



City of Milwaukee
Employees' Retirement System

Bernard J. Allen
Executive Director

David M. Silber, CFA, CAIA
Chief Investment Officer

Melody Johnson
Deputy Director

April 28, 2023

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, May 4, 2023 at 9:00 a.m.** This meeting will be conducted via teleconference.

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

The agenda is as follows:

- I. Callan 2023 Asset-Liability Study Phase 2 Presentation.
- II. Approval of UBS Hedge Fund Solutions Guideline Change.
- III. Due Diligence Reports.
 - a. Mesirow Financial.
 - b. BlackRock.
 - c. Polen Capital Management.
- IV. CMERS 1st Quarter 2023 Performance Update.

Sincerely,

Bernard J. Allen
Executive Director

BJA:jmw

Memorandum

To: CMERS Investment Committee
From: Erich Sauer, CFA, CAIA
Date: May 4, 2023
Re: UBS Guideline Request

Attached you will find a request from UBS Hedge Fund Solutions to update the guidelines on the CMERS Low Beta, LLC vehicle they manage for us. They are requesting to increase the percentage of the portfolio with liquidity terms of between 2 and 3 years from its current maximum of 10% of the portfolio, to a maximum of 20% of the portfolio. A redline of the proposed guideline change is contained within the body of the memo, and a clean copy of the full guidelines incorporating the proposed change is attached.

As a reminder, in late 2022, ERS Staff worked with UBS to come up with a redemption plan that reduced the size of the UBS portfolio from over 8% of Fund assets, to a target of 4% of Fund assets, while maintaining capacity in the most difficult to access underlying hedge fund managers in the existing portfolio. This redemption plan was ultimately approved by CMERS' investment committee. Manager skill is extremely important in hedge fund investing, so UBS' recommendation was to maintain as much capacity as possible in difficult to access, highly skilled managers. ERS staff and Callan agreed with this recommendation.

The progress that UBS has made toward that redemption plan is what is driving this request. As portions of the portfolio are redeemed, the scarce-capacity managers that are left make up a larger part of the remaining UBS portfolio. Importantly, UBS is not increasing the size of these positions in terms of absolute dollars. The remaining UBS portfolio is just becoming smaller around them. So, from a Total Fund perspective, CMERS has the same amount invested in these less-liquid managers that it always has. This guideline change does not put the CMERS Total Fund in any worse liquidity position than it had been in previously. It is for this reason that ERS staff and Callan are comfortable with this request, and recommend approval of the guideline update.



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UBS Hedge Fund Solutions

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Employees' Retirement System of the City of Milwaukee
789 N Water St., Suite 300
Milwaukee, WI 53202

April 27, 2023

RE: CMERS Low Beta LLC – Request amendment to the liquidity profile

Dear Mr. Sauer,

Due to recent rebalancing, the size of CMERS Low Beta LLC (the "**Fund**") will be reduced in accordance with previous instructions and UBS Hedge Fund Solutions LLC ("**HFS**" or "**we**") would like to retain key portfolio holdings. These positions are generally in high conviction sub-strategies and/or are fund managers with limited and/or scarce capacity. Accordingly, we request an amendment to the current Investment Management Agreement ("**IMA**") guidelines that limit exposure to the greater than 2 years but less than 3 year liquidity bucket of the portfolio and look to increase this guideline from 10% to 20%, effective May 1, 2023. This amendment to the IMA will allow HFS to continue to manage the Fund with a generally more concentration approach consistent with our investment overall philosophy while we adjust to a reduced overall portfolio size.

HFS is requesting to revise the second bullet under the Liquidity Considerations in the Appendix to the IMA:

- 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 ~~4~~²/₃ of these Portfolio Funds (approximately ~~40~~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 ~~40~~²⁰% limitation. The Investment Manager may increase the 20% limitation with consent of investors on an investor-by-investor basis.

If you have any questions, please contact your UBS representative.

Yours sincerely

UBS Hedge Fund Solutions LLC

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

Investment Objectives

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

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

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

Investment Guidelines

Strategies and Anticipated Allocation Ranges

Equity Hedged: (0-50%)

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

13F Strategy: (0-5%)

- 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.

Investments in Portfolio Funds Managed by Affiliates of the Investment Manager

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

Diversification

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

Liquidity Considerations

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

- At least 70% of the net asset value of the Fund to be allocated to Portfolio Funds with stated liquidity terms (with penalties) that allow for redemption within 1 year.
- Up to 30% of the net asset value of the Fund may be allocated to Portfolio Funds with stated liquidity terms that allow for redemption greater than a 1 year hard lock up. Up to 2/3 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 1/8th quarterly liquidity fund would have 50% of its position in the "within 1 year " bucket and the remainder in the "greater than 1 year bucket", none of which would fall into the greater than 2 year bucket.

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

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

Leverage

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

Investment Manager Bespoke Structures/Co-Investments

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

Investment Eligibility

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

Tail/Overlay Hedging

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

New Issues

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

Memorandum

To: CMERS Investment Committee
From: Erich Sauer, CFA, CAIA
Date: May 4, 2023
Re: Mesirow Due Diligence Meeting: November 17, 2022
Team: Erich Sauer, Thomas Courtright, and Dave Walters

Background

Mesirow Financial (Mesirow) is one of four managers hired by the Employees' Retirement System (ERS) to invest its Private Equity allocation via fund of funds. The ERS has committed a total of \$355 million to four Mesirow Partnership Fund (MPF) vehicles; \$75 million to MPF V in 2010, \$60 million to MPF VI in 2012, \$100 million to MPF VII (\$40 million in 2016 with a \$60 million follow-on in 2017), and \$120 million to MPF VIII-A. A \$120 million commitment to MPF IX-A has been approved by CMERS' Investment Committee, pending successful negotiations with Mesirow. As of September 30, 2022, CMERS' invested capital in the above funds totaled \$232.1 million.

Key Takeaways from Recent Meeting

- Succession planning is an issue that has been noted in past reports, as Mesirow's President and CEO are both at ages when people contemplate retirement. We are comfortable with the actions Mesirow has taken to plan for this eventuality.
- Mesirow has a separate account business that exists to provide certain clients commitment pacing flexibility, while executing a very similar strategy to the fund of funds. We are comfortable that this business is not a distraction to the investment team, and will monitor to ensure that remains the case.
- Mesirow is launching a dedicated secondary fund to take advantage of the opportunity in the GP-led secondary space. We will monitor how secondary investment opportunities are allocated between this new fund and the fund of funds.
- Overall, staff is comfortable with Mesirow, and believes they remain a strong choice as a Private Equity fund of funds manager.

Firm Summary

Mesirow, a registered investment advisor with the Securities and Exchange Commission, is a wholly owned subsidiary of Mesirow Financial Services, Inc. The parent organization, which was founded in 1937, is headquartered in Chicago, IL. The parent company provides traditional and alternative investment strategies with over \$200 billion in assets under management.

Mesirow functions as an independent business unit of Mesirow Financial. However, they have access to the resources that a larger parent organization can provide. The parent company's primary office is in Chicago where they handle investment management, accounting, marketing, and administration. Mesirow began private equity investment activities in 1982 and launched their first fund of funds in 1999. The firm manages approximately \$6.8 billion in committed assets as of June 30, 2022.

Mesirow's private equity business has 293 clients, including U.S. and non-U.S. public and corporate pension plans; endowments and foundations; and other institutional investors. To serve those clients, Mesirow has a team of 23, nine of whom are investment professionals. The

parent company provides additional direct support from over 100 dedicated employees in the areas of institutional sales and marketing, compliance, legal, human resources, and accounting.

Our 2020 memo noted that Dan Howell had transitioned his role from Senior Managing Director to Senior Advisor in anticipation of his retirement in 2022. As part of this transition, Ryan Fedronich and Kristina Pierce were promoted to Managing Director, and added to the investment committee alongside Marc Sacks, Tom Galuhn and Bob DeBolt. Sadly, Mr. Howell passed away in 2021. With the exception of his passing, Mesirow has not seen any other professional turnover over the past three years.

Mr. Sacks is CEO of the private equity business, Mr. Galuhn is President and Mr. DeBolt is the Chief Investment Officer. Mr. Sacks and Mr. Galuhn together are responsible for implementation of Mesirow's investment philosophy through their investment process. Mr. DeBolt is responsible for leading the portfolio construction process under the oversight of the investment committee, as well as leading the mid-level and junior investment team members in the due diligence and monitoring of investments.

Mesirow went through a period where they launched a new commingled partnership fund every two years, but that pace has slowed to three to four years for the funds in which the ERS is invested. They expect the three to four year timeframe between funds to continue going forward, as it seems to be what their client base prefers. This extended time between fund launches is why CMERS makes larger commitments to Mesirow, as compared to Abbott who historically has launched a fund each calendar year.

Mesirow typically does not start raising capital for a new fund until the prior fund has been 65% committed. Funds II through VI are all currently performing above median in the Cambridge "All Private Equity" benchmark. Mesirow's track record is a strong indicator of their sourcing, due diligence, and investment capabilities.

Fund V is \$841 million, Fund VI is \$658 million, Fund VII-A is \$646 million, Fund VIII-A is \$877 million, and Fund IX-A has a target size of \$900 million. The decrease from Fund V to Fund VI was due to the decision of one large client to engage in a separate account relationship with Mesirow that has involved annual commitments over the 2013-17 period. Funds VI and VII are roughly similar in size to MPF V when the separate account relationships are included.

Investment Philosophy and Process

Mesirow's primary investment objective is to create a well-diversified private equity fund of funds. Investment sub-asset classes include U.S. /non-U.S. buyouts, venture capital, and special situation funds. Historically, secondary interests were purchased opportunistically. Mesirow made some secondary investments in Fund V during an attractive pricing environment in the aftermath of the global financial crisis which helped to mitigate the J-curve effect and enhance returns. Funds VI and VII did not include secondaries to the same extent, as Mesirow found the pricing much less attractive.

The maturation of the GP-led secondary market has allowed Mesirow to find many more secondary investments that they believe are attractive. This means that Funds VIII and IX are likely to be much closer to their 15% target to secondaries. In addition, Mesirow believes that the opportunity in the GP-led secondary space is so great that they are launching a dedicated secondary fund to raise more capital to invest in secondaries. ERS staff will monitor how this dedicated secondary fund evolves alongside the fund of funds product.

Mesirow also began including a 15% allocation to co-investments in Fund VIII, and are expected to do the same in Fund IX. Targeted sub-asset class allocations for Fund IX, shown below, are consistent with prior funds:

US Buyout	45% - 55%	Special Situations	5% - 10%
Non-US Buyout	15% - 20%	Venture Capital	20% - 25%

Mesirow's investment team conducts bottom-up research on partnership offerings in order to find those managers with a stable organization, effective investment strategies, long-term track records, and proper alignment between the general partner and limited partners. The team monitors statistics on the private equity industry including exit data, private equity fundraising trends, and secondary transaction pricing to remain current on the private equity environment. In addition, the research team utilizes external research reports on private equity markets, credit markets, and economic research.

Funds are sourced directly through manager offerings, regular dialogues with placement agents, and independent identification. Mesirow identifies potential investment managers by reviewing private equity journals and paid databases. Moreover, Mesirow maintains a database of general partners based in the U.S. and Europe in order to assess the general partner against their competition. Mesirow appears to have a mature network of relationships for fund identification and a well-established fund tracking system.

Mesirow reviews approximately 400 fund offerings annually, and those 125-150 funds identified as the most promising receive an initial review of the Fund's private placement memorandum and due diligence materials. Once the potential funds are narrowed to 75-100, Mesirow conducts their initial due diligence and meets with the fund's management team. At this point, Mesirow will consider whether to reinvest with a manager from a prior fund. Mesirow further narrows the potential opportunities to 30-40 funds and conducts a more thorough and intensive due diligence. Mesirow performs on-site due diligence, initiates both quantitative and qualitative portfolio analysis on these managers, and conducts reference calls. At the completion of this phase, Mesirow identifies what they believe to be the top 8-12 best in class funds and begins to negotiate contract terms and prepare an investment memorandum for review by their Investment Committee.

The key to their investment process occurs during the due diligence phase. Mesirow visits the general partners' office to conduct an intensive review. While at the general partners' office, a team of Mesirow professionals meets with every available partner and investment professional to assess the firm's current senior leadership and the emerging generation of partners. They investigate the general partner's succession planning, mentoring, thoroughness of due diligence, and organizational stability. Mesirow is attempting to uncover potential red flag issues such as excessive investment team turnover, lack of focus and strategy drift, or low quality reporting standards. Members of Mesirow's investment team also sit on numerous advisory boards of the underlying funds, giving them a unique insight into fund management.

The 2020 COVID pandemic caused a shift to virtual meetings. Mesirow believes that the virtual option does create some efficiencies, particularly for meeting with people in satellite offices, but now that in-person work and travel have started to return to normal, the team tries to meet in person with potential managers whenever possible.

Staff meetings are typically held weekly to concentrate on potential partnership investment opportunities. At the time of our visit, Mesirow was on a hybrid schedule, with all team members

required to be in the office Tuesday, Wednesday, and Thursday of each week. There is a deal team of up to three professionals that provides weekly updates on due diligence progress. The team leverages the expertise of the other professionals at the firm for supplementary insight.

The investment process culminates in a list of recommended managers, each accompanied with an investment memorandum that is provided to the private equity Investment Committee for their consideration. Investment in a specific fund requires the unanimous approval of all five members of the Committee.

Compliance and Internal Controls

Since our last visit, Mesirow's long-serving Chief Compliance Officer, Jeff Levine, was promoted to Chief Operating Officer of the firm's Institutional Sales and Trading business. Mary Jo Hayes, who joined Mesirow's compliance department in 2011, was promoted to replace him. Ms. Hayes has over 25 years of industry experience in compliance and operations.

Ms. Hayes is assisted by a team within the parent organization and is responsible for monitoring compliance of the private equity operations. The compliance team routinely communicates with Mesirow staff and reviews procedures designed to ensure that private equity operations comply with applicable regulatory requirements.

There is a firm wide compliance policy that private equity employees must follow that includes: Pre-clearance of personal trades; monitoring of broker statements; completing an annual compliance questionnaire, attendance of ethics training, and maintenance of required securities licenses. The firm must also review the adequacy and effectiveness of its compliance policies and procedures annually. In addition, all employees must abide by the firm's Code of Ethics, which conforms to SEC Rule 204A-1.

Mesirow is evaluated by the Securities and Exchange Commission (SEC). The SEC last conducted an evaluation of Mesirow in April 2014 and found no material deficiencies. In addition, at the time of the visit there were no current investor complaints or lawsuits filed, and no known SEC allegations against any of the underlying managers.

