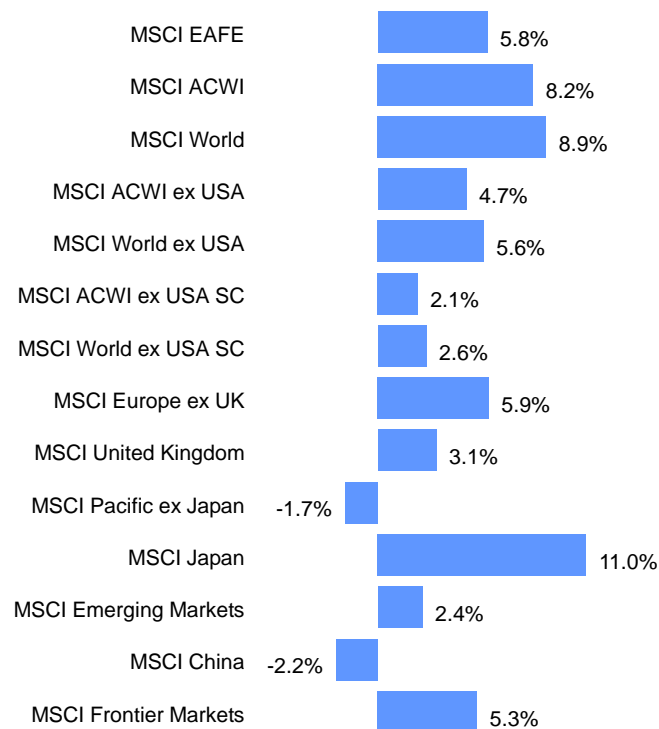
**Fast growth in India**

- Highest real GDP growth and one of the only major countries with accelerating GDP growth.

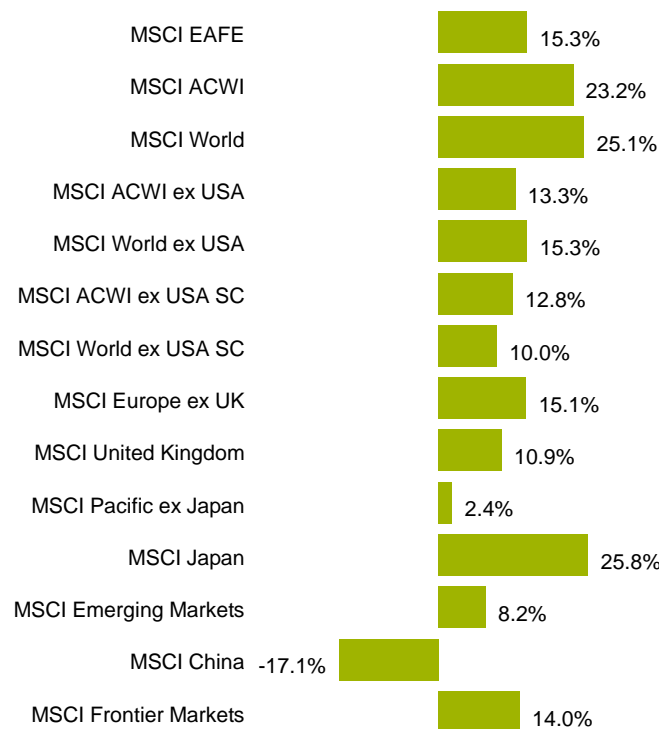
**Market valuation in India**

- The MSCI India Index traded at 22.1 times forward earnings — above its 10-year average of 18.9 times.

**Global Equity: Quarterly Returns**



**Global Equity: One-Year Returns**



Source: MSCI

**U.S. FIXED INCOME**

**Big increase in 10-year Treasury yield**

- Markets’ enthusiasm for multiple rate cuts starting in early 2024 was tempered by stronger-than-expected economic data.
- 10-year U.S. Treasury yield rose from 3.88% as of year-end to close the quarter at 4.21%.
- The yield curve remained inverted but less so than one year ago (2-year/10-year 42 bps vs. 57 one year ago).

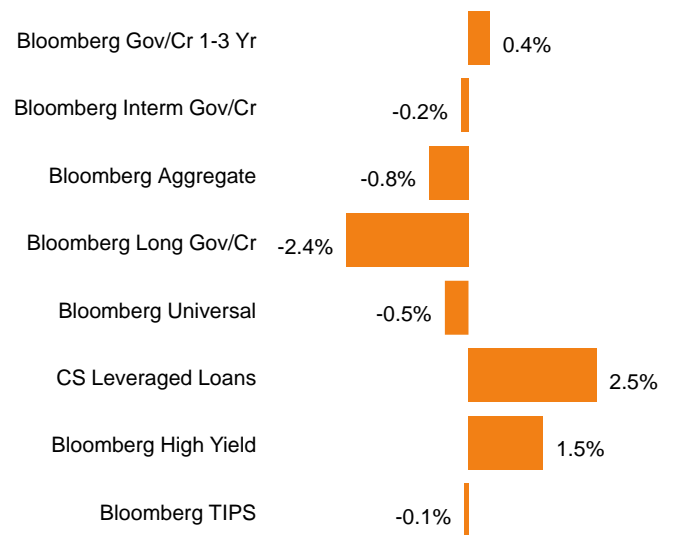
**Aggregate falls as rates climb**

- The Bloomberg US Aggregate Bond Index fell 0.8% as rates rose.
- Investment grade corporates outperformed like-duration Treasuries, while mortgages underperformed.
- Lower quality also outperformed, with high yield corporates and leveraged loans posting the highest returns.
- Investment grade and high yield corporate spreads are now tighter than one standard deviation from the trailing 10-year average.

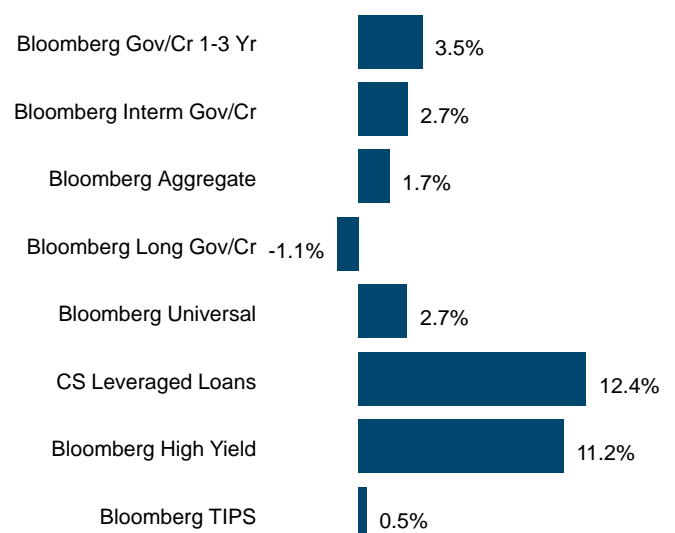
**Record corporate bond issuance**

- Highest first quarter of new issuance on record, with \$529 billion in investment grade corporates, surpassing 2020’s \$479 billion.
- High yield quarterly issuance was just as significant with a volume of \$85 billion, a level not seen since 2021.
- Both were met with strong investor demand.
- Corporate bond spreads continued to tighten across all qualities amid strong investor demand. Investment grade credit OAS declined 8 bps to 85 bps, while high yield corporates fell 24 bps, crossing the 300 bp level for the first time since January 2022.
- Investment grade credit spreads are now in the lowest 13<sup>th</sup> percentile over the last 20 years, while high yield bonds are in the 8<sup>th</sup> percentile. Bank loans are relatively more attractive, with spreads in the 42<sup>nd</sup> percentile since June 2008.
- However, all-in yields continue to provide high levels of income, with investment grade credit in the 77<sup>th</sup> percentile over the last 20 years, while high yield is in the 58<sup>th</sup> percentile. Bank loan yields, which are benefitting from the inverted yield curve, are in the 81<sup>st</sup> percentile since June 2008.

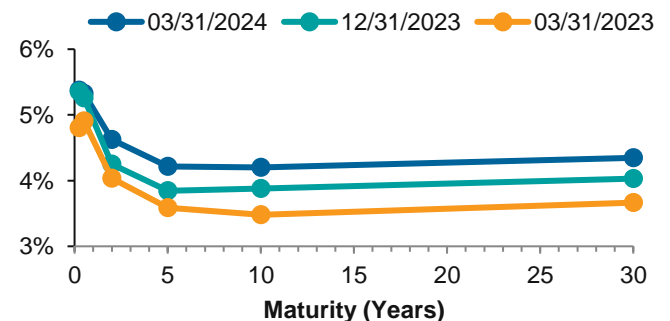
**U.S. Fixed Income: Quarterly Returns**



**U.S. Fixed Income: One-Year Returns**



**U.S. Treasury Yield Curves**



Sources: Bloomberg, Credit Suisse



**MUNICIPAL BONDS**

**Municipal bonds posted fairly flat returns in 1Q**

- Yields rose, but less than for U.S. Treasuries.
- 10-year AAA municipal bond yield closed at 2.52%, up from 2.27% as of year-end.
- 10-year U.S. Treasury yield rose to 4.20% from 3.88%.
- Strong demand easily absorbed robust issuance.

**BBBs performed best for quarter and year**

- AAA: -0.8%
- AA: -0.6%
- A: +0.1%
- BBB: +0.6%
- High Yield: +1.5%

**Valuations vs. U.S. Treasuries remained rich**

- 10-year AAA Muni/10-year U.S. Treasury yield ratio 60%
- Well below 10-year median of 86%

**GLOBAL FIXED INCOME**

**Central banks close to rate cuts**

- Central banks largely kept rates on hold but are getting closer to rate cuts as inflation moderates.
- Switzerland was the first to raise rates with a 25 bps increase.
- Japan was the last to exit negative interest rate policy, raising rates from -0.1% to a range of 0.0%-0.1%.

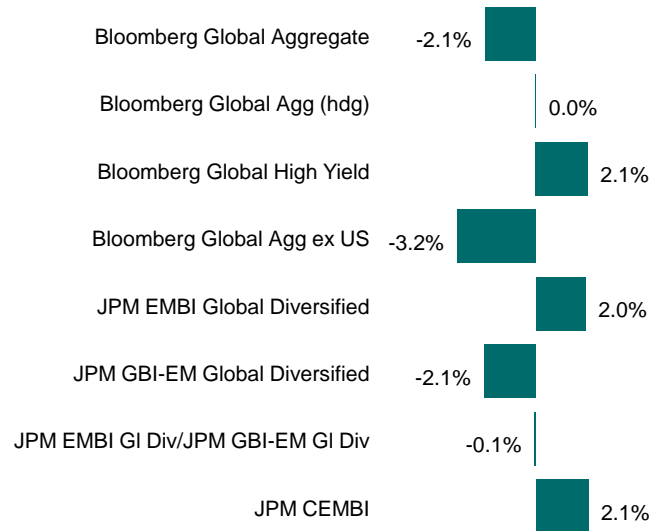
**U.S. dollar strengthened**

- Major currencies weakened relative to the dollar, a reversal of fortune from 4Q23.
- Hedged investors saw better returns.

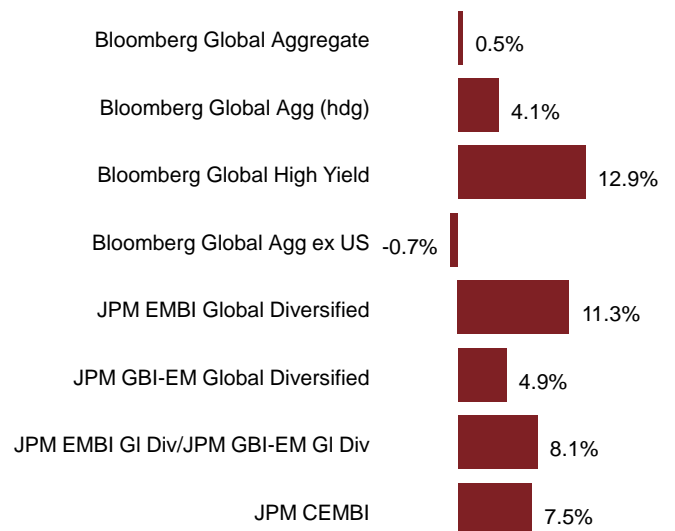
**Emerging markets were mixed**

- Hard currency EM debt performed relatively well, especially high yield. The JPM EMBI Global Diversified Index rose 2.0%, with the high yield component up 4.9%.
- Local currencies generally lost ground to the U.S. dollar, hurting returns for the JPM GBI-EM Global Diversified Index.

**Global Fixed Income: Quarterly Returns**

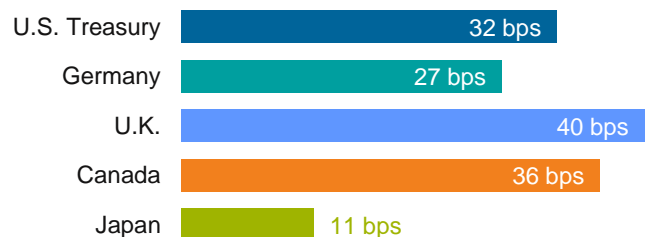


**Global Fixed Income: One-Year Returns**



**Change in 10-Year Global Government Bond Yields**

**4Q23 to 1Q24**



Sources: Bloomberg, JP Morgan



## Investment Manager Asset Allocation

The table below contrasts the distribution of assets across the Fund's investment managers as of March 31, 2024, with the distribution as of December 31, 2023. The change in asset distribution is broken down into the dollar change due to Net New Investment and the dollar change due to Investment Return.