Internally, Mesirow's operations team monitors cash flows to and from limited partners; portfolio funds; fee payment; fund extensions and wind downs. Two operations team members are required to process bank wire transactions. Each partnership investment is also audited annually.

In addition to the normal quarterly financial reporting process, the firm has developed a comprehensive reporting system for portfolio monitoring and management. The investment team monitors each underlying fund with regard to relative investment performance, adherence to investment strategy, unrealized portfolio company progress, changes in investment staff, and ESG developments. These observations are compiled in a detailed quarterly progress report on each partnership commitment, in Mesirow's customized cloud-based database, iLevel.

Information Systems and Disaster Recovery

The parent organization, Mesirow Financial, provides all IT investment services for the private equity operations. The department is responsible for IT investment services; application development; computer operations; desktop design and management; and help desk services. Additionally, Mesirow subscribes to several databases for market insight including, but not limited to, Preqin and Thomson Reuters.

Mesirow has a business continuity plan to protect clients in the event of an emergency or significant business disruption. The firm has established redundancies for business-critical systems and expects that these systems can be up and running within the same business day of declaring an event. Mesirow's IT team performs a disaster recovery test at least annually, with the most recent in March of 2022. The last third-party test was conducted by PC Connect in October of 2021, without issue. Mesirow partially implemented their business continuity plan during the NATO meetings held in Chicago in 2012 and executed in March 2020 during the COVID pandemic.

Conclusion

Callan and staff are comfortable with Mesirow. Performance of our early investments has been very strong, with MPF V reporting a 2.40X TVPI, and MPF VI reporting a 2.59X TVPI as of September 30, 2022. Importantly, both funds have returned more than our initial investment in actual cash distributions, 1.75X for Fund V, and 1.22X for Fund VI. While it is still early to judge performance for Fund VII, it is off to a nice start, with a 1.65X TVPI. An issue we have been monitoring for the past few reports is the eventual retirements of Mr. Galuhn and Mr. Sacks, but Mesirow has taken steps to build the next level of leadership in Mr. Debolt, Mr. Fedronich, and Ms. Pierce. In actuality, they are executing this succession plan with more transparency and a longer runway than we have seen in the past from other managers that have experienced the retirement of key individuals.

Mesirow has been consistent in executing their investment process, and we believe they remain a solid option as a core manager in our private equity fund of funds program. As mentioned in the key takeaways section, in addition to succession planning, staff will continue to monitor Mesirow's separate account business, and implementation of their new dedicated secondaries fund.

Memorandum

To: ERS Investment Committee
From: Dave Walters, CFA, CTP
Date: May 4, 2023
Re: BlackRock Due Diligence Meeting – February 2, 2023 Onsite and Virtual Follow Up
Team: David Silber, Dave Walters

Background

The Employees' Retirement System (ERS) hired BlackRock (formerly Barclays Global Investors) in June 1996, to manage a Russell 1000 Value Alpha Tilts strategy. In May 2002, ERS transitioned from the Russell 1000 Value Alpha Tilts strategy to the Russell 1000 Alpha Tilts strategy. In February 2016, ERS transitioned to the ACWI Alpha Tilts (Global Alpha Tilts) strategy, after an equity structure review. BlackRock began managing a U.S. Intermediate Aggregate Index Fixed Income mandate for the ERS in June 1999. ERS transitioned this to a U.S. Aggregate mandate in June 2016 after a fixed income structure review. A subsequent structure review in November 2021 resulted in a change from the U.S. Aggregate mandate to a U.S. Government Bond Index strategy. ERS also added a Russell 1000 Value Index mandate with BlackRock in March 2017.

In addition, BlackRock provides Transition Management services for ERS. These services include managing the movement of securities from one investment manager to another and interim investment management of mandates that had to be removed from managers before replacement managers had been found.

As of March 31, 2023, BlackRock manages approximately \$716 million, or 12.7%, of the ERS' assets as summarized below:

<u>Strategy Mandate</u>	<u>Mandate Size</u>	<u>CMERS Target</u>	<u>Permanent/Temporary</u>
ACWI Alpha Tilts	\$281.3 Million	4.8%	Permanent
Russell 1000 Value Index	\$209.4 Million	3.9%	Permanent
U.S. Government Bond Index	\$225.3 Million	5.5%	Permanent

Key Takeaways

- ERS Staff came away from the meetings impressed with the teams supporting each strategy and the firm's ability to implement the strategies successfully.
- BlackRock has experienced and stable investment teams along with deep resources as the world's largest asset manager. Operational efficiencies due to scale give the firm an advantage with respect to overall trading costs across strategies.
- The firm continues to invest in technology and proprietary data sets for the benefit of the Systematic Active Equity (SAE) investment team that manages the Alpha Tilts strategies. The SAE team leverages the firm's investment to refine its alpha model through new research and investment signals.
- The SAE investment process makes extensive use of artificial intelligence, predominantly in the form of machine learning, to test insights and optimize portfolio holdings. Although Staff and Callan are impressed with the cutting-edge tools employed, we will continue to monitor the effectiveness of the alpha model and risk controls applied to the use of these emerging technologies.

Firm Summary

When ERS initially created its fixed income and Alpha Tilts mandates, Barclays Global Investors (BGI) managed the strategies. On December 1, 2009, BlackRock purchased BGI. The investment philosophy and approach remained largely the same after the purchase. The investment teams managing ERS' three mandates are primarily located in San Francisco; however, the company also maintains investment offices in multiple locations across the U.S., Europe, and Asia.

BlackRock is the largest asset manager in the world, managing \$8.6 trillion in assets under management (AUM) as of December 31, 2022. BlackRock positions itself as an Investment Solutions Provider to clients through its wide range of product offerings and risk management services. BlackRock was founded in 1988, is headquartered in New York, NY, employs over 19,000 people, and is publicly traded.

BlackRock manages approximately \$119 billion in long-only Alpha Tilts strategies, including \$8.1 billion in the Global Alpha Tilts strategy. These AUM levels decreased from \$137 billion and \$10.7 billion, respectively, two years ago. BlackRock manages approximately \$1.5 trillion in passive global fixed income commingled funds, and approximately \$4.0 trillion in passive equity index funds.

The firm has become closely associated with the use of environmental, social, and governance (ESG) factors in the investment process. BlackRock seeks to allow each client to express its respective values through the investment process and only incorporates ESG factors into discretionary portfolio decisions to the extent they represent investment risks or opportunities. The firm maintains that it does not boycott industries or companies within client portfolios based on its own corporate values and recently launched an optional program to allow investors to vote proxy ballots in line with their own priorities.

Investment Process

Global Alpha Tilts

BlackRock uses a proprietary alpha forecasting model that systematically tracks and ranks approximately 3,500 developed and emerging market stocks. The model runs at least once daily and seeks the optimal trade-off between return, risk, and cost within the targeted 2% tracking error.

The alpha model evaluates securities across three broad areas: Company Fundamentals, Sentiment, and Macro Themes. Company Fundamentals evaluates fundamental business strength and the current valuation of the stock. SAE differentiates its Fundamental Theme by incorporating alternative data into its research and signal development. One example of this is the use of data culled from employee reviews of their employer to glean insights into the company. Sentiment monitors the behavior of other equity market participants to predict share price movements. This includes both monitoring of equity flows and short interest, and sophisticated analyses of unstructured data such as text. Macro Themes are signals that position the portfolio toward certain industries, styles, countries, and markets based on global economic and industry trends.

Underlying the three broad areas are dozens of different signals that the strategy uses to find securities with expected alpha. The weight of a given signal in the model at any time is optimized using machine learning tools capable of analyzing that signal's effectiveness (i.e., its ability to add alpha to the optimal portfolio within risk and cost constraints). Because these signals can lose effectiveness as more and more market participants discover them, the team is constantly researching new sources of alpha. The research process is robust, with many layers of peer review, testing, and senior team member approval before adding a signal to the live model.

During times of market dislocation, the investment committee works with the Co-Heads of Investment for SAE to lower the proportion of the portfolio constructed solely by the machine learning tools. This tactical intervention is infrequent, used to mitigate risk in the portfolio in response to rapid changes, and not viewed as a discretionary tool for adding alpha.

Raffaele Savi, Co-Head of Investments for SAE, described some of the recent work done by the research team. Mr. Savi was excited to discuss an initiative that utilized developments in artificial intelligence language models to improve the effectiveness of text recognition signals in the alpha model by as much as 20%. While the goal of that signal improvement is to enhance return potential within the portfolio, many of the research initiatives focus on reducing risk within the alpha model and resultant portfolios. Mr. Savi likened these efforts to not making a car run faster (i.e., increasing returns), but making it safer and more consistent while driving at top speeds (i.e., reducing risk).

Portfolio managers review the “optimal portfolio” as determined by the alpha model and communicate buy or sell trade orders to the trading desk accordingly, using BlackRock’s proprietary system, Aladdin. The strategy avoids meaningful sector bets and currently has a beta, market capitalization, price/book ratio, and dividend yield that are very similar to the MSCI ACWI. The strategy also seeks to be fully invested at all times and does not allow more than a 2% active weight (+/-) in any individual security or 4% active weight (+/-) in any industry sector or country.

Use of artificial intelligence throughout the investment process introduces additional potential for “black box” effects whereby the opaque nature of the investment process makes it difficult to understand fully the risks and efficacy of the model. These risks and challenges are familiar to quantitative managers such as SAE that have historically relied on complex statistical models. The Alpha Tilts investment team demonstrated a robust understanding of the current form of the alpha model and discussed the rigorous monitoring process in place for model performance. Staff will continue to monitor SAE’s use and oversight of evolving technologies in the investment process.

U.S. Government Bond Index

CMERS invests in BlackRock’s U.S. Government Bond Index Fund, which is a commingled trust benchmarked to the Bloomberg Government Bond Index. BlackRock does not fully replicate the more than 700 issues that constitute the index. They use stratified sampling to divide the index into two subsets, U.S. Treasury and U.S. Agency, and then buy securities that represent the key characteristics of each subgroup. The commingled fund held 240 securities as of December 31, 2022.

BlackRock’s assets under management, experienced portfolio managers and traders, and advanced technology give it a distinct advantage in implementing passive fixed income mandates. Unlike public equities, many fixed income securities are relatively less liquid and minimizing tracking error to an index can be difficult. Over the life of the strategy, annual tracking error for the U.S. Government Bond Index fund has been positive eight basis points. BlackRock attributes this positive tracking error to its active securities lending program and the high demand for borrowing U.S. Treasury securities that comprise the vast majority of this portfolio. This was evidenced by the fact that on average, 87% of the fund’s holdings were on loan during 2022.

Russell 1000 Value Index

As equity securities are more liquid than fixed income, BlackRock is able to implement this strategy through full replication, which means, essentially, buying all the securities in the index in their proportionate weights. It sounds simple, but to track the index accurately, the portfolio managers must manage around things like mergers, spinoffs, and changes to the index constituents. Again, this is where BlackRock’s deep experience and market reach allow them to

achieve superior results. Because BlackRock offers strategies for all Russell indices, they are often able to cross securities internally that move from one index to another, as opposed to having to buy them in the open market.

In speaking with the investment team, we learned that BlackRock's views on sustainable investing only impact our strategy through proxy voting when sustainability is viewed by BlackRock as a differentiator for the holding company's performance. Even though BlackRock may have policies as a firm to advance sustainable investing, those policies do not influence the holdings of a strategy that is required to track an index.

Trading

BlackRock has a reputation for having one of the best trading departments among asset managers, and is able to keep transaction costs low by taking advantage of its position as the world's largest asset manager to build favorable relationships with brokers seeking trade flow. These advantages allow BlackRock to achieve very good trading results within the index strategies as well as the Global Alpha Tilts strategy. The firm maintains a dedicated group responsible for monitoring trade execution across all strategies and reporting results to leadership.

BlackRock recently added the ability to use ETFs and modified the types of futures contracts used to equitize cash balances for the Russell 1000 Value strategy. The team indicated that this has helped to reduce the amount of tracking error to the index, relative to the former practice of simply using S&P 500 futures for cash equitization.

For all strategies, BlackRock considers trading costs in the optimization process and only implements trades expected to add value net of all trading costs. BlackRock has organized its traders so that they can support multiple strategies and lowers costs by combining the same trades from separate strategies when possible. The average turnover ratio over between 2019 and 2021 for the Alpha Tilts strategy has been approximately 238%. The turnover rate for Alpha Tilts reflects above average turnover during 2020 that was associated with the extraordinary volatility observed during the COVID-19 pandemic but still falls within the expected turnover range of 150-250% for the strategy. Average turnover in the Russell 1000 Value and U.S. Government Bond index strategies were in line with the respective benchmark indexes.

Capacity is an important consideration for active strategies such as Global Alpha Tilts. BlackRock SAE assesses capacity thresholds by aggregating the risk budgets for their individual strategies and by monitoring liquidity levels. Given the risk budget and liquidity levels currently evident, the only portion of the strategy that is subject to capacity constraints is emerging market (EM) equities. The investment team noted that the increasing size of Chinese equities within EM benchmarks has contributed to higher capacity thresholds, which is primarily due to extremely high liquidity for those stocks. Overall, the investment team's assessment of the platform's EM risk budget translates to approximately \$30 billion of excess capacity for the Global Alpha Tilts strategy. Although Staff will continue to monitor growth in AUM, this does not currently pose a concern with strategy AUM at \$8.1 billion. BlackRock has closed strategies in the past for capacity concerns and stated they are willing to do again so if circumstances require.

Transition Management

The same advantages that allow BlackRock to minimize trading costs for the strategies discussed above allow the firm to minimize transaction costs when it provides transition services. ERS Staff has been very satisfied with the service we received on prior transitions as recently as 2016 and 2017. In 2021, BlackRock conducted 213 transitions that involved \$462 billion. BlackRock has remained committed to the transition management business while many competitors have exited, and is always forthcoming with its transparent disclosures. These disclosures make clear that the

only direct and indirect compensation BlackRock and its affiliates earn from transition services are from the commissions paid or from a flat fee agreed to with a client up front.

In the past, BlackRock provided “Interim Transition Management” services for ACWI Value and ACWI ex-U.S. Growth mandates for the ERS. These services allowed the Fund to maintain desired equity market exposures through these index strategies, until ERS was able to complete its public equity structure review and determine a permanent solution for the assets. This is a valuable service, as it allowed ERS to complete its asset class implementation and keep its desired market beta exposure at the same time.

Portfolio & Firm Compliance

BlackRock has a disciplined approach to risk at both the firm and portfolio level. BlackRock conducts both internal and external audits including annual SSAE 18 (formerly SAS 70) and ISAE 3402 tests on its internal controls that have been performed by Deloitte since 2010. As a publicly listed company, BlackRock complies with Sarbanes-Oxley requirements. From a personnel standpoint, BlackRock has a Code of Business Conduct and Ethics, a Personal Trading Policy, and mandatory compliance training that all employees receive upon hire and on an annual basis thereafter. For portfolio compliance, BlackRock has a highly automated process that monitors portfolio guidelines and trading in real time. BlackRock has a Portfolio Compliance Group that reviews portfolio compliance daily.