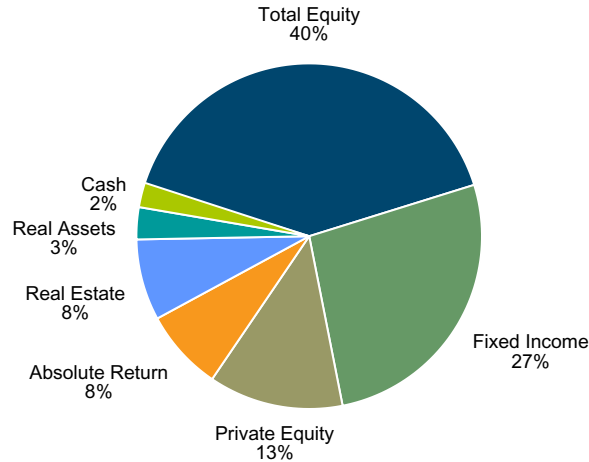
### Asset Distribution Across Investment Managers

	March 31, 2024			December 31, 2023		
	Market Value	Weight	Net New Inv.	Inv. Return	Market Value	Weight
<b>Total Domestic Equity</b>	<b>\$1,064,584,648</b>	<b>17.84%</b>	<b>\$(34,762,014)</b>	<b>\$86,661,053</b>	<b>\$1,012,685,609</b>	<b>17.73%</b>
BlackRock Russell 1000 Value	210,097,174	3.52%	0	17,321,839	192,775,335	3.37%
DFA Large Cap Value	154,579,103	2.59%	0	16,019,474	138,559,629	2.43%
Northern Trust Global	207,796,073	3.48%	(7,400,000)	20,528,667	194,667,407	3.41%
Polen Capital Management	125,321,386	2.10%	(4,500,000)	9,310,232	120,511,155	2.11%
Earnest Partners LLC	175,624,928	2.94%	60,929,790	12,441,585	102,253,552	1.79%
DFA Small Cap Value	191,165,984	3.20%	0	6,665,753	184,500,232	3.23%
CastleArk Management	0	0.00%	(83,791,804)	4,373,504	79,418,299	1.39%
<b>Total Global Equity</b>	<b>\$482,746,380</b>	<b>8.09%</b>	<b>\$0</b>	<b>\$35,561,158</b>	<b>\$447,185,223</b>	<b>7.83%</b>
BlackRock Global Alpha Tilts	272,655,623	4.57%	0	22,778,186	249,877,437	4.37%
MFS Investment Management	210,090,757	3.52%	0	12,782,972	197,307,785	3.45%
<b>Total International Equity</b>	<b>\$861,695,567</b>	<b>14.44%</b>	<b>\$(477,580)</b>	<b>\$47,890,655</b>	<b>\$814,282,492</b>	<b>14.26%</b>
AQR Emerging Markets	112,991,292	1.89%	(197,034)	6,730,271	106,458,055	1.86%
Brandes Investment Partners	338,945,213	5.68%	0	16,967,403	321,977,810	5.64%
William Blair & Company	238,946,029	4.00%	(99,931)	15,384,266	223,661,694	3.92%
DFA International Small Cap	170,813,033	2.86%	(180,615)	8,808,714	162,184,933	2.84%
<b>Total Fixed Income</b>	<b>\$1,592,744,458</b>	<b>26.69%</b>	<b>\$54,000,000</b>	<b>\$(5,088,465)</b>	<b>\$1,543,832,923</b>	<b>27.03%</b>
BlackRock US Govt Bond	409,733,089	6.86%	54,000,000	(3,354,798)	359,087,888	6.29%
Reams Asset Management	723,572,706	12.12%	0	(4,609,693)	728,182,399	12.75%
Loomis, Sayles & Company, L.P.	459,438,662	7.70%	0	2,876,026	456,562,636	7.99%
<b>Total Private Equity</b>	<b>\$749,525,265</b>	<b>12.56%</b>	<b>\$(4,319,431)</b>	<b>\$(517,576)</b>	<b>\$754,362,272</b>	<b>13.21%</b>
Abbott Capital Management 2010	17,295,036	0.29%	(700,000)	0	17,995,036	0.32%
Abbott Capital Management 2011	35,718,473	0.60%	(1,375,000)	0	37,093,473	0.65%
Abbott Capital Management 2012	32,921,670	0.55%	(800,000)	0	33,721,670	0.59%
Abbott Capital Management 2013	31,711,892	0.53%	(700,000)	0	32,411,892	0.57%
Abbott Capital Management 2014	36,105,385	0.60%	(700,000)	0	36,805,385	0.64%
Abbott Capital Management 2015	29,968,899	0.50%	(650,000)	0	30,618,899	0.54%
Abbott Capital Management 2016	26,741,252	0.45%	(495,000)	0	27,236,252	0.48%
Abbott Capital Management 2018	23,702,292	0.40%	415,000	0	23,287,292	0.41%
Abbott Capital Management 2019	20,444,935	0.34%	0	0	20,444,935	0.36%
Abbott Capital Management 2020	26,892,058	0.45%	0	0	26,892,058	0.47%
Abbott Capital Management 2021	9,160,930	0.15%	0	0	9,160,930	0.16%
Abbott Capital Management 2022	10,131,008	0.17%	697,812	(32,812)	9,466,007	0.17%
Abbott Capital Management 2023	3,294,500	0.06%	1,368,750	(18,750)	1,944,500	0.03%
Mesirow V	34,360,296	0.58%	(1,350,000)	0	35,710,296	0.63%
Mesirow VI	60,875,467	1.02%	(1,200,000)	0	62,075,467	1.09%
Mesirow VII	123,347,995	2.07%	0	0	123,347,995	2.16%
Mesirow VIII	62,463,859	1.05%	0	0	62,463,859	1.09%
NB Secondary Opp Fund III	6,518,055	0.11%	(120,420)	(70,388)	6,708,863	0.12%
NB Secondary Opp Fund IV	17,137,916	0.29%	(79,071)	(166,408)	17,383,395	0.30%
NB Secondary Opp Fund V	39,515,030	0.66%	(567,537)	0	40,082,567	0.70%
Private Advisors VI	19,966,957	0.33%	(820,412)	(0)	20,787,369	0.36%
Private Advisors VII	13,614,386	0.23%	0	0	13,614,386	0.24%
Private Advisors VIII	18,529,609	0.31%	(833,541)	(101,250)	19,464,400	0.34%
Private Advisors IX	35,824,677	0.60%	1,021,811	(113,750)	34,916,616	0.61%
Apogem Capital X	13,282,688	0.22%	2,568,178	(14,220)	10,728,730	0.19%
<b>Absolute Return</b>	<b>\$450,848,486</b>	<b>7.55%</b>	<b>\$(7,000,000)</b>	<b>\$14,750,339</b>	<b>\$443,098,146</b>	<b>7.76%</b>
Aptitude	192,008,231	3.22%	12,000,000	8,252,742	171,755,489	3.01%
UBS A & Q	258,840,255	4.34%	(19,000,000)	6,497,597	271,342,657	4.75%
<b>Real Assets</b>	<b>\$178,545,065</b>	<b>2.99%</b>	<b>\$(276,745)</b>	<b>\$3,220,499</b>	<b>\$175,601,312</b>	<b>3.07%</b>
Principal DRA	178,545,065	2.99%	(276,745)	3,220,499	175,601,312	3.07%
<b>Total Real Estate</b>	<b>\$452,240,691</b>	<b>7.58%</b>	<b>\$(2,456,313)</b>	<b>\$(19,361,979)</b>	<b>\$474,058,982</b>	<b>8.30%</b>
Real Estate	452,240,691	7.58%	(2,456,313)	(19,361,979)	474,058,982	8.30%
<b>Total Cash</b>	<b>\$135,723,515</b>	<b>2.27%</b>	<b>\$86,136,738</b>	<b>\$2,530,184</b>	<b>\$47,056,593</b>	<b>0.82%</b>
Cash	135,723,515	2.27%	86,136,738	2,530,184	47,056,593	0.82%
<b>Total Fund</b>	<b>\$5,968,654,075</b>	<b>100.0%</b>	<b>\$90,844,656</b>	<b>\$165,645,867</b>	<b>\$5,712,163,552</b>	<b>100.0%</b>

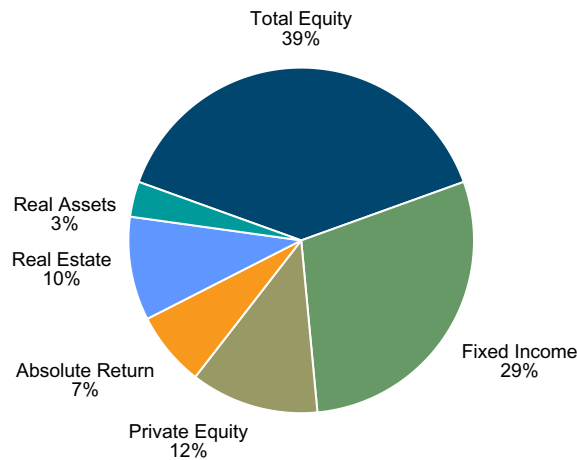
## Actual vs Target Asset Allocation As of March 31, 2024

The first chart below shows the Fund's asset allocation as of March 31, 2024. The second chart shows the Fund's target asset allocation as outlined in the investment policy statement.

### Actual Asset Allocation



### Target Asset Allocation



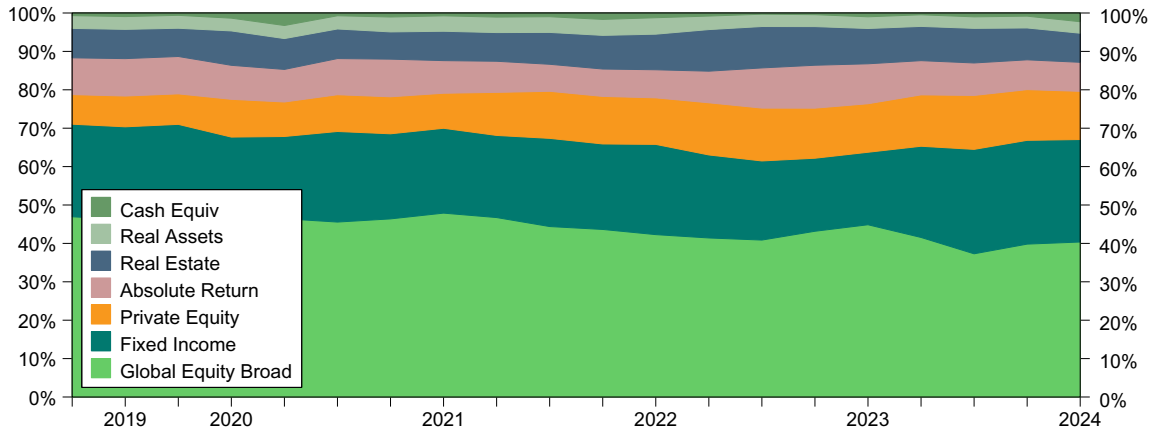
Asset Class	\$Millions Actual	Weight Actual	Target	Percent Difference	\$Millions Difference
Total Equity	2,409	40.4%	39.0%	1.4%	81
Fixed Income	1,593	26.7%	29.0%	(2.3%)	(138)
Private Equity	750	12.6%	12.0%	0.6%	33
Absolute Return	451	7.6%	7.0%	0.6%	33
Real Estate	452	7.6%	9.7%	(2.1%)	(127)
Real Assets	179	3.0%	3.3%	(0.3%)	(18)
Cash	136	2.3%	0.0%	2.3%	136
Total	5,969	100.0%	100.0%		

\* Current Quarter Target = 39.0% MSCI ACWI IMI, 29.0% Blmbg:Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 7.0% 3-month Treasury Bill+3.0% and 3.3% Principal DRA Blend Index.

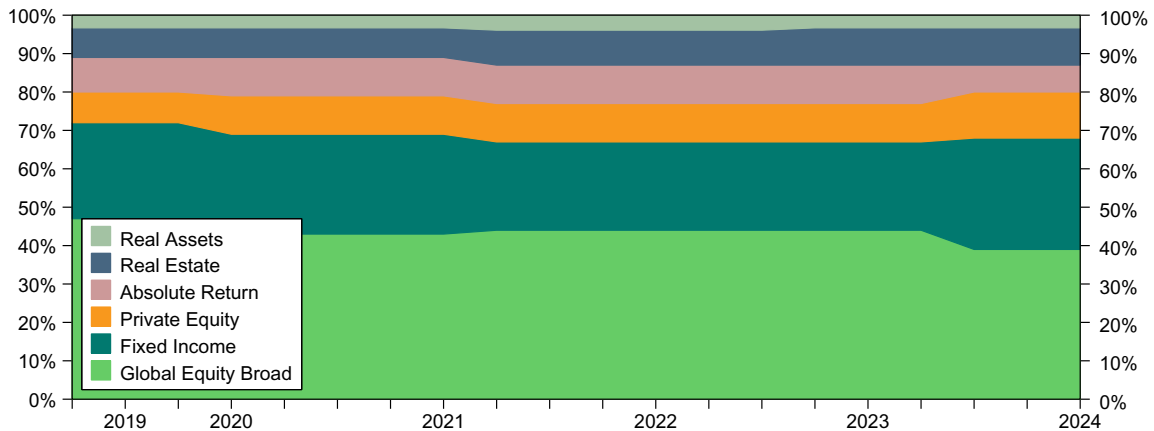
## Actual vs Target Historical Asset Allocation

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.

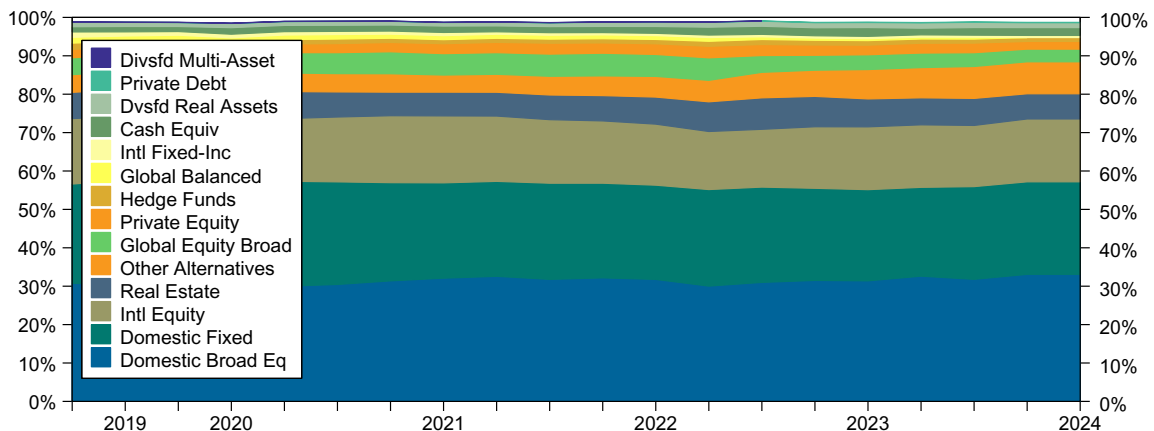
### Actual Historical Asset Allocation



### Target Historical Asset Allocation



### Average Callan Public Fund Sponsor Database Historical Asset Allocation



\* Current Quarter Target = 39.0% MSCI ACWI IMI, 29.0% Blmbg:Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 7.0% 3-month Treasury Bill+3.0% and 3.3% Principal DRA Blend Index.

# Total Fund

## Period Ended March 31, 2024

### 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 = 39.0% MSCI ACWI IMI, 29.0% Blmbg Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 7.0% 3-month Treasury Bill+3.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months and 3.3% Principal Blended Benchmark.

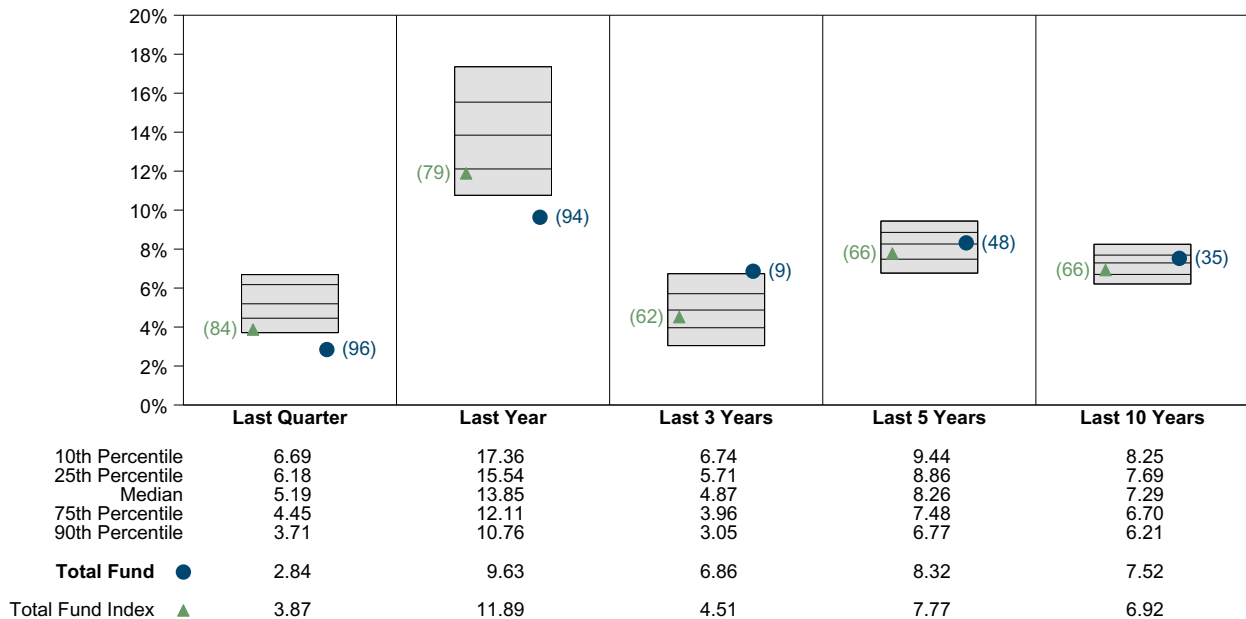
### Quarterly Summary and Highlights

- Total Fund's portfolio posted a 2.84% return for the quarter placing it in the 96 percentile of the Callan Public Fund Sponsor Database group for the quarter and in the 94 percentile for the last year.
- Total Fund's portfolio underperformed the Total Fund Index by 1.03% for the quarter and underperformed the Total Fund Index for the year by 2.25%.

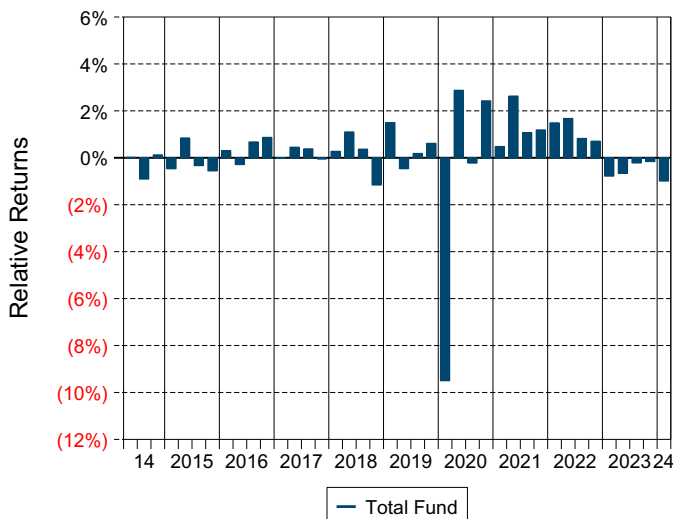
### Quarterly Asset Growth

Beginning Market Value	\$5,712,163,552
Net New Investment	\$90,844,656
Investment Gains/(Losses)	\$165,645,867
Ending Market Value	\$5,968,654,075

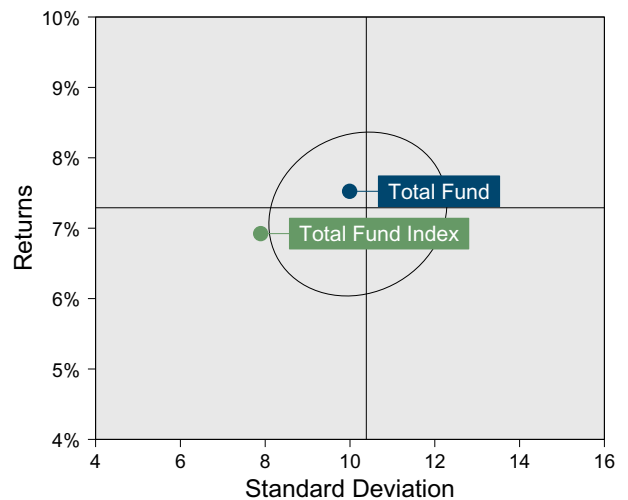
### Performance vs Callan Public Fund Sponsor Database (Gross)



### Relative Return vs Total Fund Index



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

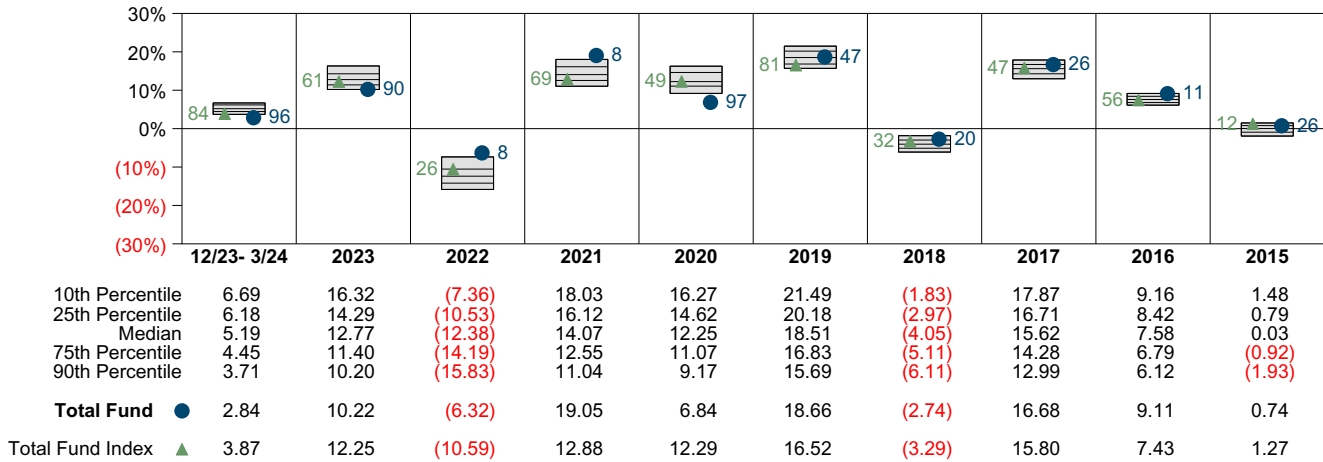


# Total Fund Return Analysis Summary

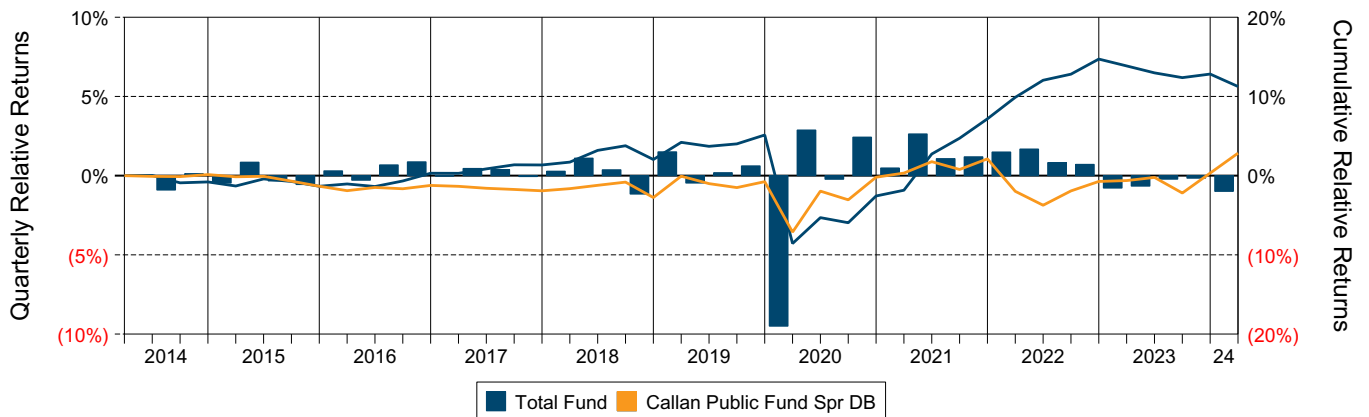
## Return Analysis

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.

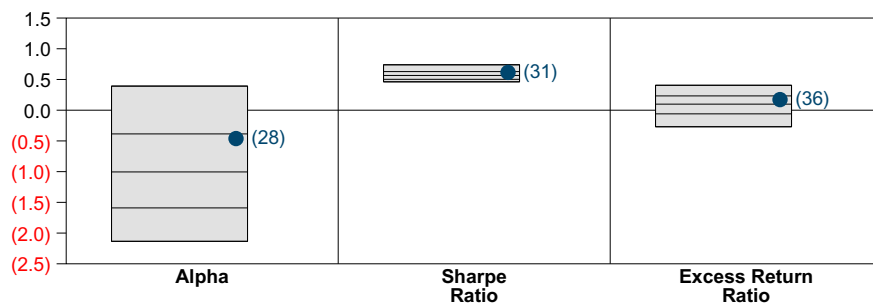
### Performance vs Callan Public Fund Sponsor Database (Gross)



### Cumulative and Quarterly Relative Returns vs Total Fund Index



### Risk Adjusted Return Measures vs Total Fund Index Rankings Against Callan Public Fund Sponsor Database (Gross) Ten Years Ended March 31, 2024



	Alpha	Sharpe Ratio	Excess Return Ratio
10th Percentile	0.39	0.74	0.41
25th Percentile	(0.39)	0.63	0.23
Median	(1.00)	0.57	0.10
75th Percentile	(1.59)	0.50	(0.06)
90th Percentile	(2.13)	0.46	(0.27)
<b>Total Fund</b>	● (0.46)	0.61	0.17

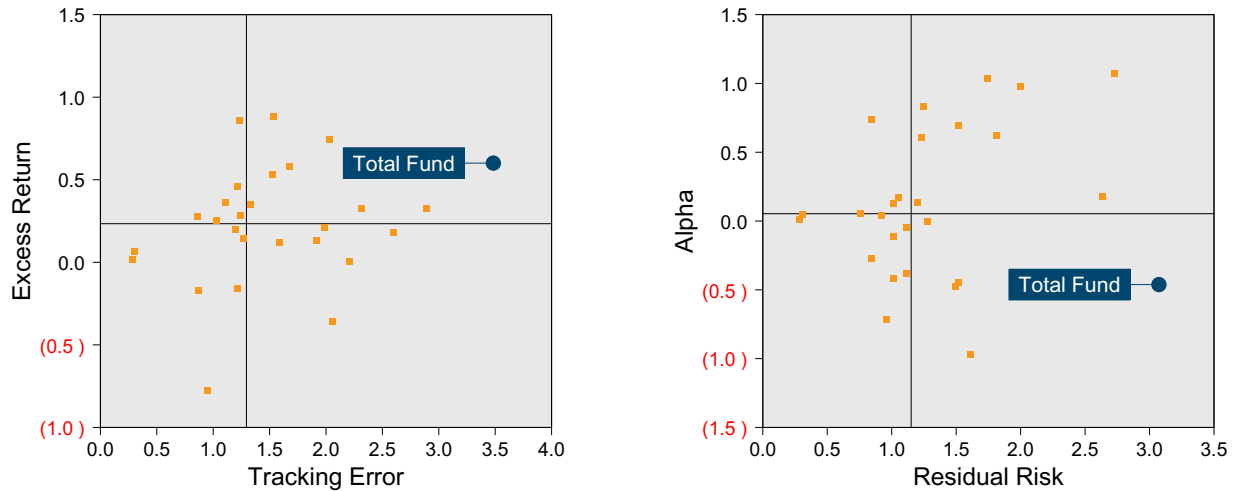
# Total Fund

## Total Fund vs Target Risk Analysis

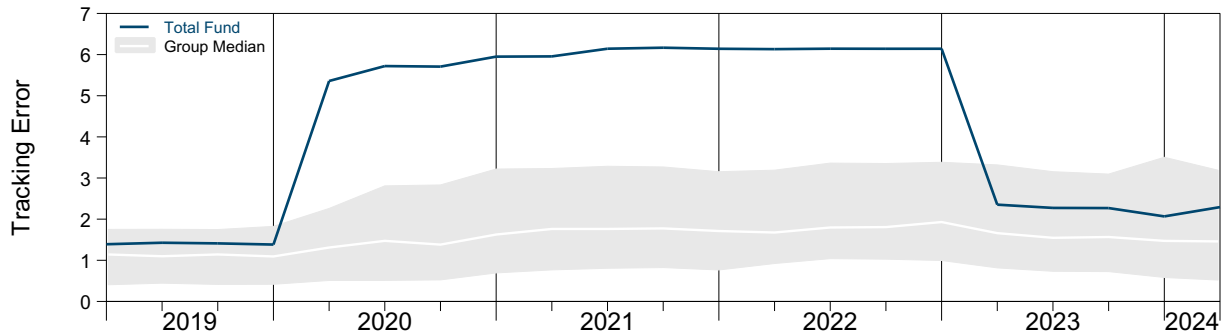
### Risk Analysis

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.