Custody Operations

All of the strategies that the ERS invests in participate in securities lending with revenue split evenly between the commingled funds and BlackRock. The firm emphasizes liquidity risk controls in the management of its cash collateral and has taken steps that include reducing credit exposure, increasing transparency, and conducting increased dialogue with regulators since the financial crisis. BlackRock also actively manages and monitors its counterparty credit risk exposures.

While BlackRock serves as legal custodian for each of the funds CMERS invests in, it does not hold assets and uses an independent third-party agent to provide custody services. BlackRock has used JPMorgan Chase as custody agent for the commingled funds business since 2017. JPMorgan Chase performs reconciliations for all of the funds it administers for BlackRock on a daily basis and reports any exceptions to BlackRock’s Fund Administration team. JPMorgan Chase also files all class action claims for the commingled fund strategies.

Proxy Voting

With regard to proxy voting, BlackRock’s Investment Stewardship team maintains a staff of 65 specialists. The team is globally coordinated and regionally focused, which allows the firm to consider local market factors in the voting process. Analysts in each regional team are responsible for vote analysis, related engagement, and vote determination. The team is also in charge of developing the firm’s proxy voting guidelines. BlackRock uses Institutional Shareholder Services (ISS) for vote execution. As mentioned above, the Investment Stewardship team may view sustainable investing as a key differentiator in proxy voting, on a case-by-case basis, and may vote in favor of proposals that are favorable toward sustainable practices.

Disaster Recovery

BlackRock has developed a business continuity plan to ensure that critical operations can continue in the event of a significant business disruption. BlackRock’s executive managers oversee the Business Continuity Management (BCM) group, which is responsible for managing the firm’s business continuity plan. BlackRock has identified four key elements in the program: 1) Planning, 2) Training and Awareness, 3) Exercises and Testing, and 4) Third Party Resiliency.

The program is tested annually and includes, but is not limited to, scenarios such as working from home, working from an office recovery site, and transferring work to another BlackRock office.

BlackRock believes its systems, which include primary and secondary data centers for each critical application, can allow the firm to support its critical functions with “near zero downtime” and “near zero data loss.” The firm is in the process of a multi-year migration of key systems, such as Aladdin, to the cloud. The BCM team described the security and resiliency of cloud solutions as a top priority. It plans to use a hybrid approach combining in-house data centers and cloud hosting.

Performance Summary and Conclusion

The tables below show performance as of March 31, 2023 for each of our strategies versus their respective benchmarks. Although the strategies have relatively recent inception dates, ERS has observed and monitored BlackRock’s investment teams in similar strategies prior to 2016, which gives ERS Staff additional experience in observing the stability of the investment team and investment process over past market cycles. Each of the strategies have performed well over the longer time periods, with the active Global Alpha Tilts strategy exceeding its benchmark during the most recent 1- and 3-year periods as well as since inception. It is also worth noting that both index funds have matched or slightly outperformed their respective benchmarks in all periods shown back to inception.

ERS Staff and Callan have come away impressed with the investment team’s use of technology and proprietary data to develop investment insights. This technology, uniqueness of their data, portfolio diversification, and risk control are key strengths. While BlackRock manages a significant portion of ERS assets, this is mitigated by the fact that a majority of those assets are passive, an area where BlackRock’s implementation capabilities are world class, and by the stability provided by BlackRock’s status as the largest asset manager in the world. Staff and Callan are confident that BlackRock has the ability to continue providing the equity, fixed income, and transition management services it currently provides ERS.

	1-year	3-year	5-year	Since Inception (4/1/2017)
BlackRock R1000 Value (net)	-5.9%	18.0%	7.6%	7.5%
<i>Russell 1000 Value</i>	-5.9%	17.9%	7.5%	7.4%

	1-year	3-year	5-year	Since Inception (3/1/2016)
BlackRock Global Alpha Tilts (net)	-5.8%	16.5%	6.6%	10.7%
<i>MSCI ACWI</i>	-7.4%	15.4%	6.9%	10.2%

	YTD	1-year	Since Inception (1/1/2022)
BlackRock U.S. Government (net)	3.2%	-4.3%	-7.7%
<i>Bloomberg U.S. Government</i>	3.0%	-4.4%	-7.8%

Memorandum

To: CMERS Investment Committee
From: Erich Sauer, CFA, CAIA
Date: May 4, 2023
Re: Polen Due Diligence Meeting, December 14, 2022
Team: Erich Sauer and Tom Courtright

Background

Polen Capital Management (Polen) has managed an Active U.S. Large Cap Equity mandate for the City of Milwaukee ERS (CMERS) since June 2012. CMERS is invested in Polen's Focus Growth strategy. As of March 31, 2023 Polen managed approximately \$132.8 million for the ERS, or 2.4% of the Fund.

Key Takeaways From the Recent Meeting

- Focus Growth had a return of -37.8% in 2022, so ERS Staff spent a significant amount of time at this visit trying to understand the reasons for the poor performance, and making sure that the team, philosophy, and process we initially hired remains in place.
- Asset levels held up surprisingly well given the challenging performance, so we are in the unique position of monitoring assets both to ensure that growth in strategy assets does not impact expected future performance, while also monitoring for an increase in outflows if strategy performance continues to be challenged.
- Lead portfolio manager Dan Davidowitz appears to still be very engaged with the strategy. Staff and Callan consider him to be integral to the success of the strategy going forward, and will continue to monitor his level of engagement.
- Despite the challenging recent performance, Staff and Callan do believe that the philosophy and process remain in place, and are comfortable with Polen as an Active U.S. Large Cap Equity Manager going forward.

Firm Summary

Polen is a privately held investment management firm that was founded by David Polen in 1979. The firm, and the Large Company Growth Team (LCGT), is headquartered in Boca Raton, FL. Between 1979 and 1988, Polen operated primarily as a financial advisor to high net worth clients. In 1989, Polen launched Focus Growth based upon a belief that a concentrated portfolio of only the highest-quality businesses would provide a greater Margin of Safety and share prices would follow earnings growth over long-term investment horizons.

Focus Growth remained the firm's only strategy through 2014, when Polen began to broaden its product offering. Polen launched a Global Growth strategy in 2014, and an International Growth strategy in 2017. These strategies follow a similar process and philosophy to Focus Growth, and the investment professionals that manage them are part of the LCGT. Importantly, Polen added sufficient resources to the team to support these strategies, such that they did not distract from the flagship Focus Growth.

The success of Focus Growth has also allowed Polen to grow through acquisition, bringing on a U.S. Small Cap Growth team based in Boston in 2017, and an Emerging Markets Growth team based in London in 2020. In 2022, Polen acquired DDJ Capital Management, a U.S. High Yield

Fixed Income firm based in Boston, that has since been renamed Polen Capital Credit. These products are all separate and distinct from the LCGT.

Polen had \$57.2 billion in AUM as of September 30, 2022. This is an increase from \$51.8 billion at our last visit, and is up significantly from approximately \$4 billion when we hired Polen in 2012. The majority of assets (\$43.8 billion) are in the Focus Growth product, although growth in the other strategies has lessened this concentration compared to past visits. Focus Growth is soft-closed. In practice this means that Polen will only consider high-quality institutional clients for new mandates. Registered Investment Advisors that have Focus Growth on their platform can still add new clients, and these additions can add up to significant dollar amounts in good years. Strategy capacity will be an item Staff will continue to monitor.

The current leadership of the firm joined in the early 2000s, with Stan Moss, CEO, and Damon Ficklin, PM and Analyst, joining in 2003, and Dan Davidowitz, Lead PM of Focus Growth, joining in 2005. This meant that the firm was well positioned to handle the passing of Mr. Polen in 2012, and has thrived in the time since. Brandon Ladoff, the co-PM on Focus Growth, joined in 2013.

Employees own 72% of the firm, with the balance owned by the Polen Family Trust (8%) and iM Global Partner (20%). The minority stakes are both passive, giving employees full voting control over the firm. In 2020, the legal structure of Polen Capital Management LLC was modified such that the 72% of Polen that is owned by employees is now held through a limited partnership entity. This was driven by tax considerations, and no changes were made to the management of the firm. Since Mr. Polen's passing in 2012, employee ownership has risen from 51% to its current level of 72%. Polen views the increase in employee ownership over the years as critical for alignment of interests between employees and clients.

Polen implemented a Results Only Work Environment (ROWE) policy in 2015. This means that employees have flexibility with respect to hours and location of work, and are evaluated solely on their success in meeting clearly-defined goals and objectives. Mr. Moss believes the flexibility this policy provides has been a competitive advantage in recruiting and retaining top investment talent. Prior to the start of the COVID pandemic, over 90% of employees would still be in the office on any given day, and one of the main benefits of the policy is that it removes the stigma when an employee has to leave early to take care of something personal, for example. Given that Polen's employees had already been set up to work remotely for a number of years, the ROWE policy allowed Polen to seamlessly transition to work from home during the COVID pandemic.

Polen has 208 full time employees, 37 of whom are investment professionals. This is up from 108 and 19, respectively, at our last visit, with the vast majority of the growth a result of the DDJ acquisition mentioned previously. When CMERS hired Polen in 2012, the firm had only one strategy. The investment team was comprised of two PMs, Mr. Davidowitz and Mr. Ficklin, and one research analyst, Todd Morris. Now the firm has grown to the point where there are multiple separate investment teams. Specific to the LCGT, there are currently 11 professionals, with six PMs and five analysts, which is an increase of one analyst from staff's last visit.

The Focus Growth team has been stable since 2019, when Mr. Ficklin transitioned to the lead portfolio manager on the Global strategy, and Mr. Ladoff replaced him as co-PM on Focus Growth. Mr. Ladoff joined Polen in 2013 as an analyst and became Director of Research in 2017. Staff has met with Mr. Ladoff several times and has always come away impressed.

In 2022, Mr. Ficklin assumed the role of Head of the LCGT from Mr. Davidowitz, who had been head of the team since Mr. Polen's passing in 2012. In speaking with Mr. Davidowitz, he made it clear that as the team had grown over the years, he did not enjoy serving in a role that is primarily responsible for things like recruitment, employee reviews, setting compensation, and reporting to the firm's operating committee. He noted that Mr. Ficklin is much better suited to the role, and taking this step back allows him to focus on researching companies and managing the portfolio, which is what he truly enjoys. Staff and Callan are comfortable with this change, as it takes administrative burden off Mr. Davidowitz and allows him to focus on the portfolio.

Investment Philosophy & Process

Polen believes that consistent earnings growth is the primary driver of intrinsic value and long-term stock price appreciation. The investment team attempts to identify companies with growing earnings that have a sustainable competitive advantage (i.e. wide moats), superior financial strength, proven management teams, and strong product or service lines. They believe stocks with these characteristics equate to having a Margin of Safety that conveys inherently less risk.

Polen utilizes a bottom-up, fundamental investment approach in identifying candidates for investment. They employ the same financial and qualitative criteria across all Large Company Growth strategies, regardless of where a company is based or the industry in which it operates. These "guardrails" include above average normalized earnings growth, sustainable return on equity greater than 20%, stable to increasing operating margins, strong cash flow, and strong balance sheets.

The screen is followed by an initial research project which tests for sustainability and excludes companies the team believes are benefitting from cyclical factors. This narrows the universe from several thousand stocks down to approximately 150, which are then actively followed by the team. All analysts are generalists, and the universe is split amongst them. This involves examining SEC filings, management presentations, news releases, earnings announcements, and related conference calls.

Polen recently developed a formal framework for ESG as part of the research process. Staff discussed this with Lauren Harmon, ESG analyst, and she stressed that what the team is interested in with respect to ESG is identifying potential risks to the sustainability of the competitive advantage of a business. These are risks that the strategy has considered throughout its 30+ year history, but now they have a formal process for the ones that fall in the category of ESG. This message has been consistent as we've discussed ESG with Polen over our past several meetings. Because it is being used to evaluate the competitive advantages of candidate businesses, CMERS staff does not have concerns with Polen considering ESG.

Approximately 90% of the investment team's research is generated internally with the remainder procured from external sources. Part of this research includes meetings with company management. If a stock is a strong candidate for investment, it is presented to the entire investment team for peer review. The strategy's concentrated nature (approximately 20 stocks) and its low turnover permit Polen to pursue a time intensive investment research process such as this. Once an idea has been thoroughly reviewed and debated, a formal recommendation to purchase the company for the portfolio is made. The PMs make the final buy and sell decisions together, with Mr. Davidowitz having final decision-making authority. Existing portfolio holdings are monitored using the same investment process and subject to the same quantitative screens and continued fundamental analysis.

The portfolio is constructed in a way so only the “best ideas”, regardless of sector, are selected for inclusion in the portfolio. The investment team believes this concentration of stocks imposes a greater degree of risk control by ensuring the companies are among the highest quality in the market and have very strong balance sheets.

An important aspect of the firm’s philosophy is that the investment team defines success by their ability to construct a portfolio that is able to consistently generate above average earnings expansion, increasing intrinsic value over the very long-term. In any given year, the portfolio could outperform or underperform the benchmark, but the team believes that constructing a portfolio that is able to grow earnings at their target of 15% will ultimately lead to outperformance over longer time periods.

Portfolio construction is agnostic to benchmark weightings, however, the most typical client guidelines, which the ERS has adopted, limit exposure to 60% in any one sector. The investment team’s research and portfolio construction process has led to very little, if any, exposure to the Materials, Utilities, Telecom, and Energy sectors. These sectors tend to be capital intensive and cyclical in nature with inconsistent growth rates. Generally, Focus Growth has tended to be overweight the healthcare and technology sectors. As of December 31, 2022, the largest sector exposure was information technology, with a weight of approximately 49%.

The investment team attempts to manage risk at the individual security level, however, the team will also attempt to further diversify the portfolio across the growth spectrum by investing in durable growth firms for safety, stable firms with underappreciated growth, and firms with significant growth potential, so that the portfolio can perform well in different environments. Polen defines risk as the permanent impairment of capital. Therefore, if the team lacks complete conviction in a company, they will not consider purchasing the stock regardless of its growth prospects. CMERS’ guidelines limit the size of individual holdings in the portfolio to the greater of 10% of the portfolio or 3% over the S&P 500 Index weighting, measured at market value.

As the largest companies in the investable universe have grown to make up a significant portion of the growth benchmark, Polen has relaxed the 10% limit and allowed certain best ideas to appreciate above 10% in the model portfolio. For clients like CMERS, who believe the 10% limit is an important risk control, Polen trims the security in question as it approaches 10%, and invests the proceeds pro-rata across the rest of the portfolio. This was the case most recently with Amazon in early 2023.