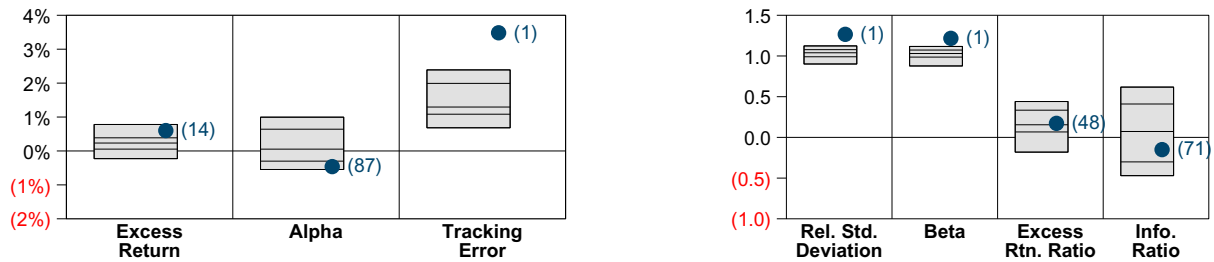
### Risk Analysis vs Callan Public Fund Sponsor Database Ten Years Ended March 31, 2024



### 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 March 31, 2024



10th Percentile  
25th Percentile  
Median  
75th Percentile  
90th Percentile

Excess Return	Alpha	Tracking Error
0.78	1.00	2.39
0.39	0.64	1.99
0.23	0.05	1.29
0.05	(0.30)	1.08
(0.23)	(0.55)	0.68
<b>Total Fund</b>	<b>(0.46)</b>	<b>3.48</b>

Rel. Std. Deviation	Beta	Excess Rtn. Ratio	Info. Ratio
1.12	1.12	0.44	0.62
1.08	1.07	0.33	0.41
1.04	1.03	0.16	0.07
0.99	0.99	0.07	(0.30)
0.90	0.88	(0.18)	(0.47)
<b>Total Fund</b>	<b>1.27</b>	<b>1.22</b>	<b>(0.15)</b>



## 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 March 31, 2024. 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 March 31, 2024

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
<b>Total Public Equity</b>	<b>7.60%</b>		<b>22.37%</b>		<b>7.23%</b>		<b>11.50%</b>		<b>11.14%</b>	(1/16)
MSCI ACWI IMI	7.72%		22.45%		6.31%		10.57%		10.28%	(1/16)
<b>Total Domestic Equity</b>	<b>8.82%</b>	<b>80</b>	<b>24.76%</b>	<b>82</b>	<b>8.21%</b>	<b>75</b>	<b>13.13%</b>	<b>68</b>	<b>8.37%</b>	(7/98)
Russell 3000 Index	10.02%	15	29.29%	11	9.78%	28	14.34%	21	8.22%	(7/98)
Pub Pln- Dom Equity	9.57%		27.47%		9.16%		13.76%		-	
BlackRock Russell 1000 Value	8.99%	63	20.26%	76	8.11%	86	10.46%	86	9.30%	(4/17)
Russell 1000 Value Index	8.99%	63	20.27%	76	8.11%	86	10.32%	87	9.16%	(4/17)
Callan Large Cap Value	9.78%		22.81%		10.14%		12.15%		-	
DFA Large Cap Value	11.56%	19	23.91%	42	9.70%	56	11.24%	73	9.37%	(11/17)
Russell 1000 Value Index	8.99%	63	20.27%	76	8.11%	86	10.32%	87	9.15%	(11/17)
Callan Large Cap Value	9.78%		22.81%		10.14%		12.15%		-	
Northern Trust Global	10.55%	72	29.89%	72	11.50%	53	15.06%	57	11.03%	(8/88)
S&P 500 Index	10.56%	71	29.88%	72	11.49%	54	15.05%	57	10.98%	(8/88)
Callan Large Cap Core	11.78%		31.68%		11.52%		15.23%		-	
Polen Capital Management	7.73%	91	30.45%	85	4.38%	93	13.15%	90	15.40%	(7/12)
S&P 500 Index	10.56%	73	29.88%	86	11.49%	35	15.05%	71	14.34%	(7/12)
Callan Large Cap Growth	12.52%		40.04%		10.44%		16.35%		-	
Earnest Partners LLC	8.18%	71	21.49%	60	7.48%	44	13.79%	11	11.59%	(5/05)
Russell MidCap Index	8.60%	60	22.35%	53	6.07%	55	11.10%	65	10.02%	(5/05)
Callan Mid Capitalization	9.30%		22.45%		6.88%		11.90%		-	
DFA Small Cap Value	3.61%	84	25.22%	19	11.23%	8	14.14%	9	12.03%	(11/96)
Russell 2000 Value Index	2.90%	92	18.75%	71	2.22%	88	8.17%	89	9.07%	(11/96)
Callan Small Cap Value	5.02%		20.63%		6.24%		10.91%		-	
<b>Total Global Equity</b>	<b>7.95%</b>	<b>56</b>	<b>22.26%</b>	<b>48</b>	<b>7.50%</b>	<b>43</b>	<b>12.16%</b>	<b>37</b>	<b>9.86%</b>	(4/10)
MSCI World	8.88%	46	25.11%	38	8.60%	27	12.07%	38	9.86%	(4/10)
Callan Global Equity	8.48%		22.13%		7.13%		11.59%		-	
BlackRock Global Alpha Tilts	9.12%	42	25.04%	38	8.14%	33	11.72%	48	12.67%	(3/16)
MSCI ACWI Gross	8.32%	52	23.81%	41	7.46%	43	11.45%	54	12.26%	(3/16)
Callan Global Equity	8.48%		22.13%		7.13%		11.59%		-	
MFS Investment Management	6.48%	74	18.77%	71	6.71%	58	12.95%	23	12.53%	(12/12)
MSCI ACWI Gross	8.32%	52	23.81%	41	7.46%	43	11.45%	54	10.46%	(12/12)
Callan Global Equity	8.48%		22.13%		7.13%		11.59%		-	
<b>Total International Equity</b>	<b>5.88%</b>	<b>8</b>	<b>19.35%</b>	<b>2</b>	<b>5.62%</b>	<b>2</b>	<b>8.93%</b>	<b>7</b>	<b>7.23%</b>	(5/96)
MSCI EAFE	5.78%	8	15.32%	24	4.78%	10	7.33%	36	4.93%	(5/96)
Pub Pln- Intl Equity	4.70%		13.45%		2.16%		6.94%		-	
AQR Emerging Markets	6.32%	11	19.07%	7	(1.18%)	25	5.73%	18	6.65%	(8/16)
MSCI EM Gross	2.44%	66	8.59%	61	(4.68%)	49	2.61%	72	5.18%	(8/16)
Callan Emerging Broad	3.31%		9.66%		(4.76%)		3.70%		-	
Brandes Investment Partners	5.27%	56	24.32%	2	10.58%	1	9.50%	12	8.19%	(2/98)
MSCI EAFE	5.78%	48	15.32%	43	4.78%	35	7.33%	63	5.01%	(2/98)
Callan NonUS Eq	5.71%		14.52%		3.85%		7.90%		-	
William Blair & Company	6.88%	25	14.21%	54	0.32%	85	8.78%	28	7.72%	(12/03)
MSCI ACWIxUS Gross	4.81%	67	13.83%	59	2.44%	71	6.48%	78	6.69%	(12/03)
Callan NonUS Eq	5.71%		14.52%		3.85%		7.90%		-	
DFA International Small Cap	5.43%	40	16.70%	23	6.64%	6	8.32%	25	5.36%	(5/06)
MSCI EAFE Small	2.40%	71	10.45%	53	(1.36%)	63	4.94%	71	4.30%	(5/06)
Callan Intl Small Cap	4.82%		11.50%		1.00%		6.53%		-	

## 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 March 31, 2024. 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 March 31, 2024

	Last Quarter		Last Year		Last 3 Years		Last 5 Years		Since Inception	
<b>Total Fixed Income</b>	<b>(0.35%)</b>	<b>62</b>	<b>2.55%</b>	<b>63</b>	<b>0.43%</b>	<b>8</b>	<b>0.74%</b>	<b>86</b>	<b>6.54%</b>	(12/87)
Bimbg Aggregate	(0.78%)	92	1.70%	85	(2.46%)	93	0.36%	96	5.40%	(12/87)
Pub Pln- Dom Fixed	(0.24%)		3.06%		(1.40%)		1.44%		-	
BlackRock US Govt Bond	(0.89%)	97	0.12%	99	-		-		(4.33%)	(12/21)
Bimbg Government	(0.93%)	98	0.13%	99	(2.68%)	97	(0.04%)	99	(4.44%)	(12/21)
Callan Core Bond FI	(0.46%)		2.49%		(2.03%)		0.94%		-	
Reams Asset Management	(0.63%)	93	1.98%	93	(1.26%)	23	2.81%	5	4.94%	(1/01)
Bimbg Aggregate	(0.78%)	94	1.70%	96	(2.46%)	89	0.36%	99	3.66%	(1/01)
Callan Core Plus FI	(0.11%)		3.41%		(1.71%)		1.46%		-	
Loomis, Sayles & Company, L.P.	0.63%	3	5.79%	3	(0.38%)	6	2.60%	9	8.08%	(12/87)
Bimbg Aggregate	(0.78%)	94	1.70%	96	(2.46%)	89	0.36%	99	5.40%	(12/87)
Callan Core Plus FI	(0.11%)		3.41%		(1.71%)		1.46%		-	
<b>Total Private Equity</b>	<b>(0.07%)</b>		<b>2.94%</b>		<b>17.97%</b>		<b>18.53%</b>		<b>12.41%</b>	(6/10)
Private Equity Benchmark (3)	12.49%		28.21%		10.95%		17.84%		-	
Abbott Capital Management 2010	0.00%		(6.70%)		8.69%		13.23%		1.00%	(6/10)
Abbott Capital Management 2011	0.00%		(7.55%)		9.71%		15.33%		4.09%	(6/11)
Abbott Capital Management 2012	0.00%		(3.85%)		13.02%		17.04%		10.94%	(7/12)
Abbott Capital Management 2013	0.00%		(2.85%)		13.10%		17.65%		11.67%	(5/13)
Abbott Capital Management 2014	0.00%		(3.96%)		15.16%		18.26%		11.09%	(4/14)
Abbott Capital Management 2015	0.00%		3.60%		21.80%		19.40%		13.43%	(4/15)
Abbott Capital Management 2016	0.00%		5.24%		22.81%		19.46%		12.65%	(3/16)
Abbott Capital Management 2018	0.00%		3.96%		18.11%		16.83%		13.87%	(7/18)
Abbott Capital Management 2019	0.00%		3.43%		20.67%		-		16.65%	(1/20)
Abbott Capital Management 2020	0.00%		1.70%		19.24%		-		17.63%	(1/21)
Abbott Capital Management 2021	0.00%		2.00%		4.93%		-		4.67%	(2/21)
Abbott Capital Management 2022	(0.32%)		4.88%		-		-		(1.20%)	(2/22)
Abbott Capital Management 2023	(0.79%)		-		-		-		(1.07%)	(7/23)
Mesirov V	0.00%		(0.80%)		12.66%		14.99%		13.97%	(6/10)
Mesirov VI	0.00%		(0.52%)		17.60%		20.87%		12.82%	(7/13)
Mesirov VII	0.00%		5.78%		18.97%		15.39%		3.61%	(6/17)
Mesirov VIII	0.00%		0.22%		2.60%		-		(1.66%)	(9/20)
NB Secondary Opp Fund III	(1.06%)		18.10%		13.90%		11.56%		11.75%	(12/13)
NB Secondary Opp Fund IV	(0.96%)		4.54%		16.24%		15.96%		18.34%	(4/17)
NB Secondary Opp Fund V	0.00%		25.26%		-		-		64.58%	(3/22)
Private Advisors VI	0.00%		4.68%		28.37%		23.81%		13.46%	(4/15)
Private Advisors VII	0.00%		7.32%		25.80%		18.15%		14.38%	(1/17)
Private Advisors VIII	(0.53%)		9.18%		27.08%		17.91%		18.30%	(8/18)
Private Advisors IX	(0.32%)		13.02%		24.30%		-		23.08%	(2/20)
Apogem Capital X	(0.12%)		-		-		-		29.03%	(5/23)
<b>Absolute Return</b>	<b>3.42%</b>		<b>8.98%</b>		<b>13.86%</b>		<b>7.07%</b>		<b>6.15%</b>	(6/14)
90 Day T-Bill + 3%	2.01%		8.24%		5.58%		5.02%		4.40%	(6/14)
Aptitude	4.79%	12	10.07%	16	-		-		8.30%	(9/22)
1-month LIBOR + 4%	2.33%	76	9.60%	19	6.87%	13	6.19%	24	9.06%	(9/22)
Callan Abs Rtn Hedge FoF	2.84%		8.16%		5.20%		5.14%		-	
UBS A & Q	2.49%	64	8.20%	45	7.88%	10	9.10%	8	6.49%	(12/14)
1-month LIBOR + 4%	2.33%	76	9.60%	19	6.87%	13	6.19%	24	5.65%	(12/14)
Callan Abs Rtn Hedge FoF	2.84%		8.16%		5.20%		5.14%		-	
<b>Real Assets</b>	<b>1.83%</b>		<b>4.36%</b>		<b>4.37%</b>		<b>5.68%</b>		<b>5.55%</b>	(1/16)
Principal DRA	1.83%	85	4.36%	70	4.37%	72	5.68%	69	5.55%	(1/16)
Principal DRA Blend Index (1)	0.66%	97	3.85%	70	3.56%	75	4.49%	80	4.87%	(1/16)
Callan Alternative Inv DB	3.97%		7.05%		9.01%		7.02%		-	
<b>Total Real Estate</b>	<b>(4.10%)</b>		<b>(11.22%)</b>		<b>5.70%</b>		<b>5.14%</b>		<b>6.49%</b>	(7/86)
Real Estate	(4.10%)	96	(11.22%)	78	5.70%	31	5.14%	31	6.49%	(7/86)
Blended Benchmark (2)	(5.37%)	97	(13.33%)	86	4.35%	43	3.78%	44	-	
Callan Tot Real Est DB	(1.70%)		(6.28%)		3.68%		3.41%		-	
<b>Total Fund</b>	<b>2.84%</b>	<b>96</b>	<b>9.63%</b>	<b>94</b>	<b>6.86%</b>	<b>9</b>	<b>8.32%</b>	<b>48</b>	-	
Total Fund Index*	3.87%	84	11.89%	79	4.51%	62	7.77%	66	-	
Callan Public Fund Spr DB	5.19%		13.85%		4.87%		8.26%		-	

\* Current Quarter Target = 39.0% MSCI ACWI IMI, 29.0% Bimbg:Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 7.0% 3-month Treasury Bill+3.0% and 3.3% Principal DRA Blend Index.