Polen uses the same investment philosophy in deciding whether to sell an existing holding. The PMs do not have an automatic sell discipline, but will typically sell if they observe a potential threat to the company’s competitive advantage, degradation in the company’s long-term earnings growth, or if a more compelling opportunity exists.

Valuation is an important consideration during the sell process. If the stock price is so expensive that the earnings growth rate will not be able to overcome a high valuation in order to provide double-digit annualized returns, then the stock is trimmed or sold.

Trading

Polen employs two dedicated traders, as well as a senior trading associate. To supplement the desk, Polen employs JonesTrading Institutional Services LLC, an outsourced provider that can trade overnight in foreign markets, provide for business continuity, or additional capacity during times of heavy volumes. The firm uses the Charles River IMS platform as their trade order

management system, a platform upgrade in 2016 that is able to perform pre- and post-trade compliance checks.

Trading costs of Focus Growth rank in the bottom quartile over the trailing two years ending December 31, 2022, according to ERS' transaction cost measurement provider, Global Trading Analytics (GTA). This is out of character for Polen, as they often rank above median in GTA's universe. Staff will continue to monitor Polen's trading and provide GTA's feedback to Polen as necessary.

The turnover for the past three years has averaged about 16.4%, which is lower than the expected annual turnover of 20-25%. This equates to roughly a 4-5 year holding period, and remains the expectation going forward. About half of the average turnover can be attributed to trimming or adding to positions.

Firm and Portfolio Compliance

Brian Goldberg, Chief Compliance Officer, is responsible for the administration of the Company's compliance program and directs all compliance activity for the firm. Mr. Goldberg reports directly to Stan Moss, CEO. Polen has developed a compliance manual that outlines the policies and procedures for their compliance program, personal investment transactions, violation identification and whistleblower policy, disciplinary process, as well as ethical and fiduciary standards.

Polen utilizes ACA Compliance Group (ACA) to support the Chief Compliance Officer in monitoring and maintaining regulatory requirements. ACA provides compliance and regulatory research, operational consulting, and compliance support services to investment firms such as Polen. ACA conducts an annual compliance review that includes a regulatory risk assessment, policies and procedures gap analysis, and testing. The most recent was for the period ended September 2021, and ACA noted that Polen's compliance program is well-tailored and comprehensive relative to the scope of Polen as a firm.

Regulatory agencies, including the Securities and Exchange Commission (SEC) and the Ontario Securities Commission (OSC), routinely perform inspections from time to time. Polen's most recent exam was conducted by the OSC in February 2020, with no material deficiencies.

Proxy Voting

Polen utilizes third party service provider Institutional Shareholder Services (ISS) for proxy voting matters due to their reputation as a leading provider of corporate governance solutions to the global financial community. The investment team reviews proxy issues, particularly those where Polen and ISS disagree. In the event of a disagreement, Polen will vote the proxies based on what it believes are in clients' best interests, document its reasoning, and maintain a record of the decision.

Information Systems and Disaster Recovery

Polen's IT team is led by Praveen Reddy, Head of Technology. Mr. Reddy is supported by Chris Varner, Director of Infrastructure. Seven additional IT team members work in the areas of systems, infrastructure, database, and security. The total team of nine is an increase from four at our last visit, and seems appropriate given the growth of the firm.

Polen has developed a business continuity plan to address continuity of operations in the event of an incident impacting the availability of locations, systems, or data. The plan includes strategies that address immediate, short-term, and long-term interruptions for each critical

business function. Polen's Boston office serves as the back-up work site for Boca Raton, and vice versa. London employees could be hosted in Boston or Boca Raton given a disruptive event. Each office includes sufficient space and capabilities for staff relocated during a continuity event.

Polen's critical business systems, i.e., Research, Portfolio Accounting, Order Management, Customer Relationship Management, General Ledger and email, are hosted off-site by the system vendor or partner. For example, email is hosted in the Microsoft 365 Cloud.

Polen's cloud-sourced systems mentioned above, combined with the ROWE policy, has allowed employees to become practiced at working remotely. Polen has faced a number of hurdles in the recent past, including a number of hurricanes along with the global pandemic in 2020. Polen had noted that none of these instances caused an interruption in business operations.

Performance Summary and Conclusion

The table below shows Polen's performance in comparison to its benchmark, the S&P 500 Index, for time periods ended March 31, 2023, net of fees.

	1 Year	3 Year	5 Year	10 Year	Since Inception (7/1/2012)
Polen (net)	-17.7%	10.9%	11.6%	13.6%	13.6%
<i>S&P 500 Index</i>	-7.7%	18.6%	11.2%	12.2%	13.0%

With a strategy like Focus Growth, it is important to remember that because of the concentration of the portfolio, the strategy can exhibit significant tracking error, both above and below the benchmark. The strategy underperformed its benchmark by an annualized 6.9% net of fees between its inception date and August 31, 2014. The strategy also outperformed its benchmark by an annualized 6.5% net of fees between August 31, 2014 and December 31, 2021. Staff stresses evaluating all our managers over a full market cycle, but this concept is particularly important to keep in mind with Polen.

With that said, 2022 was the most difficult year we have experienced with the strategy since we invested in it, so we had a particular focus in this meeting with Polen, as well as follow-up conversations with Callan afterwards, on making sure that the team, philosophy, and process that has been successful for Polen over time remains in place. We believe those elements do remain in place, and Polen remains a solid option as an Active Large Cap Equity manager in our portfolio.

1st Quarter 2023 Performance Report

May 4, 2023

Employees' 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 2023
Public Equity	MSCI ACWI IMI	44%	6.9%
Fixed Income	Bloomberg U.S. Agg.	23%	3.0%
Real Assets ⁽¹⁾	Blended Benchmark	13%	-3.5%
Private Equity ⁽¹⁾	Russell 3000 + 2%	10%	7.5%
Absolute Return	90-Day T-Bill + 3%	10%	1.9%

	Q1 2023
CMERS Benchmark	4.3%

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

Relative Performance Expectations

		Q1 2023		Q1 2023	Q1 2023
Value Equity Bias	Russell 3000 Value	0.9%	Russell 3000 Growth	13.9%	↓↓
Small Cap Equity Bias	Russell 2000	2.7%	Russell 1000	7.5%	↓
Fixed Income Credit	Loomis Sayles (net)	3.2%	Bloomberg US Agg.	3.0%	↑
Private Equity⁽¹⁾⁽²⁾	CMERS PE (net)	-0.1%	PE Benchmark	7.5%	↓↓

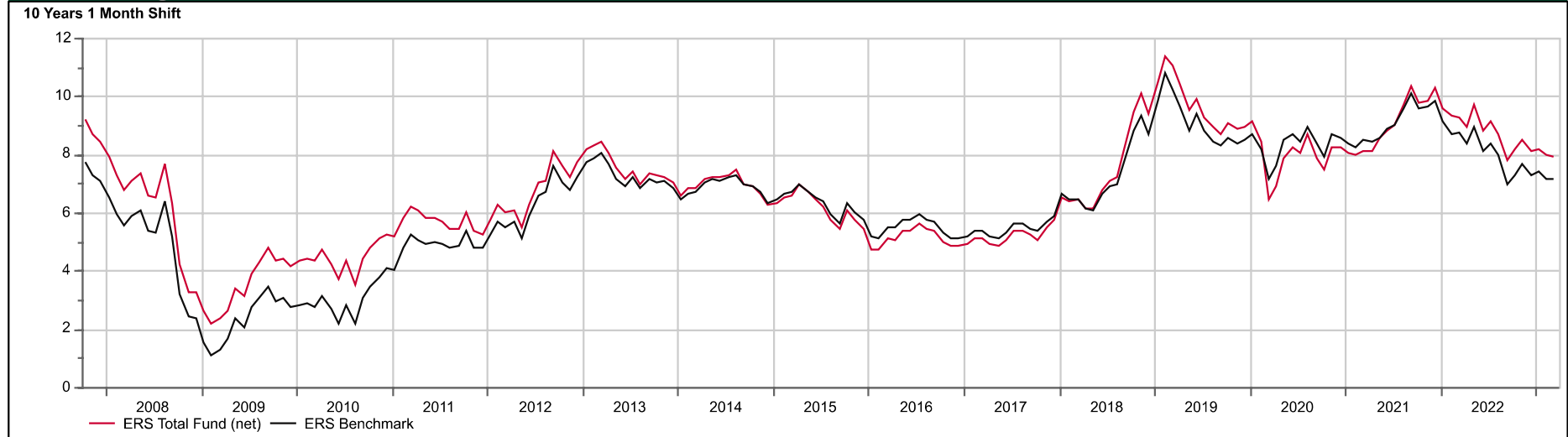
	Q1 2023
CMERS Total Fund (net)	3.3%
CMERS Benchmark	4.3%

⁽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 2022 and Q1 2023 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 3/31/2023



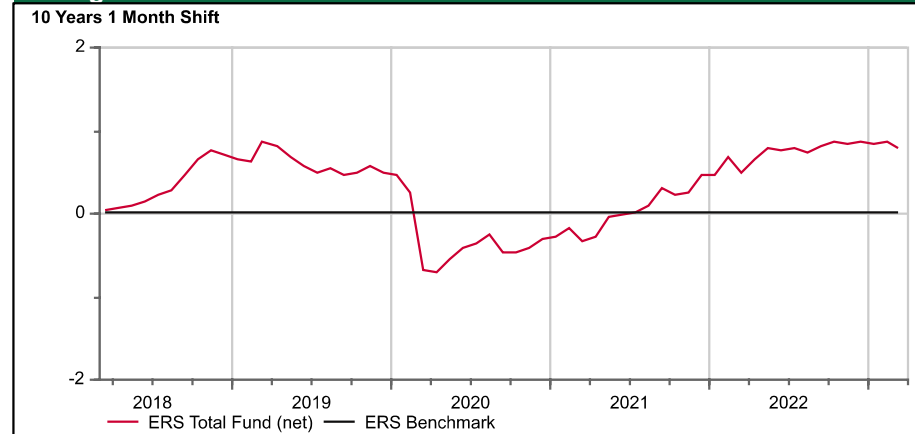
Trailing Returns

	Annualized Return						
	QTR	1 Year	3 Year	5 Year	7 Year	10 Year	15 Year
ERS Total Fund (net)	3.3	-2.9	14.1	7.1	8.3	7.9	6.6
ERS Benchmark	4.3	-5.1	9.0	5.9	7.2	7.1	6.2

Investment Growth –4/1/2008 to 3/31/2023



Rolling Excess Returns –4/1/2008 to 3/31/2023



ERS Fund Attribution – 1st Quarter 2023

Asset Class	Benchmark	Average Weight %	Policy Weight %	+/-	Portfolio Return	Benchmark Return	+/-	Attribution Effect(%)			
								Broad Category Group Allocation	Manager Selection	Style Bias	Total Active Return
Public Equity	MSCI ACWI IMI NR USD	44.1	44.0	0.1	6.7	6.9	-0.2	0.0	0.5	-0.7	-0.1
Fixed Income	Bbg US Agg Bond TR USD	20.4	23.0	-2.6	3.2	3.0	0.3	0.0	0.1	0.0	0.1
Private Equity⁽²⁾	Russell 3000 (Qtr Lag) + 200bps ⁽¹⁾	12.6	10.0	2.6	-0.1	7.5	-7.6	0.1	-1.0	0.0	-0.9
Real Assets⁽²⁾	Real Assets Benchmark ⁽¹⁾	12.6	13.0	-0.4	-2.1	-3.5	1.4	0.0	0.2	0.0	0.2
Absolute Return	90 Day T-Bill +3%	10.4	10.0	0.4	0.7	1.9	-1.2	0.0	-0.1	0.0	-0.2
Total		100.0	100.0	0.0	3.3	4.3	-0.9	0.1	-0.3	-0.7	-0.9

Main Drivers of Q1 2023 Relative Performance

Private Equity

Impact %

-0.99%

Attribution Category

Manager Selection

Public Equity

-0.68%

Style Bias

Primarily Value and Small Cap exposure

Manager Performance (13 out of 16 active mandates outperformed)

Brandes

0.17%

Manager Selection

Polen

0.14%

Manager Selection

Morgan Stanley

0.12%

Manager Selection

DFA Small Mandates

0.10%

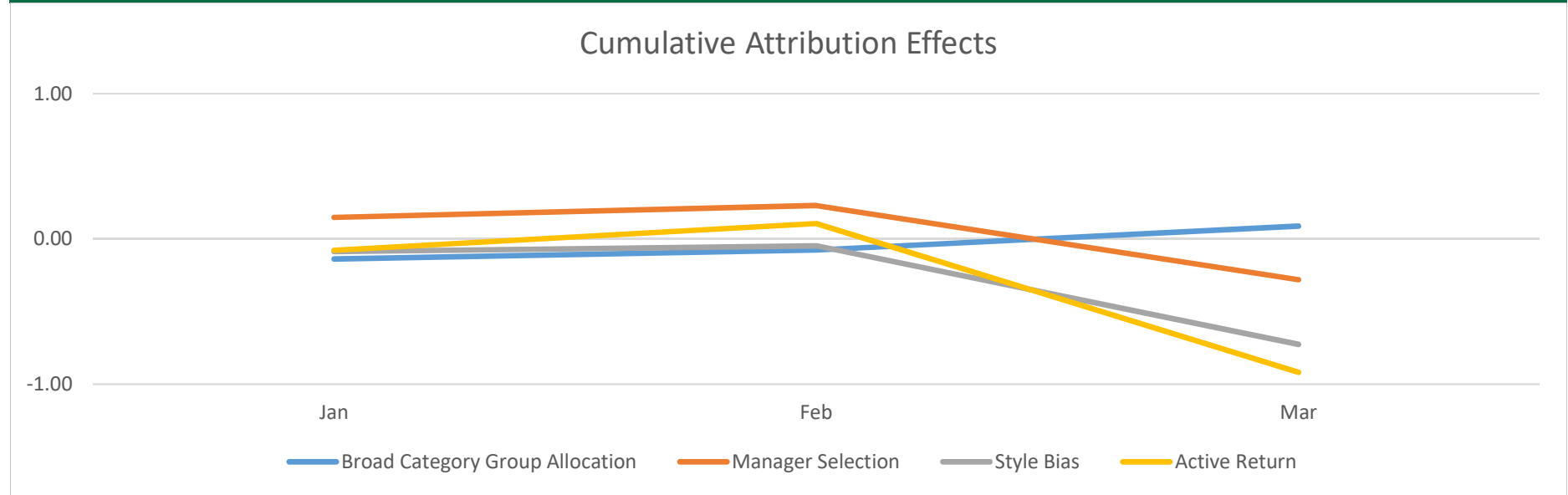
Manager Selection

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

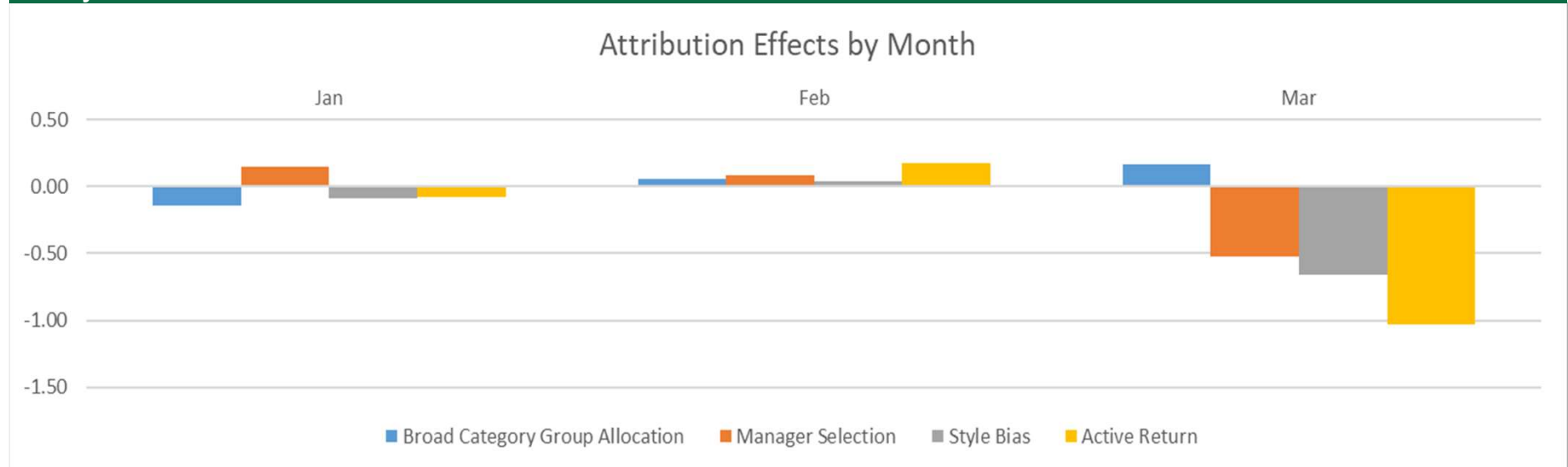
⁽²⁾Private Equity returns are not typically reported during this time period because of the extra time these investment managers spend finalizing their year-end financial statements. Both Q4 2022 and Q1 2023 Private Equity returns are expected to be reported during the April-June time period.

1st Quarter 2023 Attribution

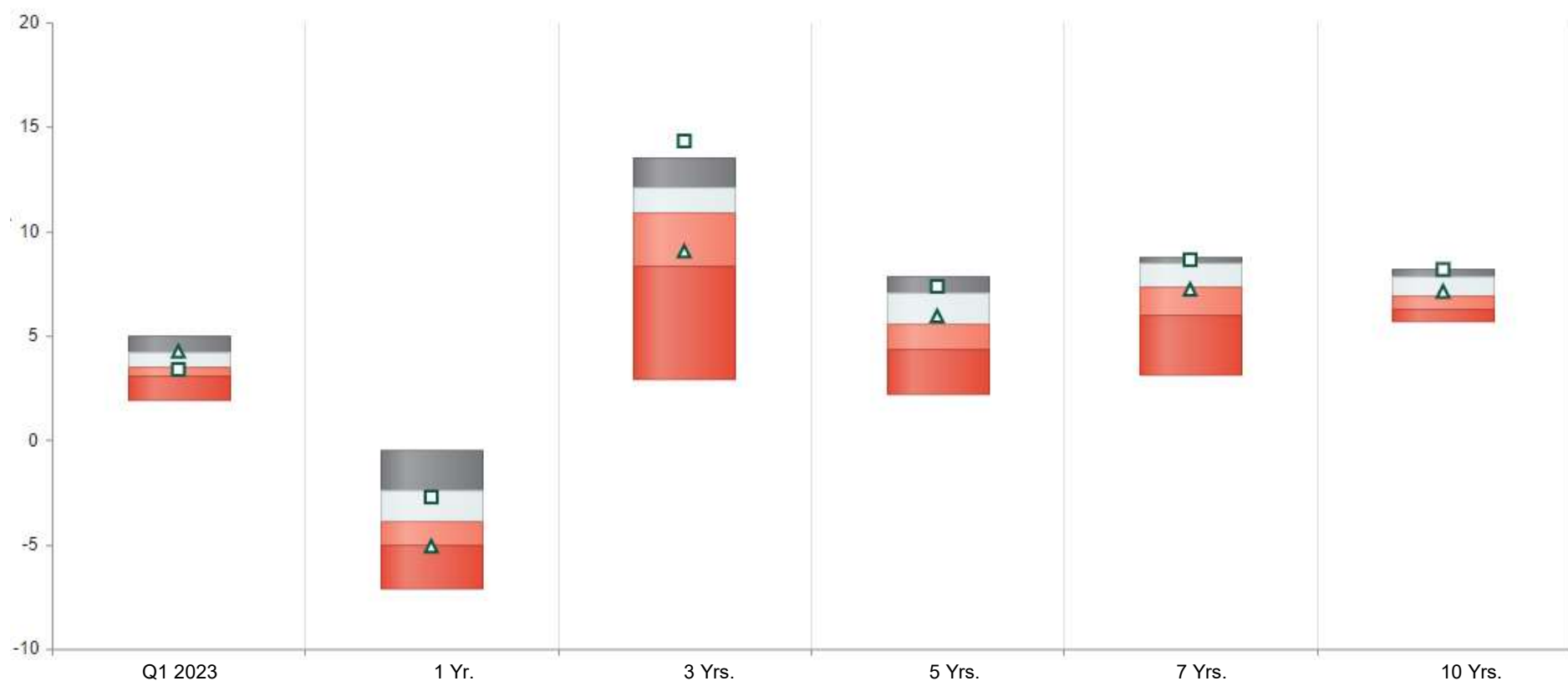
Cumulative Attribution Effects



Monthly Attribution Effects



Total Fund vs Universe



Account Index

Q1 2023

1 Yr.

3 Yrs.

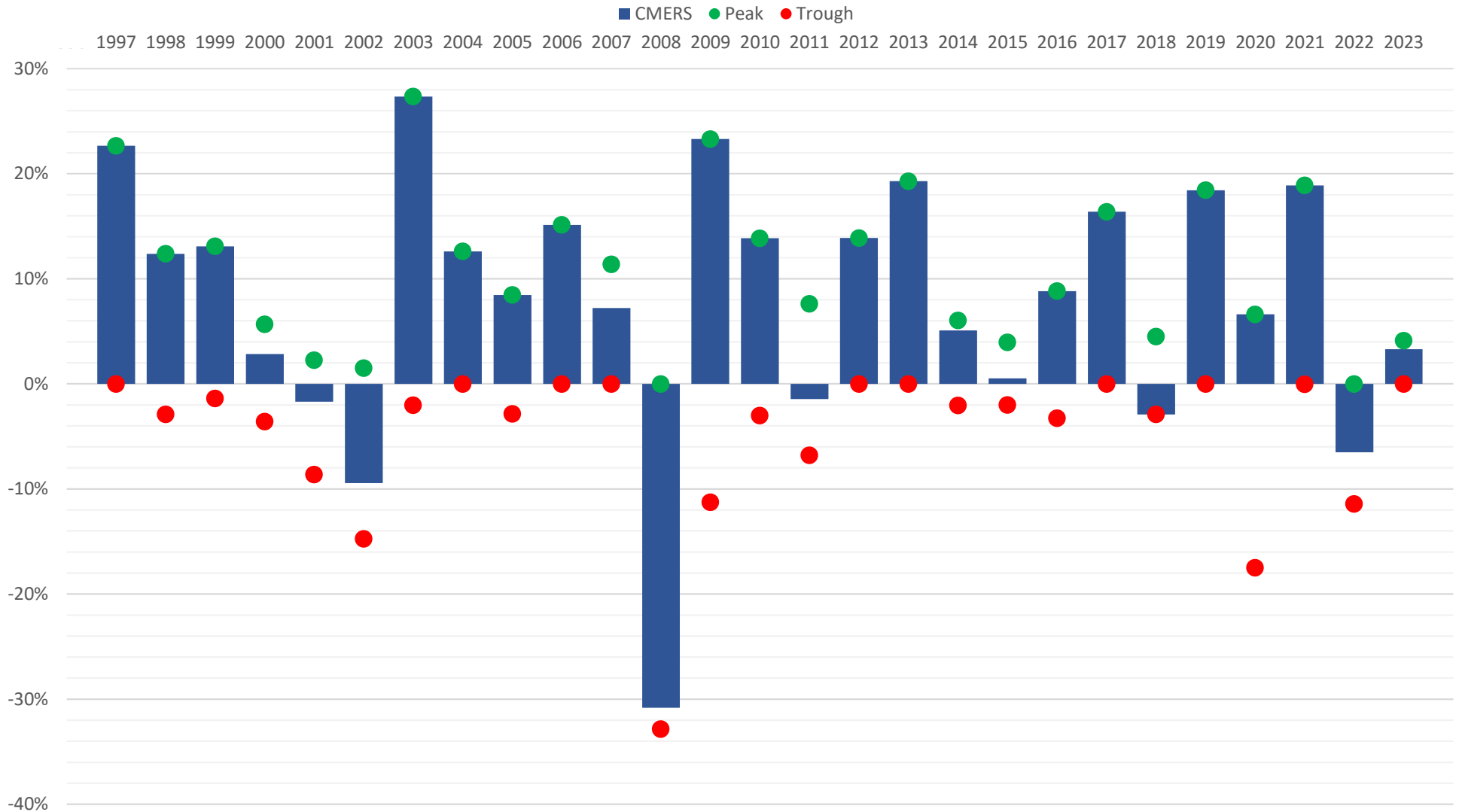
5 Yrs.

7 Yrs.

10 Yrs.

	Q1 2023	1 Yr.	3 Yrs.	5 Yrs.	7 Yrs.	10 Yrs.
Account Return	3.4	-2.7	14.3	7.4	8.6	8.2
Percentile Rank	57	37	5	19	19	12
Index Return	4.3	-5.1	9.0	5.9	7.2	7.1
Percentile Rank	25	76	72	47	53	50
1st Quartile	4.2	-2.4	12.1	7.0	8.5	7.9
Median	3.5	-3.6	11.1	5.7	7.5	7.1
3rd Quartile	3.1	-5.0	8.4	4.4	6.1	6.4
Observations	49	50	49	45	41	26

Annual Returns, Peaks, and Troughs

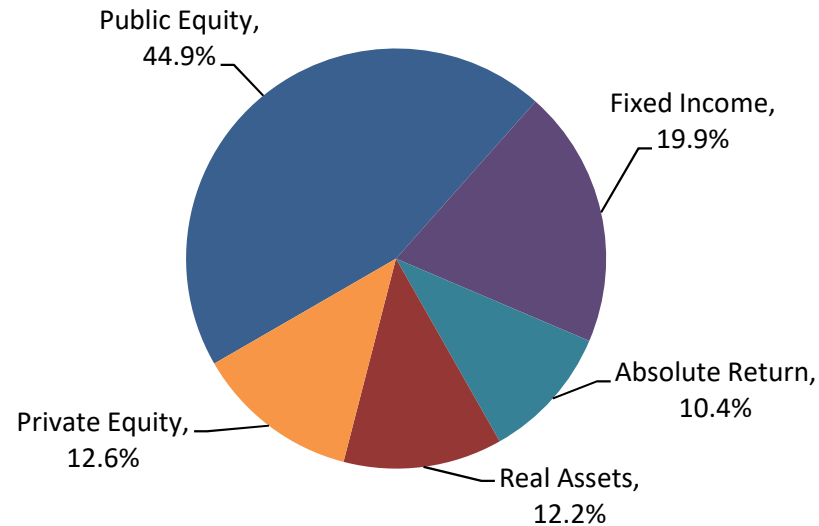


	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	YTD 2023
CMERS	22.7%	12.4%	13.1%	2.8%	-1.7%	-9.4%	27.3%	12.6%	8.5%	15.1%	7.2%	-30.8%	23.3%	13.9%	-1.4%	13.9%	19.3%	5.1%	0.5%	8.8%	16.4%	-2.9%	18.4%	6.6%	18.9%	-6.5%	3.3%
Peak	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%	4.1%
Trough	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%

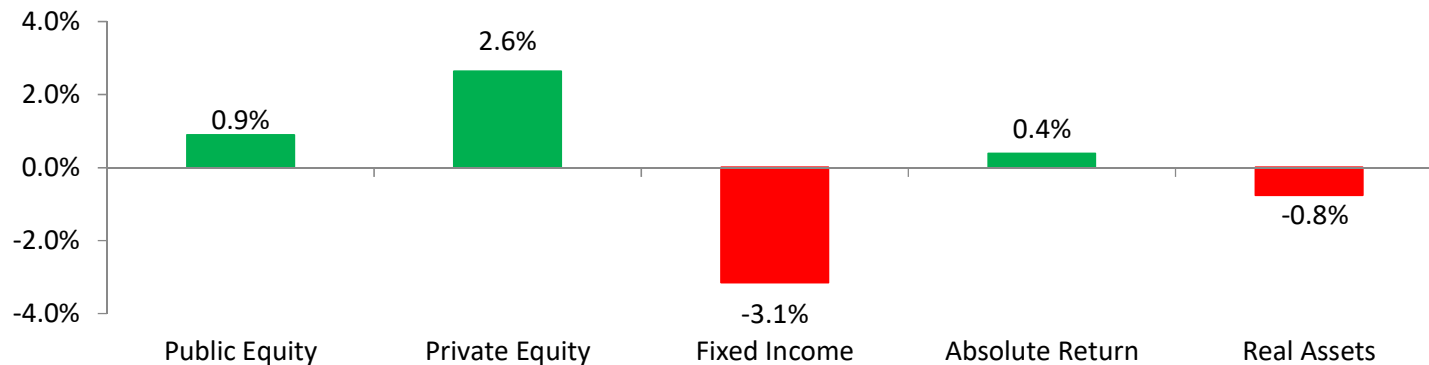
*Net of Fees

Asset Allocation as of March 31, 2023

Actual Asset Allocation*



Actual Asset Allocation vs. Policy Target



YTD Market Value Change

December 31, 2022 Market Value including City Reserve & PABF Accounts			\$ 5,550,112,010
Monthly Cash Outflows thru	<u>March 31, 2023</u>		
Retiree Payroll Expense		\$ (114,366,197)	
PABF Payroll Expense		\$ (15,973)	
Expenses Paid		\$ (4,913,055)	
GPS Benefit Payments		\$ (3,436,784)	
Sub-Total Monthly Cash Outflows			\$ (122,732,008)
Monthly Cash Inflows thru	<u>March 31, 2023</u>		
Contributions		\$ 110,319,799	
PABF Contribution		\$ 17,966	
Sub-Total Monthly Contributions			\$ 110,337,765
Capital Market Gain/(Loss)			\$ 188,346,235
Value including City Reserve & PABF Accounts as of	<u>March 31, 2023</u>		<u>\$ 5,726,064,002</u>
Less City Reserve Account ¹			\$ 81,806,945
Less PABF Fund ²			\$ 2,510
Net Projected ERS Fund Value as of	<u>March 31, 2023</u>		<u>\$ 5,644,254,547</u>