(1) Current Principal DRA Blend Index = 15% Bloomberg US TIPS Idx, 15% Bloomberg Commodity Idx, 30% S&P Global Infrastructure Idx, 15% S&P Global Natural Resources Idx and 25% 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.

(3) Private Equity Benchmark = Russell 3000 Index lagged 3 months+3.0% through 12/31/19, Russell 3000 Index lagged 3 months+2.0% 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.

	12/2023- 3/2024		2023		2022		2021		2020	
<b>Total Public Equity</b>	<b>7.60%</b>		<b>21.40%</b>		<b>(15.78%)</b>		<b>20.92%</b>		<b>14.78%</b>	
MSCI ACWI IMI	7.72%		21.58%		(18.40%)		18.22%		16.25%	
<b>Total Domestic Equity</b>	<b>8.82%</b>	<b>80</b>	<b>19.73%</b>	<b>90</b>	<b>(15.68%)</b>	<b>12</b>	<b>28.12%</b>	<b>16</b>	<b>16.35%</b>	<b>72</b>
Russell 3000 Index	10.02%	15	25.96%	17	(19.21%)	80	25.66%	54	20.89%	24
Pub Pln- Dom Equity	9.57%		23.70%		(17.91%)		25.85%		18.58%	
BlackRock Russell 1000 Value	8.99%	63	11.47%	63	(7.54%)	80	25.18%	79	3.28%	47
Russell 1000 Value Index	8.99%	63	11.46%	63	(7.54%)	80	25.16%	79	2.80%	52
Callan Large Cap Value	9.78%		12.85%		(4.93%)		28.35%		3.04%	
DFA Large Cap Value	11.56%	19	12.33%	53	(4.95%)	50	27.52%	64	(1.56%)	90
Russell 1000 Value Index	8.99%	63	11.46%	63	(7.54%)	80	25.16%	79	2.80%	52
Callan Large Cap Value	9.78%		12.85%		(4.93%)		28.35%		3.04%	
Northern Trust Global	10.55%	72	26.30%	48	(18.08%)	58	28.69%	54	18.42%	52
S&P 500 Index	10.56%	71	26.29%	48	(18.11%)	58	28.71%	54	18.40%	52
Callan Large Cap Core	11.78%		26.16%		(17.42%)		29.05%		18.84%	
Polen Capital Management	7.73%	91	38.20%	61	(37.72%)	89	24.84%	43	35.13%	55
S&P 500 Index	10.56%	73	26.29%	89	(18.11%)	6	28.71%	21	18.40%	98
Callan Large Cap Growth	12.52%		40.64%		(30.18%)		24.26%		35.57%	
Earnest Partners LLC	8.18%	71	17.57%	52	(15.13%)	52	26.09%	48	21.61%	41
Russell MidCap Index	8.60%	60	17.23%	53	(17.32%)	58	22.58%	58	17.10%	48
Callan Mid Capitalization	9.30%		17.82%		(14.34%)		25.38%		16.17%	
DFA Small Cap Value	3.61%	84	21.85%	13	(1.69%)	10	40.61%	16	3.85%	45
Russell 2000 Value Index	2.90%	92	14.65%	65	(14.48%)	84	28.27%	64	4.63%	37
Callan Small Cap Value	5.02%		16.41%		(10.51%)		31.82%		2.88%	
<b>Total Global Equity</b>	<b>7.95%</b>	<b>56</b>	<b>22.29%</b>	<b>47</b>	<b>(17.35%)</b>	<b>47</b>	<b>19.03%</b>	<b>54</b>	<b>18.78%</b>	<b>43</b>
MSCI World	8.88%	46	23.79%	34	(18.14%)	52	21.82%	28	15.90%	55
Callan Global Equity	8.48%		21.65%		(17.81%)		19.46%		17.02%	
BlackRock Global Alpha Tilts	9.12%	42	23.27%	39	(16.80%)	43	18.73%	56	16.53%	52
MSCI ACWI Gross	8.32%	52	22.81%	43	(17.96%)	51	19.04%	54	16.82%	51
Callan Global Equity	8.48%		21.65%		(17.81%)		19.46%		17.02%	
MFS Investment Management	6.48%	74	21.00%	52	(18.14%)	52	19.56%	49	22.42%	32
MSCI ACWI Gross	8.32%	52	22.81%	43	(17.96%)	51	19.04%	54	16.82%	51
Callan Global Equity	8.48%		21.65%		(17.81%)		19.46%		17.02%	
<b>Total International Equity</b>	<b>5.88%</b>	<b>8</b>	<b>22.82%</b>	<b>2</b>	<b>(15.36%)</b>	<b>23</b>	<b>13.08%</b>	<b>14</b>	<b>10.84%</b>	<b>70</b>
MSCI EAFE	5.78%	8	18.24%	20	(14.45%)	18	11.26%	23	7.82%	90
Pub Pln- Intl Equity	4.70%		16.74%		(16.85%)		8.94%		12.71%	
AQR Emerging Markets	6.32%	11	18.78%	12	(20.29%)	38	1.23%	36	18.26%	49
MSCI EM Gross	2.44%	66	10.27%	59	(19.74%)	35	(2.22%)	55	18.69%	44
Callan Emerging Broad	3.31%		11.91%		(22.16%)		(0.59%)		18.17%	
Brandes Investment Partners	5.27%	56	31.34%	1	(6.79%)	4	14.42%	18	(1.30%)	96
MSCI EAFE	5.78%	48	18.24%	47	(14.45%)	43	11.26%	52	7.82%	65
Callan NonUS Eq	5.71%		18.09%		(15.11%)		11.50%		11.19%	
William Blair & Company	6.88%	25	16.06%	75	(28.57%)	95	13.27%	30	31.44%	6
MSCI ACWIxUS Gross	4.81%	67	16.21%	73	(15.57%)	52	8.29%	71	11.13%	50
Callan NonUS Eq	5.71%		18.09%		(15.11%)		11.50%		11.19%	
DFA International Small Cap	5.43%	40	18.04%	22	(9.42%)	5	16.47%	14	1.47%	91
MSCI EAFE Small	2.40%	71	13.16%	66	(21.39%)	52	10.10%	72	12.34%	46
Callan Intl Small Cap	4.82%		15.18%		(20.63%)		12.78%		11.29%	

## 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.

	12/2023- 3/2024		2023		2022		2021		2020	
<b>Total Fixed Income</b>	<b>(0.35%)</b>	<b>62</b>	<b>6.63%</b>	<b>43</b>	<b>(6.83%)</b>	<b>9</b>	<b>(0.36%)</b>	<b>45</b>	<b>(1.82%)</b>	<b>98</b>
Blmbg Aggregate	(0.78%)	92	5.53%	82	(13.01%)	73	(1.54%)	91	7.51%	67
Pub Plin- Dom Fixed	(0.24%)		6.40%		(12.24%)		(0.57%)		8.53%	
BlackRock US Govt Bond	(0.89%)	97	4.24%	99	(12.43%)	22	-		-	
Blmbg Government	(0.93%)	98	4.09%	99	(12.32%)	17	(2.28%)	100	7.94%	85
Callan Core Bond FI	(0.46%)		6.17%		(12.91%)		(1.03%)		8.71%	
Reams Asset Management	(0.63%)	93	6.76%	57	(11.39%)	13	(1.23%)	91	17.28%	2
Blmbg Aggregate	(0.78%)	94	5.53%	96	(13.01%)	41	(1.54%)	97	7.51%	93
Callan Core Plus FI	(0.11%)		6.90%		(13.27%)		(0.27%)		9.27%	
Loomis, Sayles & Company, L.P.	0.63%	3	8.56%	2	(12.12%)	18	2.13%	5	7.14%	94
Blmbg Aggregate	(0.78%)	94	5.53%	96	(13.01%)	41	(1.54%)	97	7.51%	93
Callan Core Plus FI	(0.11%)		6.90%		(13.27%)		(0.27%)		9.27%	
<b>Total Private Equity</b>	<b>(0.07%)</b>		<b>2.89%</b>		<b>(4.88%)</b>		<b>67.66%</b>		<b>22.14%</b>	
Private Equity Benchmark (3)	12.49%		22.76%		(15.10%)		34.08%		17.99%	
Abbott Capital Management 2010	0.00%		(6.70%)		(16.87%)		65.55%		24.43%	
Abbott Capital Management 2011	0.00%		(7.55%)		(18.97%)		76.29%		29.13%	
Abbott Capital Management 2012	0.00%		(3.85%)		(13.14%)		72.85%		29.04%	
Abbott Capital Management 2013	0.00%		(2.85%)		(12.51%)		70.21%		28.65%	
Abbott Capital Management 2014	0.00%		(3.96%)		(9.41%)		75.52%		26.51%	
Abbott Capital Management 2015	0.00%		3.60%		(0.79%)		75.81%		16.62%	
Abbott Capital Management 2016	0.00%		5.24%		2.90%		71.04%		20.02%	
Abbott Capital Management 2018	0.00%		3.96%		7.44%		47.06%		22.73%	
Abbott Capital Management 2019	0.00%		3.43%		7.54%		57.22%		10.04%	
Abbott Capital Management 2020	0.00%		1.70%		0.81%		65.36%		-	
Abbott Capital Management 2021	0.00%		2.00%		1.72%		-		-	
Abbott Capital Management 2022	(0.32%)		4.87%		-		-		-	
Mesirov V	0.00%		(0.80%)		(19.60%)		78.52%		21.39%	
Mesirov VI	0.00%		(0.52%)		(13.41%)		88.26%		29.10%	
Mesirov VII	0.00%		5.78%		(0.68%)		60.27%		16.43%	
Mesirov VIII	0.00%		0.22%		(2.15%)		10.14%		-	
NB Secondary Opp Fund III	(1.06%)		17.34%		(2.34%)		30.34%		4.23%	
NB Secondary Opp Fund IV	(0.96%)		4.64%		0.29%		48.73%		14.80%	
NB Secondary Opp Fund V	0.00%		21.41%		-		-		-	
Private Advisors VI	0.00%		4.68%		9.97%		83.78%		16.54%	
Private Advisors VII	0.00%		7.32%		21.61%		52.55%		3.97%	
Private Advisors VIII	(0.53%)		9.80%		27.61%		47.25%		15.78%	
Private Advisors IX	(0.32%)		13.33%		24.00%		37.25%		-	
<b>Absolute Return</b>	<b>3.42%</b>		<b>6.09%</b>		<b>26.46%</b>		<b>8.87%</b>		<b>(14.04%)</b>	
90 Day T-Bill + 3%	2.01%		8.01%		4.46%		3.05%		3.67%	
Aptitude	4.79%	12	5.24%	59	-		-		-	
1-month LIBOR + 4%	2.33%	76	9.38%	1	5.80%	21	4.11%	77	4.63%	45
Callan Abs Rtn Hedge FoF	2.84%		6.00%		3.34%		6.76%		4.03%	
UBS A & Q	2.49%	64	6.48%	30	8.85%	13	8.08%	45	12.18%	14
1-month LIBOR + 4%	2.33%	76	9.38%	1	5.80%	21	4.11%	77	4.63%	45
Callan Abs Rtn Hedge FoF	2.84%		6.00%		3.34%		6.76%		4.03%	
<b>Real Assets</b>	<b>1.83%</b>		<b>3.95%</b>		<b>(5.29%)</b>		<b>18.24%</b>		<b>4.69%</b>	
Principal DRA	1.83%	85	3.95%	42	(5.29%)	85	18.24%	43	4.69%	24
Principal DRA Blend Index (1)	0.66%	97	4.31%	41	(5.07%)	84	15.87%	45	2.08%	32
Callan Alternative Inv DB	3.97%		2.56%		9.46%		13.64%		(0.39%)	
<b>Total Real Estate</b>	<b>(4.10%)</b>		<b>(10.23%)</b>		<b>13.88%</b>		<b>23.85%</b>		<b>0.76%</b>	
Real Estate	(4.10%)	96	(10.23%)	68	13.88%	26	23.85%	35	0.76%	55
Blended Benchmark (2)	(5.37%)	97	(13.08%)	78	21.68%	15	14.83%	58	0.89%	54
Callan Tot Real Est DB	(1.70%)		(5.40%)		8.17%		19.19%		1.40%	
<b>Total Fund</b>	<b>2.84%</b>	<b>96</b>	<b>10.22%</b>	<b>90</b>	<b>(6.32%)</b>	<b>8</b>	<b>19.05%</b>	<b>8</b>	<b>6.84%</b>	<b>97</b>
Total Fund Index*	3.87%	84	12.25%	61	(10.59%)	26	12.88%	69	12.29%	49
Callan Public Fund Spr DB	5.19%		12.77%		(12.38%)		14.07%		12.25%	

\* Current Quarter Target = 39.0% MSCI ACWI IMI, 29.0% Blmbg:Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 7.0% 3-month Treasury Bill+3.0% and 3.3% Principal DRA Blend Index.

(1) Current Principal DRA Blend Index = 15% Bloomberg US TIPS Idx, 15% Bloomberg Commodity Idx, 30% S&P Global Infrastructure Idx, 15% S&P Global Natural Resources Idx and 25% FTSE EPRA/NAREIT Developed Market Idx.  
(2) Blended Benchmark = NCREIF (NPI) through 6/30/06, NCREIF (NPI) through 12/31/13 and NFI-ODCE (1 Qtr Arrears) thereafter.

(3) Private Equity Benchmark = Russell 3000 Index lagged 3 months+3.0% through 12/31/19, Russell 3000 Index lagged 3 months+2.0% thereafter.