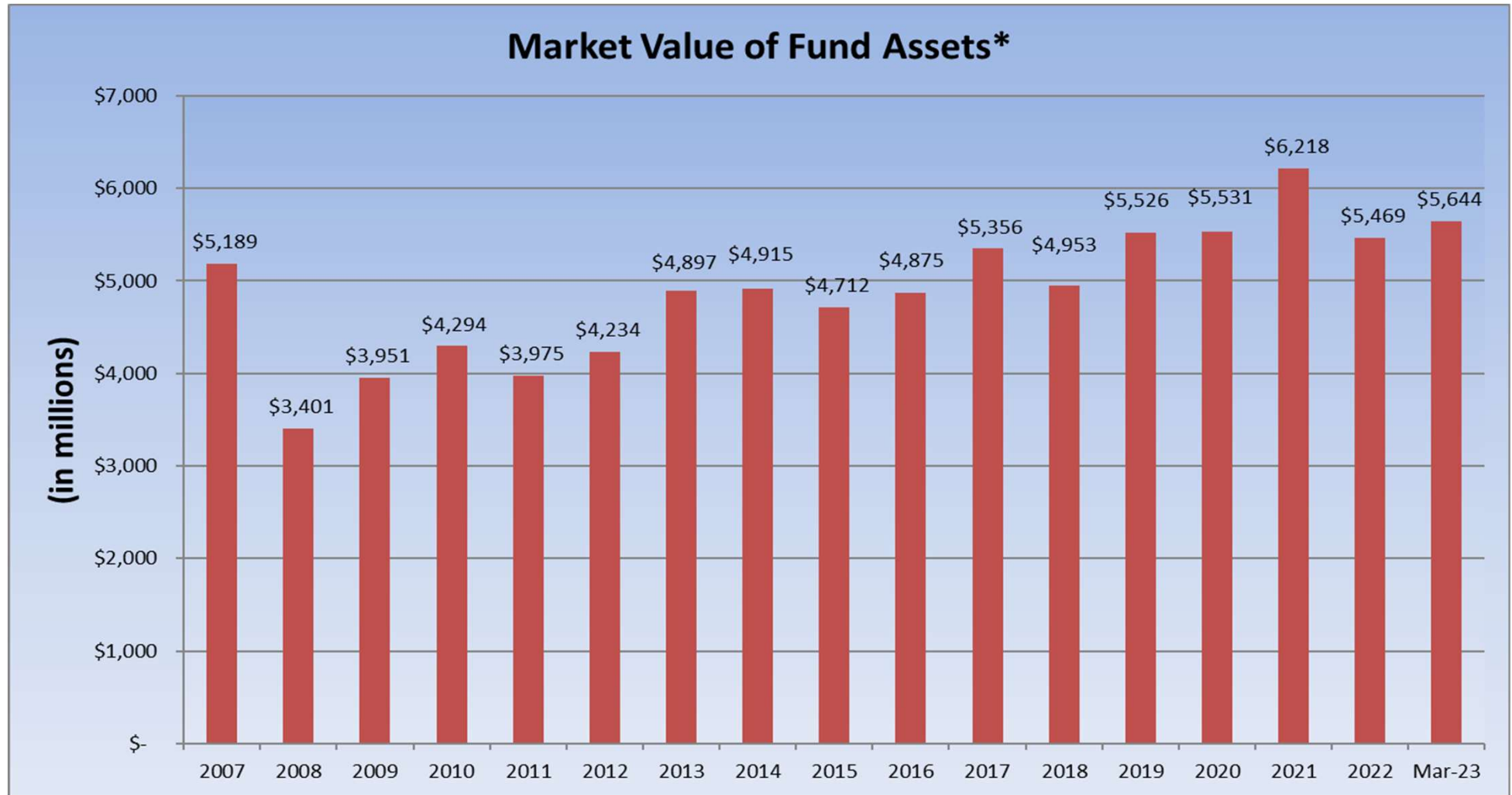
1 The City Reserve Account balance equals the market value currently held in the Baird account.

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, 2023

(Year Ended Dates Reflect 12/31 Fund Values)



Most recent Actuarial valuation projects benefit payments to total \$5.2 billion in next 10 years.

Benefit Payments	\$5.3 billion
Expenses	\$268 million
Contributions	\$1.5 billion
Investment Gain	\$4.5 billion

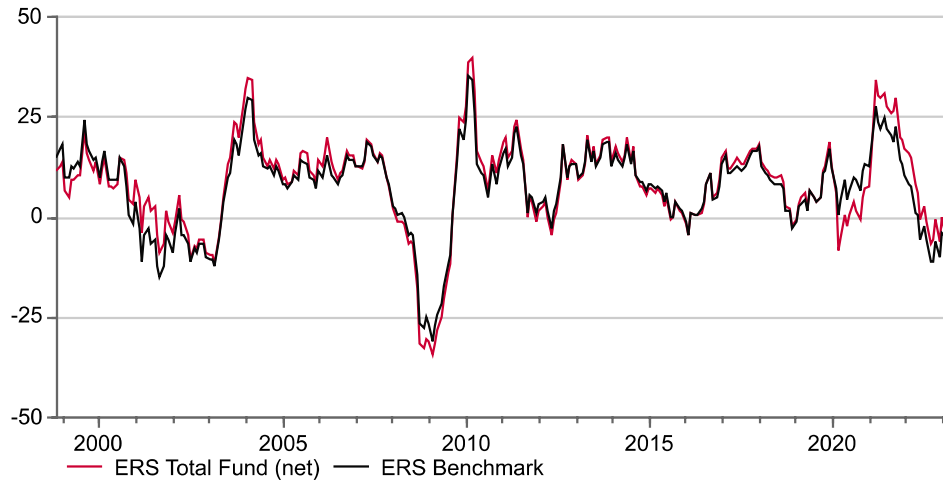
15 1/4 Year Estimates (1/1/2008 - 3/31/2023)

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, 2023

1 Year Rolling Returns – 12/1/1997 to 3/31/2023

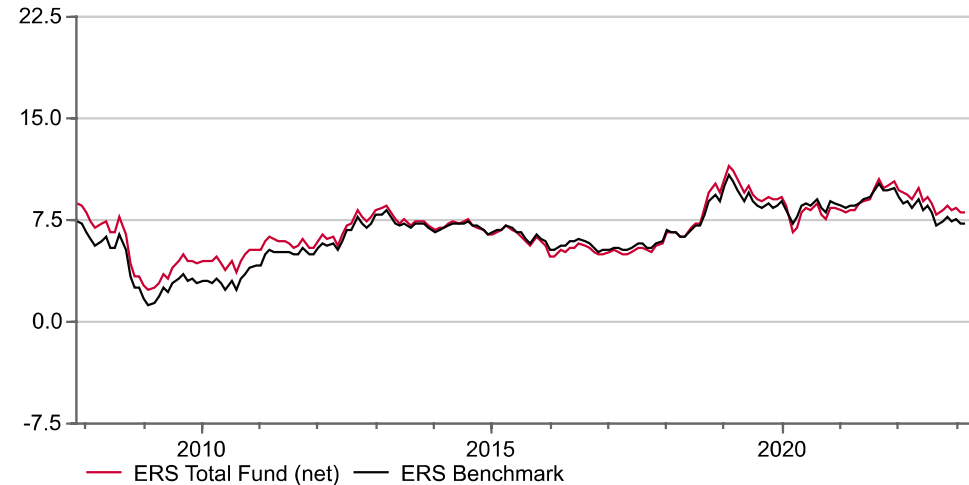
1 Year 1 Month Shift



©FactSet Research Systems

10 Year Rolling Returns – 12/1/1997 to 3/31/2023

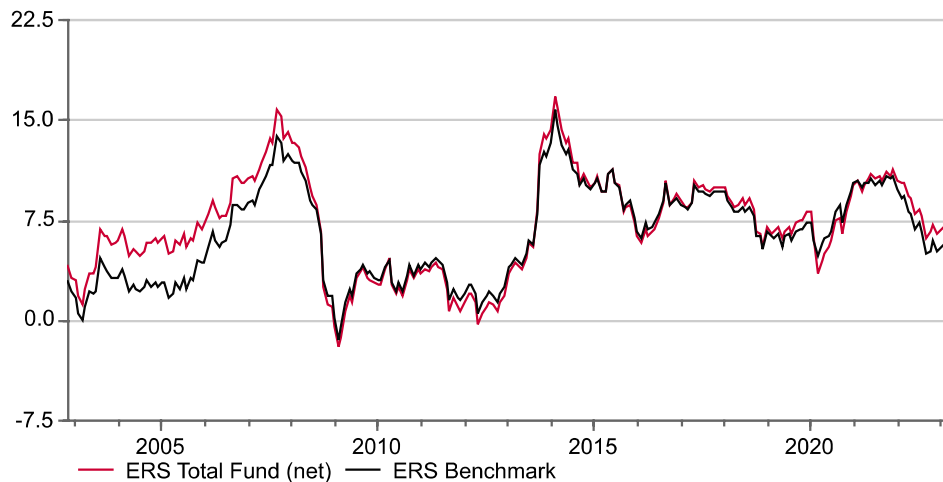
10 Years 1 Month Shift



©FactSet Research Systems

5 Year Rolling Returns – 12/1/1997 to 3/31/2023

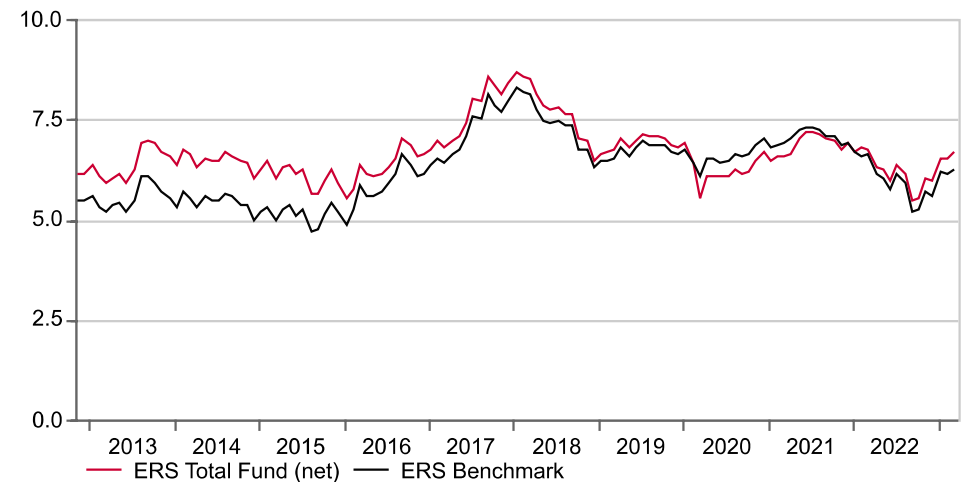
5 Years 1 Month Shift



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15 Year Rolling Returns – 12/1/1997 to 3/31/2023

15 Years 1 Month Shift

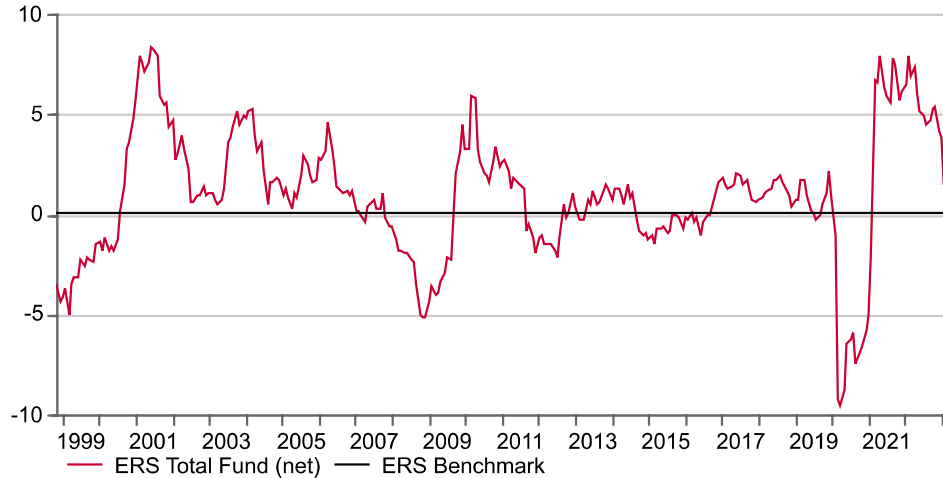


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Total Fund Rolling Excess Returns as of March 31, 2023