## Investment Manager Returns

The table below details the rates of return for the Fund's investment managers over various time periods ended March 31, 2024. 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 March 31, 2024				
	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Net of Fee Returns</b>					
<b>Total Domestic Equity</b>	<b>8.73%</b>	<b>24.39%</b>	<b>7.94%</b>	<b>12.86%</b>	<b>11.34%</b>
Russell 3000 Index	10.02%	29.29%	9.78%	14.34%	12.33%
BlackRock Russell 1000 Value	8.98%	20.24%	8.10%	10.45%	-
Russell 1000 Value Index	8.99%	20.27%	8.11%	10.32%	9.01%
DFA Large Cap Value	11.51%	23.69%	9.52%	11.03%	-
Russell 1000 Value Index	8.99%	20.27%	8.11%	10.32%	9.01%
Northern Trust Global	10.55%	29.87%	11.49%	15.05%	12.98%
S&P 500 Index	10.56%	29.88%	11.49%	15.05%	12.96%
Polen Capital Management	7.62%	30.03%	3.99%	12.71%	14.80%
S&P 500 Index	10.56%	29.88%	11.49%	15.05%	12.96%
Earnest Partners LLC	8.03%	20.85%	6.96%	13.21%	11.97%
Russell MidCap Index	8.60%	22.35%	6.07%	11.10%	9.95%
DFA Small Cap Value	3.45%	24.39%	10.71%	13.78%	9.11%
Russell 2000 Value Index	2.90%	18.75%	2.22%	8.17%	6.87%
<b>Total Global Equity</b>	<b>7.85%</b>	<b>21.85%</b>	<b>7.20%</b>	<b>11.85%</b>	<b>9.81%</b>
MSCI World	8.88%	25.11%	8.60%	12.07%	9.39%
BlackRock Global Alpha Tilts	9.03%	24.71%	7.95%	11.51%	-
MSCI ACWI Gross	8.32%	23.81%	7.46%	11.45%	9.22%
MFS Investment Management	6.37%	18.28%	6.26%	12.47%	11.18%
MSCI ACWI Gross	8.32%	23.81%	7.46%	11.45%	9.22%
<b>Total International Equity</b>	<b>5.76%</b>	<b>18.80%</b>	<b>5.14%</b>	<b>8.42%</b>	<b>5.37%</b>
MSCI EAFE Index	5.78%	15.32%	4.78%	7.33%	4.80%
AQR Emerging Markets	6.14%	18.21%	(1.92%)	4.93%	-
MSCI EM Gross	2.44%	8.59%	(4.68%)	2.61%	3.33%
Brandes Investment Partners	5.16%	23.83%	10.16%	9.08%	5.45%
MSCI EAFE Index	5.78%	15.32%	4.78%	7.33%	4.80%
William Blair & Company	6.75%	13.66%	(0.15%)	8.28%	5.87%
MSCI ACWI ex-US Index	4.81%	13.83%	2.44%	6.48%	4.75%
DFA International Small Cap	5.32%	16.18%	6.16%	7.75%	4.53%
MSCI EAFE Small	2.40%	10.45%	(1.36%)	4.94%	4.70%

\*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 ended March 31, 2024. 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 March 31, 2024

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 10 Years
<b>Net of Fee Returns</b>					
<b>Total Fixed Income</b>	<b>(0.38%)</b>	<b>2.45%</b>	<b>0.33%</b>	<b>0.63%</b>	<b>1.79%</b>
Bimbg Aggregate	(0.78%)	1.70%	(2.46%)	0.36%	1.54%
BlackRock US Govt Bond Bimbg Government	(0.89%) (0.93%)	0.10% 0.13%	- (2.68%)	- (0.04%)	- 1.05%
Reams Asset Management Bimbg Aggregate	(0.66%) (0.78%)	1.86% 1.70%	(1.39%) (2.46%)	2.68% 0.36%	2.85% 1.54%
Loomis, Sayles & Company, L.P. Bimbg Aggregate	0.59% (0.78%)	5.64% 1.70%	(0.53%) (2.46%)	2.45% 0.36%	3.29% 1.54%
<b>Total Private Equity</b>	<b>(0.07%)</b>	<b>2.94%</b>	<b>17.97%</b>	<b>18.53%</b>	<b>16.80%</b>
Private Equity Benchmark	12.49%	28.21%	10.95%	17.84%	-
Abbott Capital Management 2010	0.00%	(6.70%)	8.69%	13.23%	14.79%
Abbott Capital Management 2011	0.00%	(7.55%)	9.71%	15.33%	15.04%
Abbott Capital Management 2012	0.00%	(3.85%)	13.02%	17.04%	14.26%
Abbott Capital Management 2013	0.00%	(2.85%)	13.10%	17.65%	13.43%
Abbott Capital Management 2014	0.00%	(3.96%)	15.16%	18.26%	11.09%
Abbott Capital Management 2015	0.00%	3.60%	21.80%	19.40%	-
Abbott Capital Management 2016	0.00%	5.24%	22.81%	19.46%	-
Abbott Capital Management 2018	0.00%	3.96%	18.11%	16.83%	-
Abbott Capital Management 2019	0.00%	3.43%	20.67%	-	-
Abbott Capital Management 2020	0.00%	1.70%	19.24%	-	-
Abbott Capital Management 2021	0.00%	2.00%	4.93%	-	-
Abbott Capital Management 2022	(0.32%)	4.88%	-	-	-
Abbott Capital Management 2023	(0.79%)	-	-	-	-
Mesirow V	0.00%	(0.80%)	12.66%	14.99%	16.61%
Mesirow IV	0.00%	(0.52%)	17.60%	20.87%	13.86%
Mesirow VII	0.00%	5.78%	18.97%	15.39%	-
Mesirow VIII	0.00%	0.22%	2.60%	-	-
NB Secondary Opp Fund III	(1.06%)	18.10%	13.90%	11.56%	18.36%
NB Secondary Opp Fund IV	(0.96%)	4.54%	16.24%	15.96%	-
NB Secondary Opp Fund V	0.00%	25.26%	-	-	-
Private Advisors VI	0.00%	4.68%	28.37%	23.81%	-
Private Advisors VII	0.00%	7.32%	25.80%	18.15%	-
Private Advisors VIII	(0.53%)	9.18%	27.08%	17.91%	-
Private Advisors IX	(0.32%)	13.02%	24.30%	-	-
Apogem Capital X	(0.12%)	-	-	-	-
<b>Absolute Return</b>	<b>3.42%</b>	<b>8.98%</b>	<b>13.84%</b>	<b>6.95%</b>	<b>-</b>
90 Day T-Bill + 3%	2.01%	8.24%	5.58%	5.02%	4.38%
Aptitude	4.79%	10.07%	-	-	-
1-month LIBOR + 4%	2.33%	9.60%	6.87%	6.19%	5.55%
UBS A & Q	2.49%	8.20%	7.88%	9.10%	-
1-month LIBOR + 4%	2.33%	9.60%	6.87%	6.19%	5.55%
<b>Real Assets</b>	<b>1.68%</b>	<b>3.72%</b>	<b>3.72%</b>	<b>5.01%</b>	<b>-</b>
Principal DRA	1.68%	3.72%	3.72%	5.01%	-
Principal DRA Blend Index	0.66%	3.85%	3.56%	4.49%	-
<b>Total Real Estate</b>	<b>(4.20%)</b>	<b>(11.52%)</b>	<b>5.37%</b>	<b>4.80%</b>	<b>7.65%</b>
Real Estate	(4.20%)	(11.52%)	5.37%	4.80%	7.65%
Blended Benchmark	(5.37%)	(13.33%)	4.35%	3.78%	6.67%
<b>Total Fund</b>	<b>2.79%</b>	<b>9.39%</b>	<b>6.64%</b>	<b>8.07%</b>	<b>7.25%</b>
Total Fund Index	3.87%	11.89%	4.51%	7.77%	6.92%

\*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.

	12/2023- 3/2024	2023	2022	2021	2020
<b>Net of Fee Returns</b>					
<b>Total Domestic Equity</b>	<b>8.73%</b>	<b>19.38%</b>	<b>(15.89%)</b>	<b>27.88%</b>	<b>16.09%</b>
Russell 3000 Index	10.02%	25.96%	(19.21%)	25.66%	20.89%
BlackRock Russell 1000 Value	8.98%	11.46%	(7.55%)	25.17%	3.27%
Russell 1000 Value Index	8.99%	11.46%	(7.54%)	25.16%	2.80%
DFA Large Cap Value	11.51%	12.12%	(5.12%)	27.35%	(1.78%)
Russell 1000 Value Index	8.99%	11.46%	(7.54%)	25.16%	2.80%
Northern Trust Global	10.55%	26.29%	(18.09%)	28.68%	18.41%
S&P 500 Index	10.56%	26.29%	(18.11%)	28.71%	18.40%
Polen Capital Management	7.62%	37.75%	(37.97%)	24.34%	34.59%
S&P 500 Index	10.56%	26.29%	(18.11%)	28.71%	18.40%
Earnest Partners LLC	8.03%	16.95%	(15.58%)	25.59%	20.96%
Russell MidCap Index	8.60%	17.23%	(17.32%)	22.58%	17.10%
DFA Small Cap Value	3.45%	21.04%	(2.12%)	40.38%	3.74%
Russell 2000 Value Index	2.90%	14.65%	(14.48%)	28.27%	4.63%
<b>Total Global Equity</b>	<b>7.85%</b>	<b>21.88%</b>	<b>(17.55%)</b>	<b>18.80%</b>	<b>18.48%</b>
MSCI World	8.88%	23.79%	(18.14%)	21.82%	15.90%
BlackRock Global Alpha Tilts	9.03%	22.93%	(16.89%)	18.67%	16.39%
MSCI ACWI Gross	8.32%	22.81%	(17.96%)	19.04%	16.82%
MFS Investment Management	6.37%	20.50%	(18.50%)	19.05%	21.88%
MSCI ACWI Gross	8.32%	22.81%	(17.96%)	19.04%	16.82%
<b>Total International Equity</b>	<b>5.76%</b>	<b>22.25%</b>	<b>(15.75%)</b>	<b>12.57%</b>	<b>10.28%</b>
MSCI EAFE Index	5.78%	18.24%	(14.45%)	11.26%	7.82%
AQR Emerging Markets	6.14%	17.92%	(20.93%)	0.47%	17.38%
MSCI EM Gross	2.44%	10.27%	(19.74%)	(2.22%)	18.69%
Brandes Investment Partners	5.16%	30.84%	(7.15%)	14.00%	(1.69%)
MSCI EAFE Index	5.78%	18.24%	(14.45%)	11.26%	7.82%
William Blair & Company	6.75%	15.50%	(28.91%)	12.77%	30.84%
MSCI ACWI ex-US Index	4.81%	16.21%	(15.57%)	8.29%	11.13%
DFA International Small Cap	5.32%	17.52%	(9.80%)	15.89%	0.81%
MSCI EAFE Small	2.40%	13.16%	(21.39%)	10.10%	12.34%

\*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.

	12/2023- 3/2024	2023	2022	2021	2020
<b>Net of Fee Returns</b>					
<b>Total Fixed Income</b>	<b>(0.38%)</b>	<b>6.52%</b>	<b>(6.93%)</b>	<b>(0.45%)</b>	<b>(1.91%)</b>
Blmbg Aggregate	(0.78%)	5.53%	(13.01%)	(1.54%)	7.51%
BlackRock US Govt Bond Blmbg Government	(0.89%) (0.93%)	4.22% 4.09%	(12.44%) (12.32%)	- (2.28%)	- 7.94%
Reams Asset Management Blmbg Aggregate	(0.66%) (0.78%)	6.62% 5.53%	(11.50%) (13.01%)	(1.36%) (1.54%)	17.11% 7.51%
Loomis, Sayles & Company, L.P. Blmbg Aggregate	0.59% (0.78%)	8.41% 5.53%	(12.26%) (13.01%)	1.98% (1.54%)	6.99% 7.51%
<b>Total Private Equity</b>	<b>(0.07%)</b>	<b>2.89%</b>	<b>(4.88%)</b>	<b>67.66%</b>	<b>22.14%</b>
Private Equity Benchmark	12.49%	22.76%	(15.10%)	34.08%	17.99%
Abbott Capital Management 2010	0.00%	(6.70%)	(16.87%)	65.55%	24.43%
Abbott Capital Management 2011	0.00%	(7.55%)	(18.97%)	76.29%	29.13%
Abbott Capital Management 2012	0.00%	(3.85%)	(13.14%)	72.85%	29.04%
Abbott Capital Management 2013	0.00%	(2.85%)	(12.51%)	70.21%	28.65%
Abbott Capital Management 2014	0.00%	(3.96%)	(9.41%)	75.52%	26.51%
Abbott Capital Management 2015	0.00%	3.60%	(0.79%)	75.81%	16.62%
Abbott Capital Management 2016	0.00%	5.24%	2.90%	71.04%	20.02%
Abbott Capital Management 2018	0.00%	3.96%	7.44%	47.06%	22.73%
Abbott Capital Management 2019	0.00%	3.43%	7.54%	57.22%	10.04%
Abbott Capital Management 2020	0.00%	1.70%	0.81%	65.36%	-
Abbott Capital Management 2021	0.00%	2.00%	1.72%	-	-
Abbott Capital Management 2022	(0.32%)	4.87%	-	-	-
Mesirow V	0.00%	(0.80%)	(19.60%)	78.52%	21.39%
Mesirow IV	0.00%	(0.52%)	(13.41%)	88.26%	29.10%
Mesirow VII	0.00%	5.78%	(0.68%)	60.27%	16.43%
Mesirow VIII	0.00%	0.22%	(2.15%)	10.14%	-
NB Secondary Opp Fund III	(1.06%)	17.34%	(2.34%)	30.34%	4.23%
NB Secondary Opp Fund IV	(0.96%)	4.64%	0.29%	48.73%	14.80%
NB Secondary Opp Fund V	0.00%	21.41%	-	-	-
Private Advisors VI	0.00%	4.68%	9.97%	83.78%	16.54%
Private Advisors VII	0.00%	7.32%	21.61%	52.55%	3.97%
Private Advisors VIII	(0.53%)	9.80%	27.61%	47.25%	15.78%
Private Advisors IX	(0.32%)	13.33%	24.00%	37.25%	-
<b>Absolute Return</b>	<b>3.42%</b>	<b>6.09%</b>	<b>26.46%</b>	<b>8.77%</b>	<b>(14.21%)</b>
90 Day T-Bill + 3%	2.01%	8.01%	4.46%	3.05%	3.67%
Aptitude	4.79%	5.24%	-	-	-
1-month LIBOR + 4%	2.33%	9.38%	5.80%	4.11%	4.63%
UBS A & Q	2.49%	6.48%	8.85%	8.08%	12.18%
1-month LIBOR + 4%	2.33%	9.38%	5.80%	4.11%	4.63%
<b>Real Assets</b>	<b>1.68%</b>	<b>3.31%</b>	<b>(5.91%)</b>	<b>17.51%</b>	<b>4.02%</b>
Principal DRA	1.68%	3.31%	(5.91%)	17.51%	4.02%
Principal DRA Blend Index	0.66%	4.31%	(5.07%)	15.87%	2.08%
<b>Total Real Estate</b>	<b>(4.20%)</b>	<b>(10.54%)</b>	<b>13.58%</b>	<b>23.45%</b>	<b>0.39%</b>
Real Estate	(4.20%)	(10.54%)	13.58%	23.45%	0.39%
Blended Benchmark	(5.37%)	(13.08%)	21.68%	14.83%	0.89%
<b>Total Fund</b>	<b>2.79%</b>	<b>9.97%</b>	<b>(6.51%)</b>	<b>18.80%</b>	<b>6.59%</b>
Total Fund Index	3.87%	12.25%	(10.59%)	12.88%	12.29%

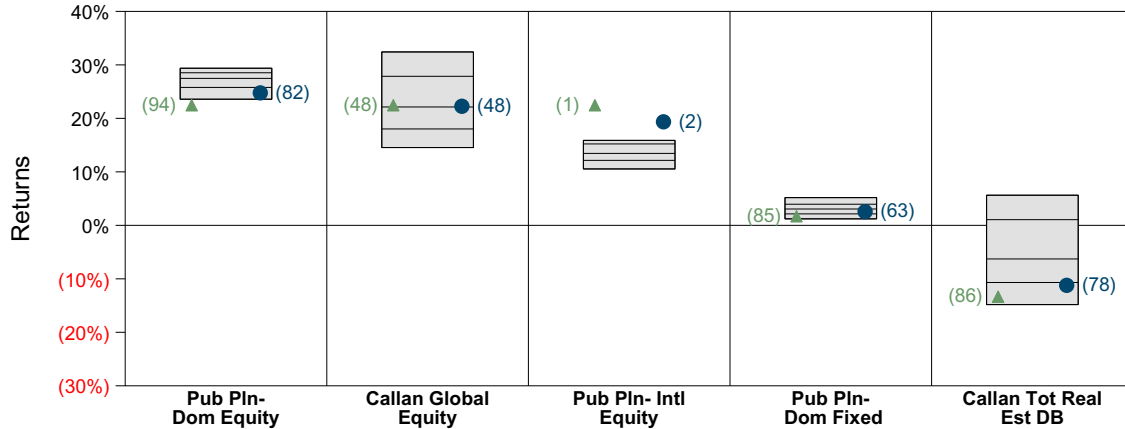
\*Net returns are simulated with the use of fee schedules through March 31, 2019. Actual fees paid are used thereafter.



## Asset Class Rankings

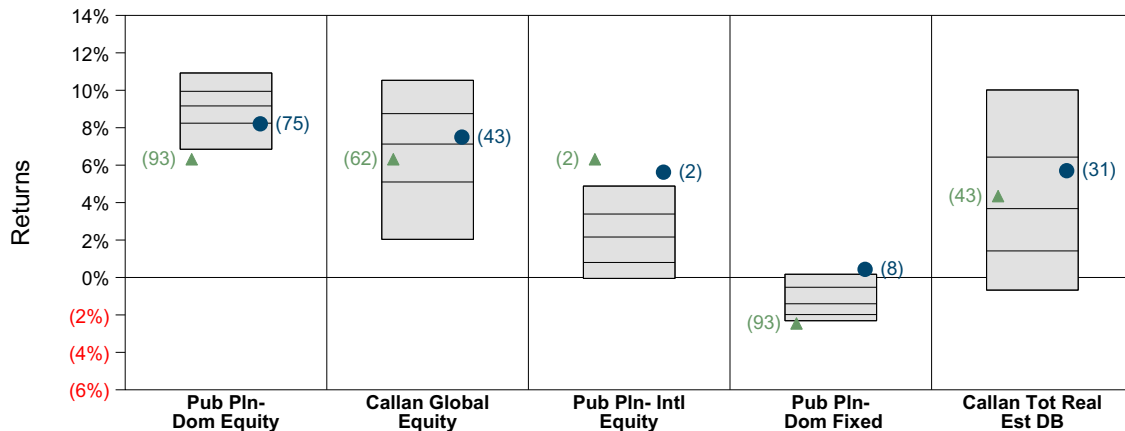
The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases.

### Total Asset Class Performance One Year Ended March 31, 2024



10th Percentile	29.37	32.42	15.89	5.18	5.63
25th Percentile	28.53	27.86	15.22	3.95	1.06
Median	27.47	22.13	13.45	3.06	(6.28)
75th Percentile	25.79	18.02	12.15	2.14	(10.68)
90th Percentile	23.58	14.54	10.54	1.21	(14.82)
<b>Asset Class Composite</b>	● 24.76	22.26	19.35	2.55	(11.22)
Composite Benchmark	▲ 22.45	22.45	22.45	1.70	(13.33)

### Total Asset Class Performance Three Years Ended March 31, 2024



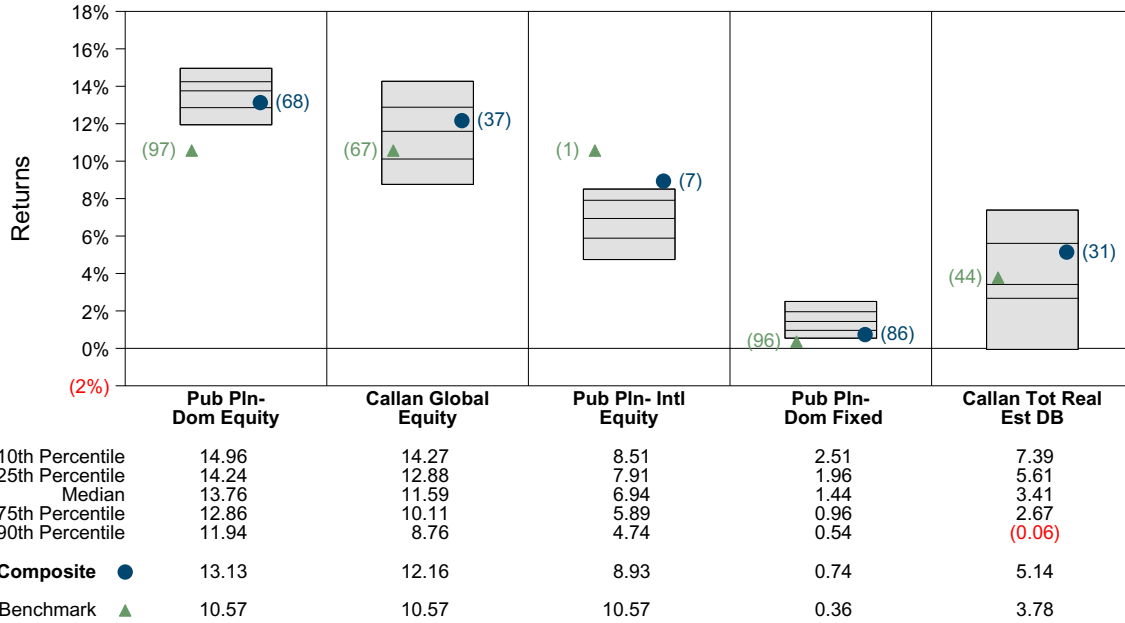
10th Percentile	10.92	10.53	4.88	0.17	10.02
25th Percentile	9.94	8.75	3.39	(0.52)	6.43
Median	9.16	7.13	2.16	(1.40)	3.68
75th Percentile	8.24	5.10	0.80	(1.98)	1.42
90th Percentile	6.85	2.04	(0.05)	(2.31)	(0.68)
<b>Asset Class Composite</b>	● 8.21	7.50	5.62	0.43	5.70
Composite Benchmark	▲ 6.31	6.31	6.31	(2.46)	4.35

\* Current Quarter Target = 39.0% MSCI ACWI IMI, 29.0% Blmbg:Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 7.0% 3-month Treasury Bill+3.0% and 3.3% Principal DRA Blend Index.

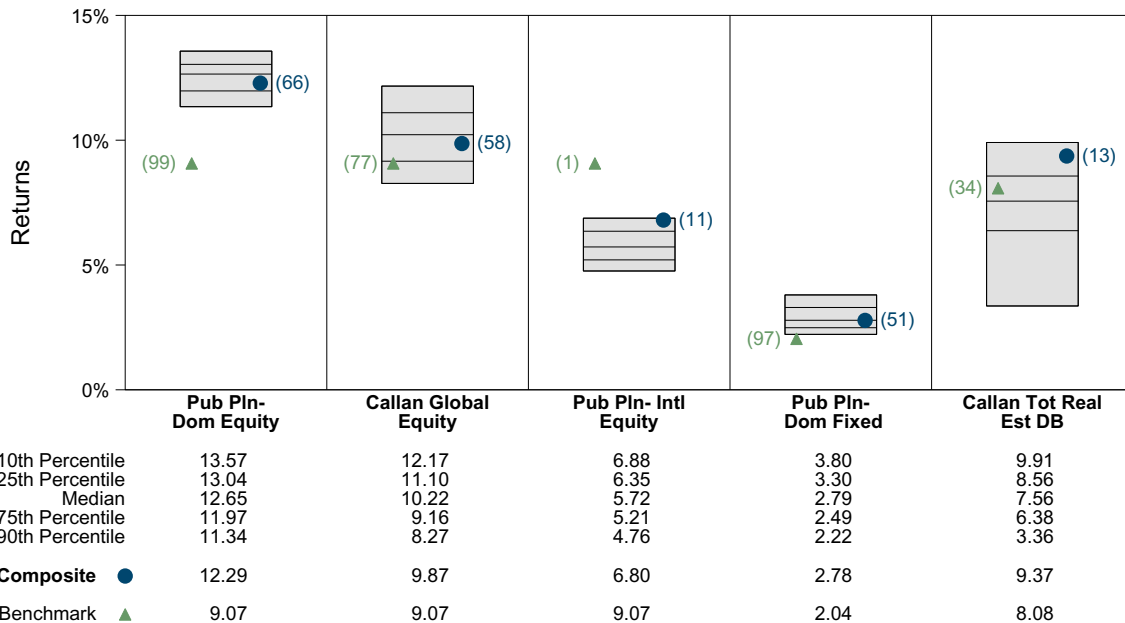
## Asset Class Rankings

The charts below show the rankings of each asset class component of the Total Fund relative to appropriate comparative databases.

### Total Asset Class Performance Five Years Ended March 31, 2024



### Total Asset Class Performance Thirteen and One-Quarter Years Ended March 31, 2024

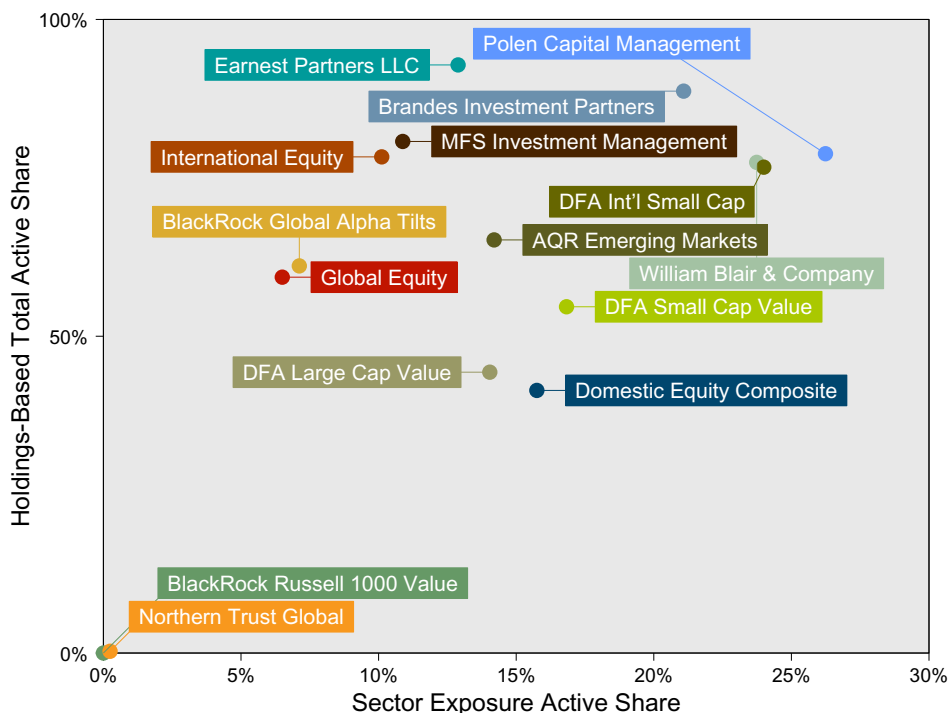


\* Current Quarter Target = 39.0% MSCI ACWI IMI, 29.0% Blmbg:Aggregate, 12.0% Russell 3000 Index lagged 3 months+2.0%, 9.7% NCREIF NFI-ODCE Eq Wt Net lagged 3 months, 7.0% 3-month Treasury Bill+3.0% and 3.3% Principal DRA Blend Index.