1 Year Rolling Excess Returns – 12/1/1997 to 3/31/2023

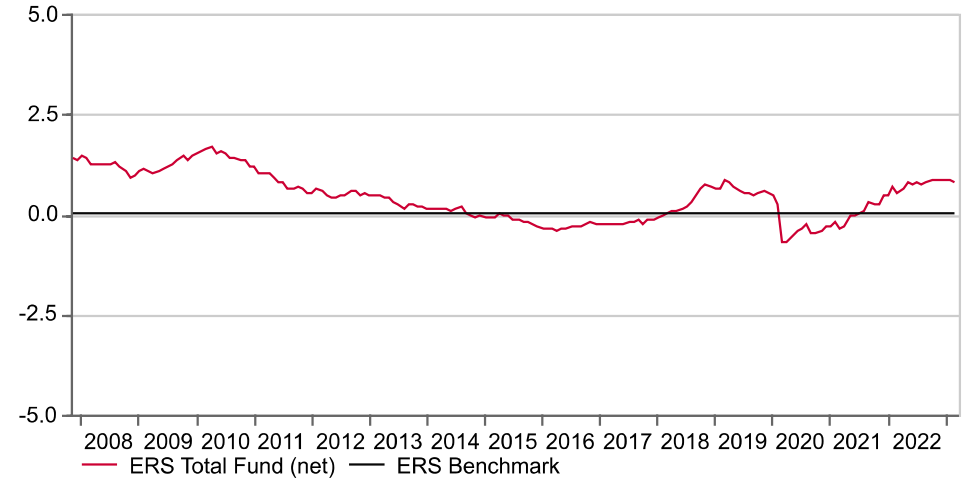
1 Year 1 Month Shift



©FactSet Research Systems

10 Year Rolling Excess Returns – 12/1/1997 to 3/31/2023

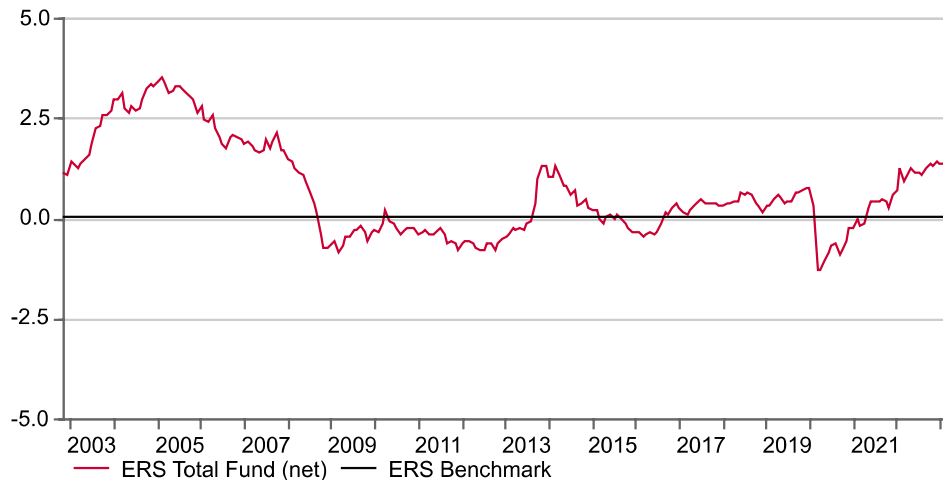
10 Years 1 Month Shift



©FactSet Research Systems

5 Year Rolling Excess Returns – 12/1/1997 to 3/31/2023

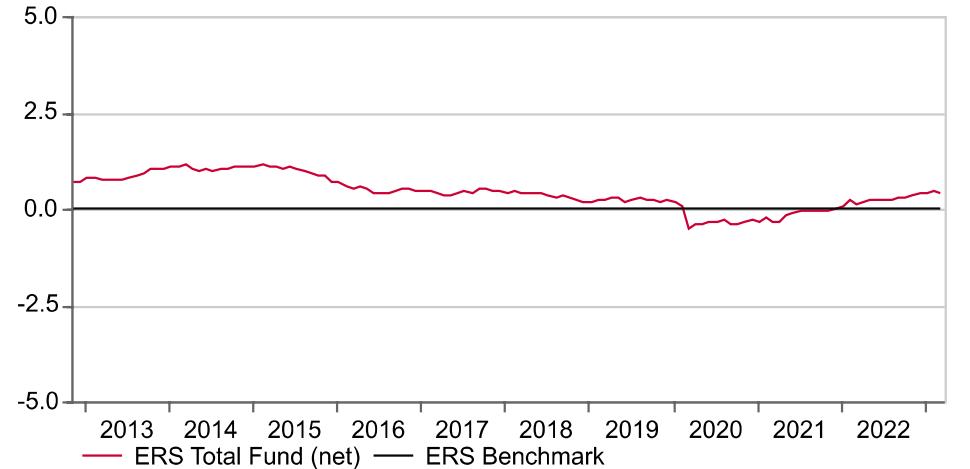
5 Years 1 Month Shift



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15 Year Rolling Excess Returns – 12/1/1997 to 3/31/2023

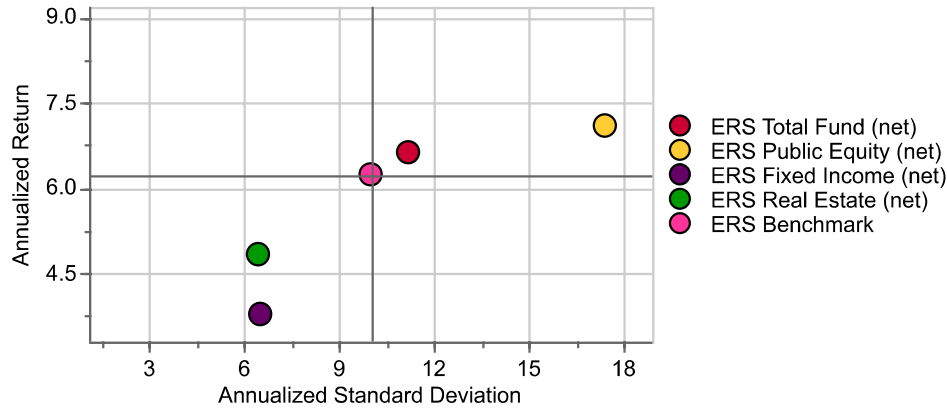
15 Years 1 Month Shift



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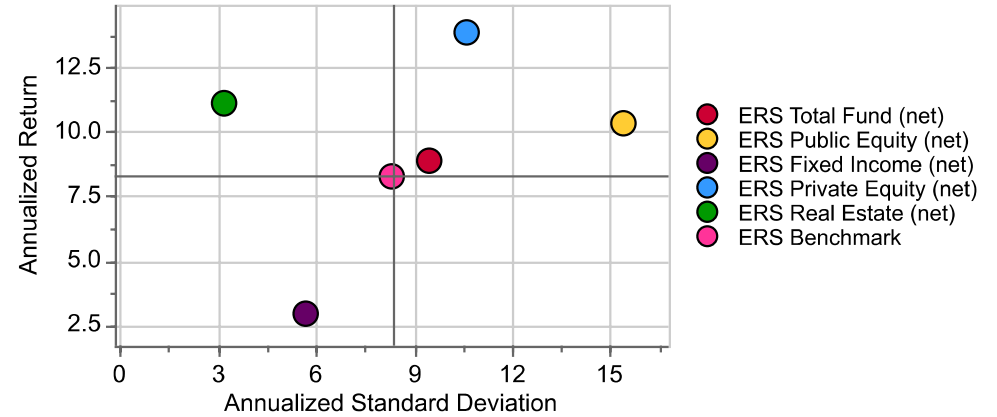
Total Fund Statistics

15 Year Risk-Reward – 4/1/2008 to 3/31/2023



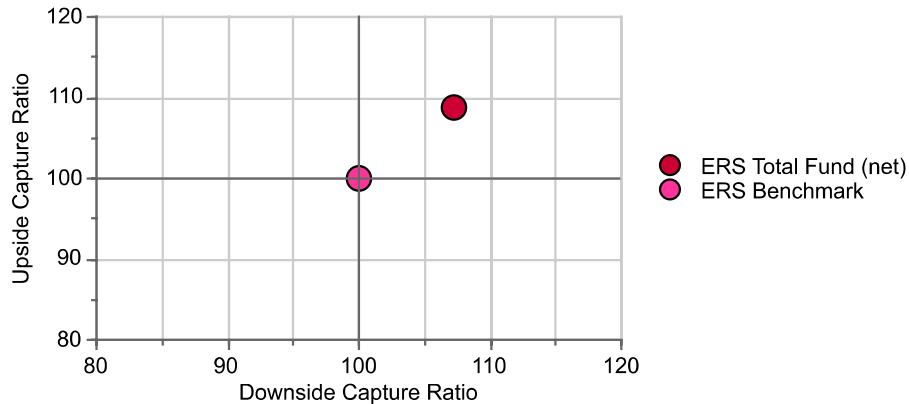
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Risk-Reward Since Private Equity Inception – 7/1/2010 to 3/31/2023



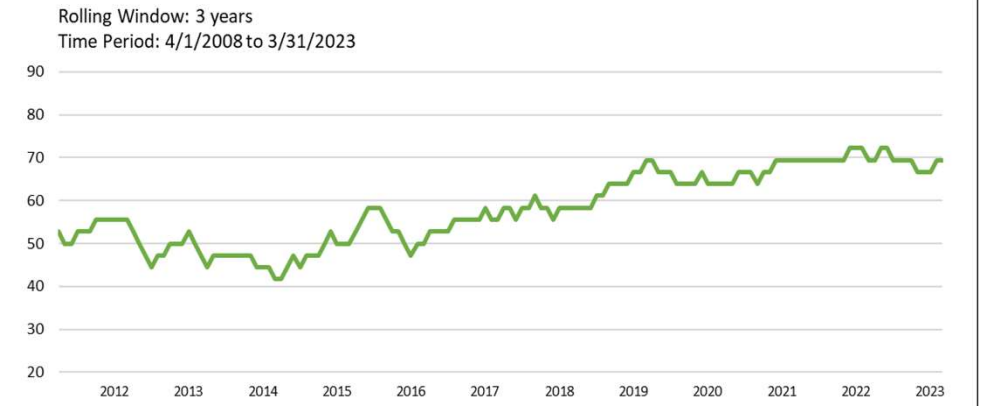
©FactSet Research Systems

15 Year Upside-Downside – 4/1/2008 to 3/31/2023



©FactSet Research Systems

Batting Average



15 Year Risk – 4/1/2008 to 3/31/2023

	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error	Beta
ERS Total Fund (net)	6.6	11.2	0.0	0.5	0.1	2.8
ERS Benchmark	6.2	10.0	0.0	0.6	--	1.0

Risk – 7/1/2013 to 3/31/2023

	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error	Beta
ERS Total Fund (net)	8.0	9.1	0.0	0.8	0.1	3.1
ERS Benchmark	7.3	7.8	0.0	0.8	--	1.0

Public Equity

Public Equity Performance

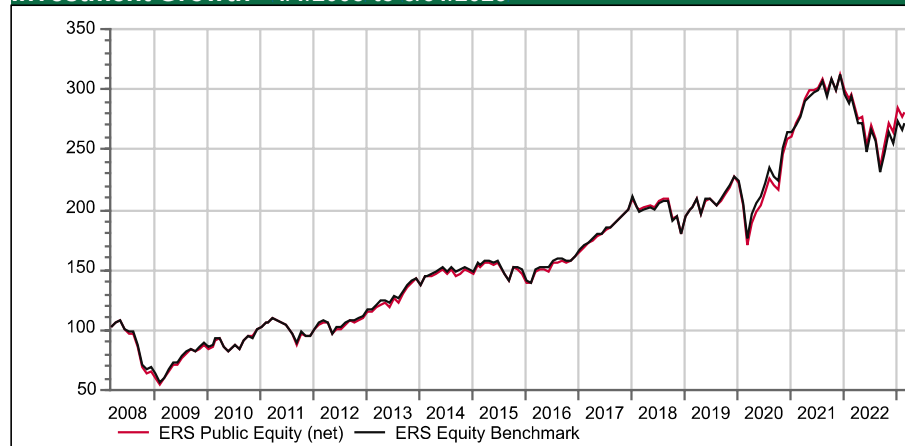
10 Year Rolling Returns – 7/1/2000 to 3/31/2023



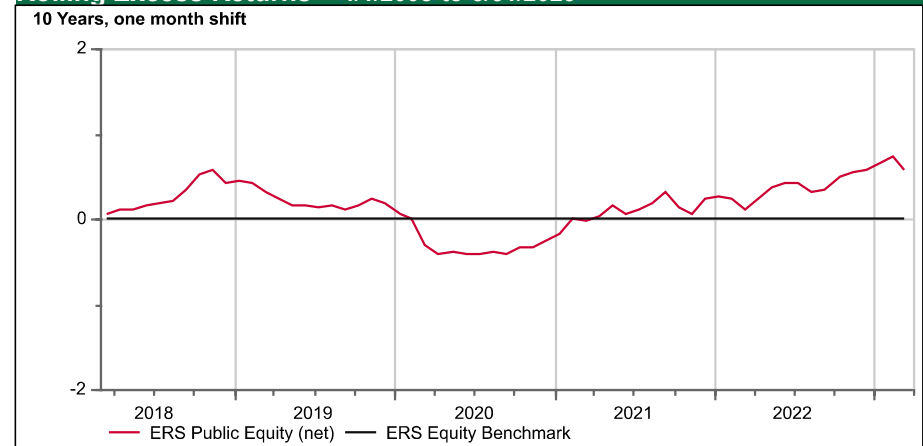
Trailing Returns

	Annualized Return						
	QTR	1 Year	3 Year	5 Year	7 Year	10 Year	15 Year
ERS Public Equity (Gross)	6.7	-4.7	18.8	7.5	10.0	9.5	7.4
ERS Public Equity (Net)	6.6	-5.0	18.4	7.2	9.6	9.1	7.1
ERS Public Equity Benchmark	6.9	-7.7	15.6	6.6	9.0	8.5	6.9
MSCI AC World IMI	6.9	-7.7	15.6	6.6	9.0	7.9	6.1

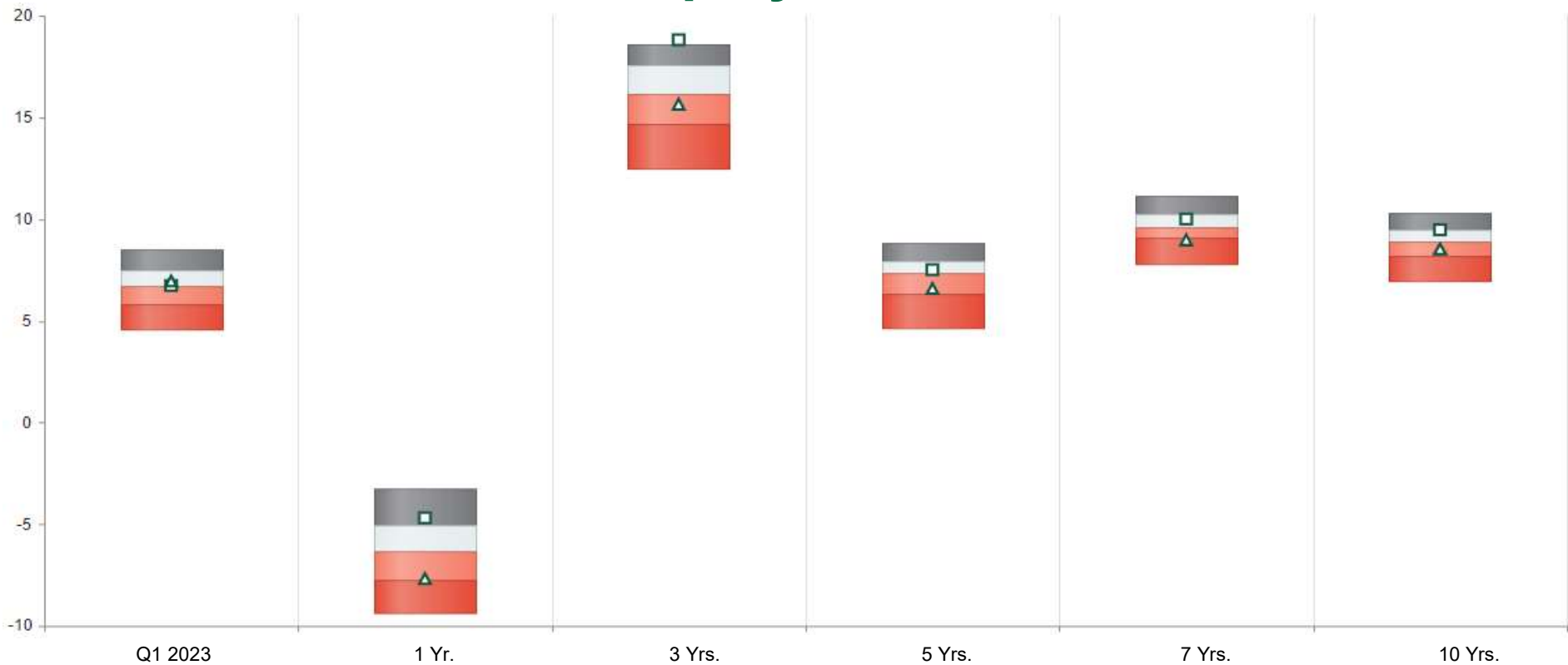
Investment Growth – 4/1/2008 to 3/31/2023