## Active Share Structure Analysis For One Quarter Ended March 31, 2024

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 March 31, 2024



	Index	Total Act Share	Non-Idx Act Share	Sector Act Share	Number Securities	Security Diverse
<b>Domestic Equity Composite</b>	<b>Russell 3000</b>	<b>41.45%</b>	<b>0.73%</b>	<b>15.75%</b>	<b>1778</b>	<b>101.53</b>
BlackRock Russell 1000 Value	Russell 1000 Value	0.00%	0.00%	0.00%	845	71.13
DFA Large Cap Value	Russell 1000 Value	44.33%	0.72%	14.04%	320	50.74
Northern Trust Global	S&P 500	0.28%	0.00%	0.24%	502	33.27
Polen Capital Management	S&P 500	78.81%	2.39%	26.24%	23	6.85
Earnest Partners LLC	Russell MidCap	92.82%	9.63%	12.89%	58	22.84
DFA Small Cap Value	Russell 2000 Value	54.65%	16.20%	16.83%	943	121.12
<b>Global Equity</b>	<b>MSCI World</b>	<b>59.32%</b>	<b>6.91%</b>	<b>6.50%</b>	<b>510</b>	<b>42.93</b>
BlackRock Global Alpha Tilts	MSCI ACWI GD	61.10%	4.98%	7.12%	460	35.31
MFS Investment Management	MSCI ACWI GD	80.74%	1.87%	10.88%	74	20.30
<b>International Equity</b>	<b>MSCI EAFE</b>	<b>78.31%</b>	<b>28.91%</b>	<b>10.11%</b>	<b>2464</b>	<b>82.55</b>
AQR Emerging Markets	MSCI EM GD	65.20%	3.30%	14.20%	337	31.39
Brandes Investment Partners	MSCI EAFE	88.68%	15.99%	21.08%	66	22.32
William Blair & Company	MSCI ACWI xUS GD	77.44%	12.28%	23.74%	279	49.81
DFA Int'l Small Cap	MSCI EAFE Small	76.68%	17.01%	24.00%	1822	147.89

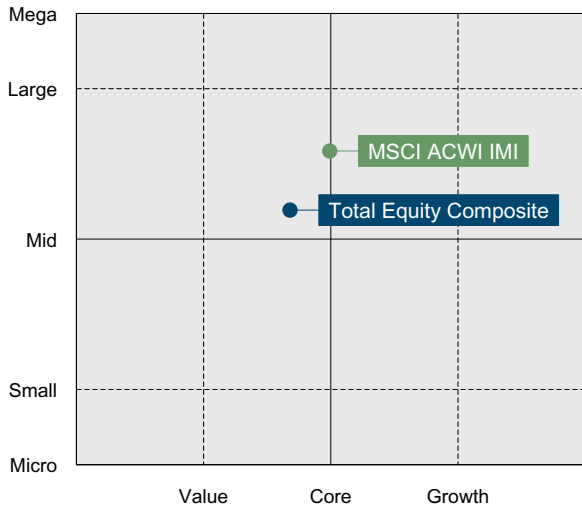
# Current Holdings Based Style Analysis

## Total Equity Composite

### As of March 31, 2024

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.

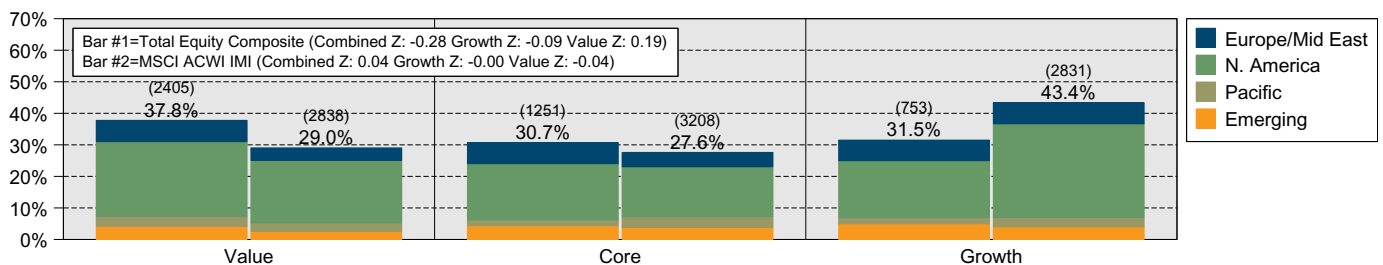
**Style Map vs Callan Public Fund Spr DB Holdings as of March 31, 2024**



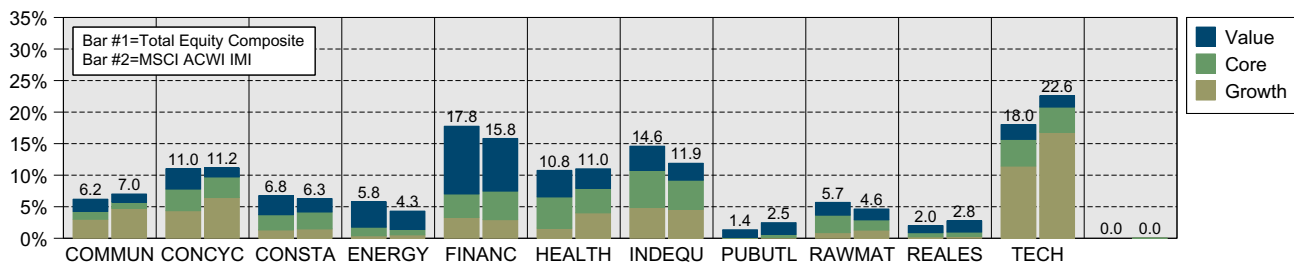
**Style Exposure Matrix Holdings as of March 31, 2024**

	Value	Core	Growth	Total
Europe/ Mid East	6.8% (417) 3.9% (443)	6.7% (245) 4.6% (493)	6.5% (142) 6.7% (471)	<b>20.0% (804)</b> <b>15.2% (1407)</b>
N. America	<b>23.7% (1002)</b> 19.9% (908)	<b>17.9% (598)</b> 15.9% (1016)	<b>18.1% (294)</b> 29.6% (711)	<b>59.6% (1894)</b> <b>65.4% (2635)</b>
Pacific	3.2% (802) 2.7% (501)	1.8% (249) 3.3% (532)	2.0% (103) 3.0% (474)	<b>6.9% (1154)</b> <b>9.0% (1507)</b>
Emerging	4.2% (184) 2.5% (986)	4.4% (159) 3.9% (1167)	4.9% (214) 4.0% (1175)	<b>13.5% (557)</b> <b>10.4% (3328)</b>
<b>Total</b>	<b>37.8% (2405)</b> 29.0% (2838)	<b>30.7% (1251)</b> 27.6% (3208)	<b>31.5% (753)</b> 43.4% (2831)	<b>100.0% (4409)</b> <b>100.0% (8877)</b>

**Combined Z-Score Style Distribution Holdings as of March 31, 2024**



**Sector Weights Distribution Holdings as of March 31, 2024**



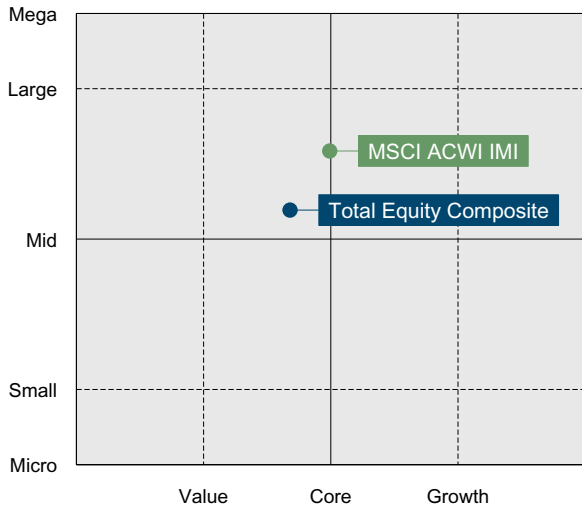
# Current Holdings Based Style Analysis

## Total Equity Composite

### As of March 31, 2024

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.

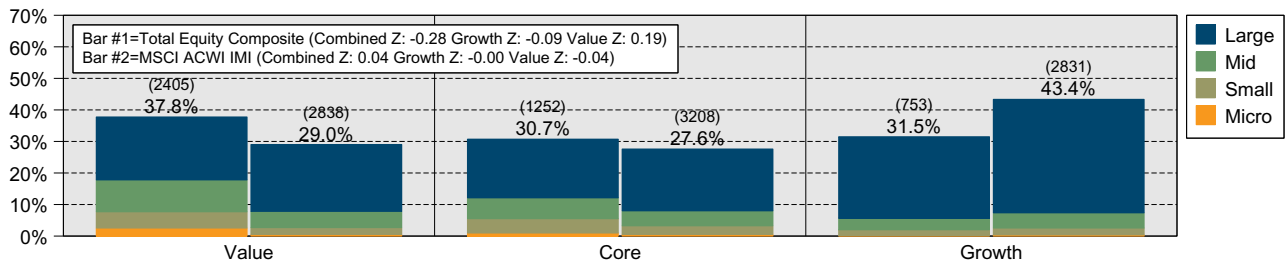
**Style Map vs Callan Public Fund Spr DB Holdings as of March 31, 2024**



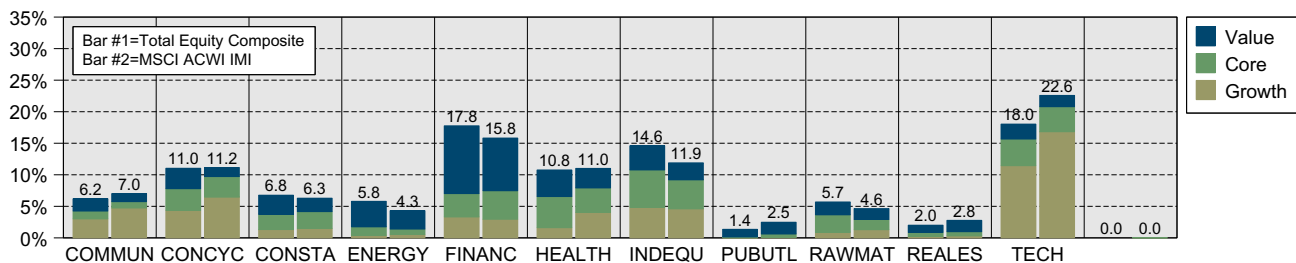
**Style Exposure Matrix Holdings as of March 31, 2024**

	Value	Core	Growth	Total
Large	20.0% (241)	18.6% (182)	25.9% (210)	<b>64.5% (633)</b>
	21.2% (313)	19.6% (265)	36.0% (308)	<b>76.8% (886)</b>
Mid	10.1% (325)	6.6% (272)	3.6% (250)	<b>20.3% (847)</b>
	5.1% (546)	4.8% (588)	4.8% (641)	<b>14.7% (1775)</b>
Small	5.1% (466)	4.5% (418)	1.8% (170)	<b>11.5% (1054)</b>
	2.2% (1040)	2.7% (1342)	2.2% (1170)	<b>7.0% (3552)</b>
Micro	2.5% (1373)	1.0% (380)	0.1% (123)	<b>3.7% (1876)</b>
	0.5% (939)	0.6% (1013)	0.4% (712)	<b>1.5% (2664)</b>
<b>Total</b>	<b>37.8% (2405)</b>	<b>30.7% (1252)</b>	<b>31.5% (753)</b>	<b>100.0% (4410)</b>
	<b>29.0% (2838)</b>	<b>27.6% (3208)</b>	<b>43.4% (2831)</b>	<b>100.0% (8877)</b>

**Combined Z-Score Style Distribution Holdings as of March 31, 2024**



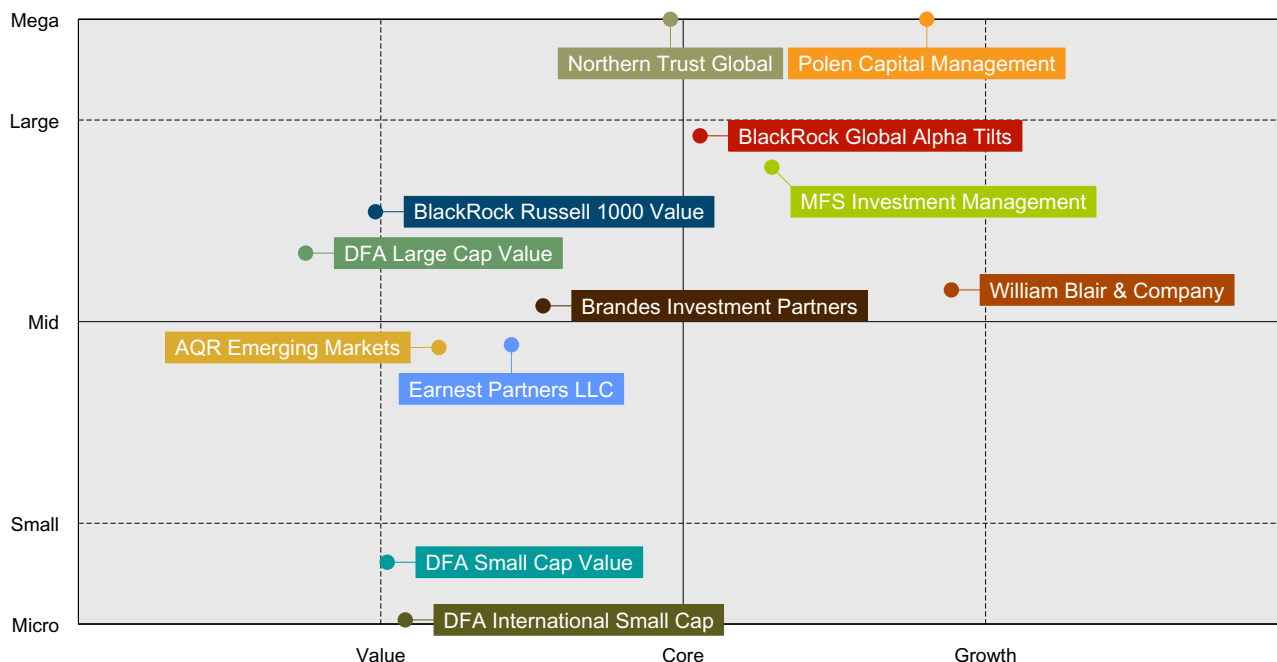
**Sector Weights Distribution Holdings as of March 31, 2024**



## Global Holdings Based Style Analysis For One Quarter Ended March 31, 2024

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 March 31, 2024



	Weight %	Wtd Median Mkt Cap	Combined Z-Score	Growth Z-Score	Value Z-Score	Number of Securities	Security Diversification
BlackRock Russell 1000 Value	8.72%	77.96	(0.99)	(0.43)	0.57	845	71.13
DFA Large Cap Value	6.42%	57.14	(1.23)	(0.42)	0.81	320	50.74
Northern Trust Global	8.63%	225.40	0.00	(0.01)	(0.02)	502	33.27
Polen Capital Management	5.20%	325.67	0.82	0.24	(0.58)	23	6.85
Earnest Partners LLC	7.29%	20.45	(0.53)	(0.33)	0.21	58	22.84
DFA Small Cap Value	7.94%	3.04	(0.95)	(0.17)	0.78	943	121.12
MFS Investment Management	8.72%	100.40	0.33	(0.06)	(0.38)	74	20.30
BlackRock Global Alpha Tilts	11.32%	116.20	0.10	0.01	(0.09)	460	35.31
AQR Emerging Markets	4.69%	20.19	(0.78)	(0.09)	0.69	337	31.39
Brandes Investment Partners	14.07%	30.56	(0.43)	(0.03)	0.40	66	22.32
William Blair & Company	9.92%	38.57	0.90	0.25	(0.65)	279	49.81
DFA International Small Cap	7.09%	1.96	(0.89)	(0.18)	0.71	1822	147.89







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