Rolling Excess Returns – 4/1/2008 to 3/31/2023



Public Equity vs Universe



Account
 Index

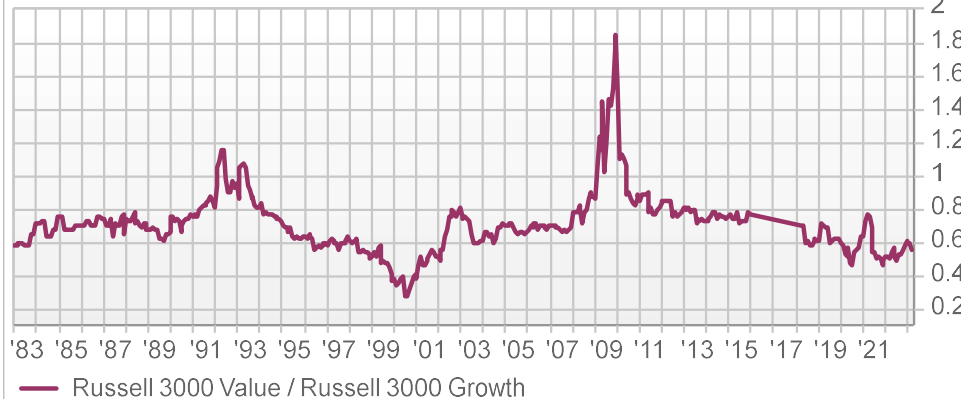
	Q1 2023	1 Yr.	3 Yrs.	5 Yrs.	7 Yrs.	10 Yrs.
Account Return	6.7	-4.7	18.8	7.5	10.0	9.5
Percentile Rank	54	21	7	41	35	25
Index Return	6.9	-7.7	15.6	6.6	9.0	8.5
Percentile Rank	49	75	64	70	77	3rd Quartile
1st Quartile	7.6	-5.1	17.5	7.9	10.3	9.5
Median	6.8	-6.4	16.2	7.4	9.6	8.9
3rd Quartile	5.8	-7.7	14.7	6.3	9.1	8.2
Observations	131	131	131	130	124	113

P/E Ratio Comparisons in the U.S. Since 1980 - As of March 31, 2023

Value vs. Growth

Relative Price to Earnings

31-Dec-1982 to 31-Mar-2023 (Monthly)



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Large vs. Small

Relative Price to Earnings

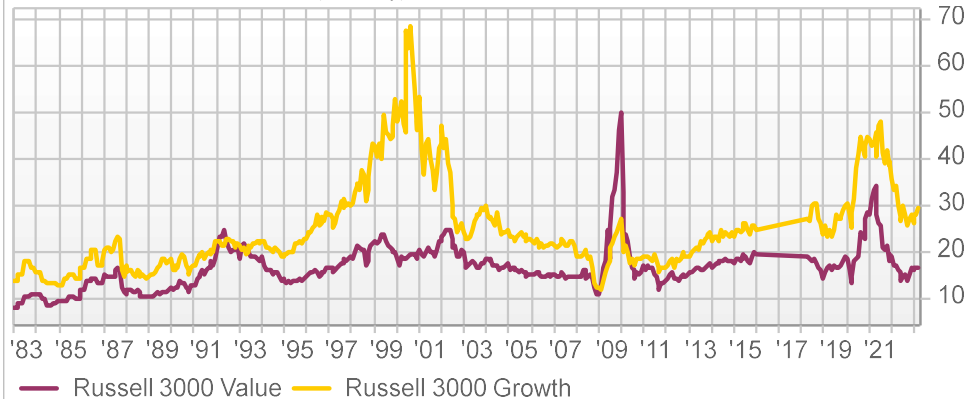
31-Dec-1982 to 31-Mar-2023 (Monthly)



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Price to Earnings - Russell 3000 Value vs Russell 3000 Growth

31-Dec-1982 to 31-Mar-2023 (Monthly)



© FactSet Research Systems

Relative Price to Earnings

31-Dec-1982 to 31-Mar-2023 (Monthly)



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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, 2023

Outperforming Equity Managers

	1st Qtr	1 Year	3 Year	5 Year	7 Year	10 Year
Polen <i>S&P 500</i>	14.0% 6.5%	-17.7% 9.9%	10.9% 7.7%	11.6% 0.4%	12.6% 0.2%	13.6% 1.4%
Brandes <i>MSCI EAFE</i>	11.1% 2.7%	6.0% 7.4%	18.2% 5.2%	3.3% 0.2%	5.9% 0.3%	5.7% 0.7%
AQR <i>MSCI EM</i>	5.9% 1.9%	-13.0% 2.3%	9.2% 1.3%	-1.2% 0.3%	N/A	N/A
DFA International <i>MSCI EAFE Small Cap</i>	6.5% 1.6%	-1.3% 8.5%	19.2% 7.1%	1.3% 0.4%	5.5% 0.2%	5.7% 0.1%
William Blair <i>MSCI ACWI ex US</i>	8.5% 1.5%	-9.5% 4.9%	12.2% 0.1%	4.3% 1.3%	7.2% 0.8%	6.0% 1.4%
DFA U.S. Small Value <i>Russell 2000 Value</i>	0.7% 1.3%	-2.4% 10.5%	33.0% 12.0%	8.1% 3.6%	10.1% 2.2%	9.4% 2.2%
MFS <i>MSCI ACWI</i>	8.4% 1.0%	-4.6% 2.9%	16.4% 1.1%	10.6% 3.7%	12.4% 3.2%	10.9% 2.8%
Earnest <i>Russell MidCap</i>	4.5% 0.5%	-6.5% 2.3%	20.6% 1.4%	10.6% 2.6%	13.2% 3.3%	12.1% 2.0%
BlackRock Global Alpha Tilts <i>MSCI ACWI</i>	7.5% 0.2%	-5.8% 1.7%	16.5% 1.2%	6.6% 0.3%	9.7% 0.6%	N/A
DFA U.S. Large Value <i>Russell 1000 Value</i>	1.1% 0.1%	-4.4% 1.6%	21.0% 3.1%	6.4% 1.1%	N/A	N/A
ERS Public Equity <i>ERS Equity Benchmark</i>	6.6% 0.3%	-5.0% 2.7%	18.4% 2.8%	7.2% 0.6%	9.6% 0.7%	9.1% 0.6%

Relative outperformance in blue

Relative underperformance in red

*Returns net of fees

Relative Investment Performance – Active Equity Managers

As of March 31, 2023

Underperforming Equity Managers

	1st Qtr	1 Year	3 Year	5 Year	7 Year	10 Year
CastleArk	5.0%	-11.2%	19.8%	7.9%	11.1%	N/A
<i>Russell 2000 Growth</i>	1.1%	0.6%	6.4%	3.7%	2.3%	
ERS Public Equity	6.6%	-5.0%	18.4%	7.2%	9.6%	9.1%
<i>ERS Equity Benchmark</i>	0.3%	2.7%	2.8%	0.6%	0.7%	0.6%

Relative outperformance in blue

Relative underperformance in red

*Returns net of fees

Relative Investment Performance – Passive Equity Managers & Other

As of March 31, 2023

Passive Equity Managers

	1st Qtr	1 Year	3 Year	5 Year	7 Year	10 Year
Northern Trust S&P 500 Index <i>S&P 500</i>	7.5% 0.0%	-7.7% 0.0%	18.6% 0.0%	11.2% 0.0%	12.4% 0.0%	12.3% 0.0%
BlackRock Russell 1000 Value Index <i>Russell 1000 Value</i>	1.0% 0.0%	-5.9% 0.0%	18.0% 0.0%	7.6% 0.1%	N/A	N/A

Real Assets Manager

	1st Qtr	1 Year	3 Year	5 Year	7 Year	10 Year
Principal Diversified Real Assets <i>Blended Benchmark</i>	1.3% 0.2%	-9.9% 0.2%	12.9% 1.1%	4.6% 0.3%	5.3% 0.5%	N/A

Relative outperformance in blue

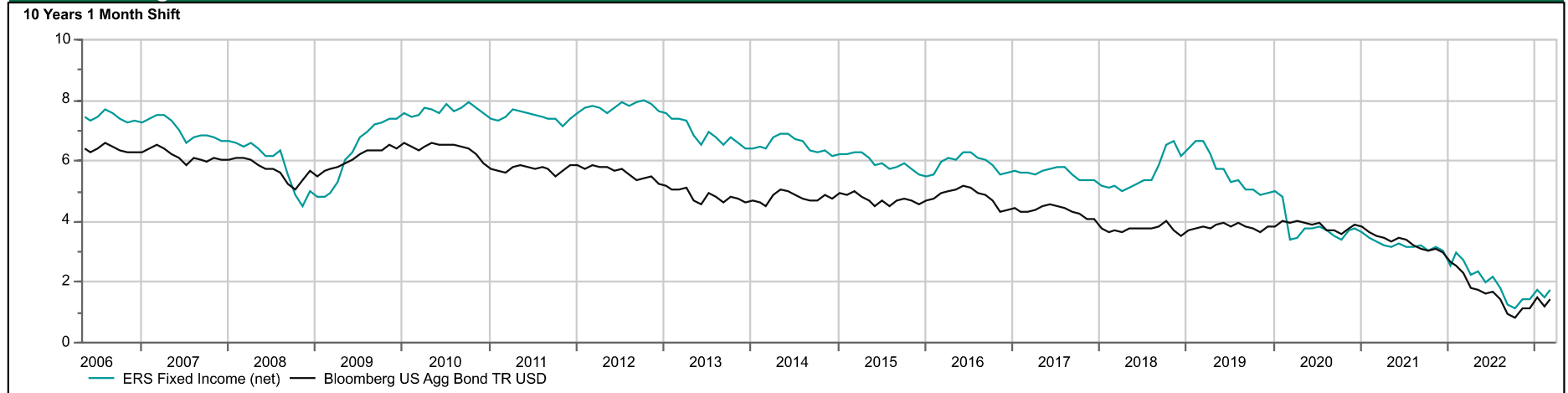
Relative underperformance in red

*Returns net of fees

Fixed Income

Fixed Income Performance

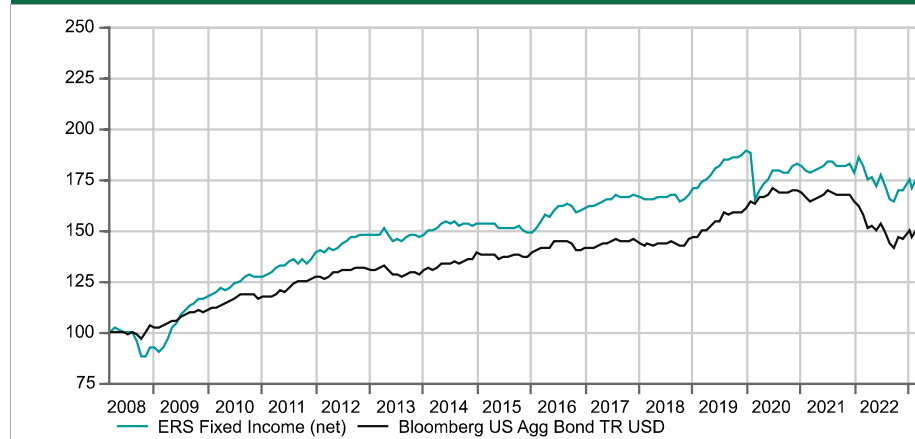
10 Year Rolling Returns – 6/1/1996 to 3/31/2023



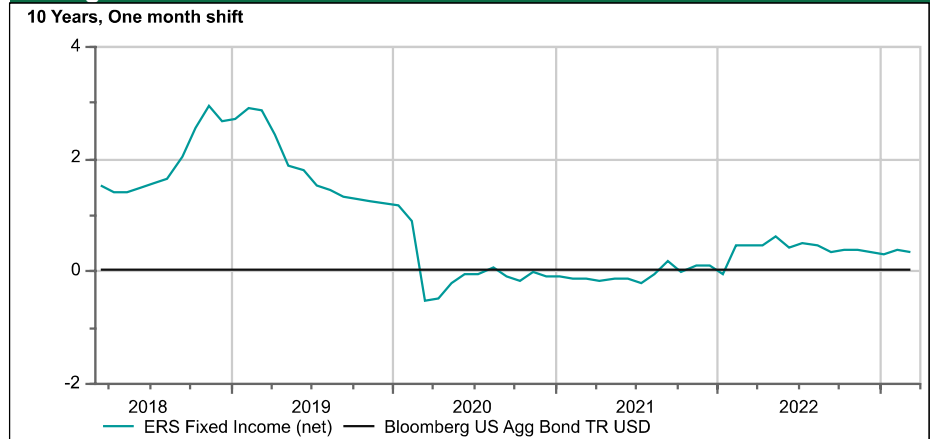
Trailing Returns

	Annualized Return						
	QTR	1 Year	3 Year	5 Year	7 Year	10 Year	15 Year
Total Fixed Income (Gross)	3.6	-3.3	2.0	1.3	1.9	1.8	3.9
Total Fixed Income (Net)	3.6	-3.4	1.9	1.1	1.8	1.7	3.8
Bloomberg US Aggregate	3.0	-4.8	-2.8	0.9	0.9	1.4	2.7

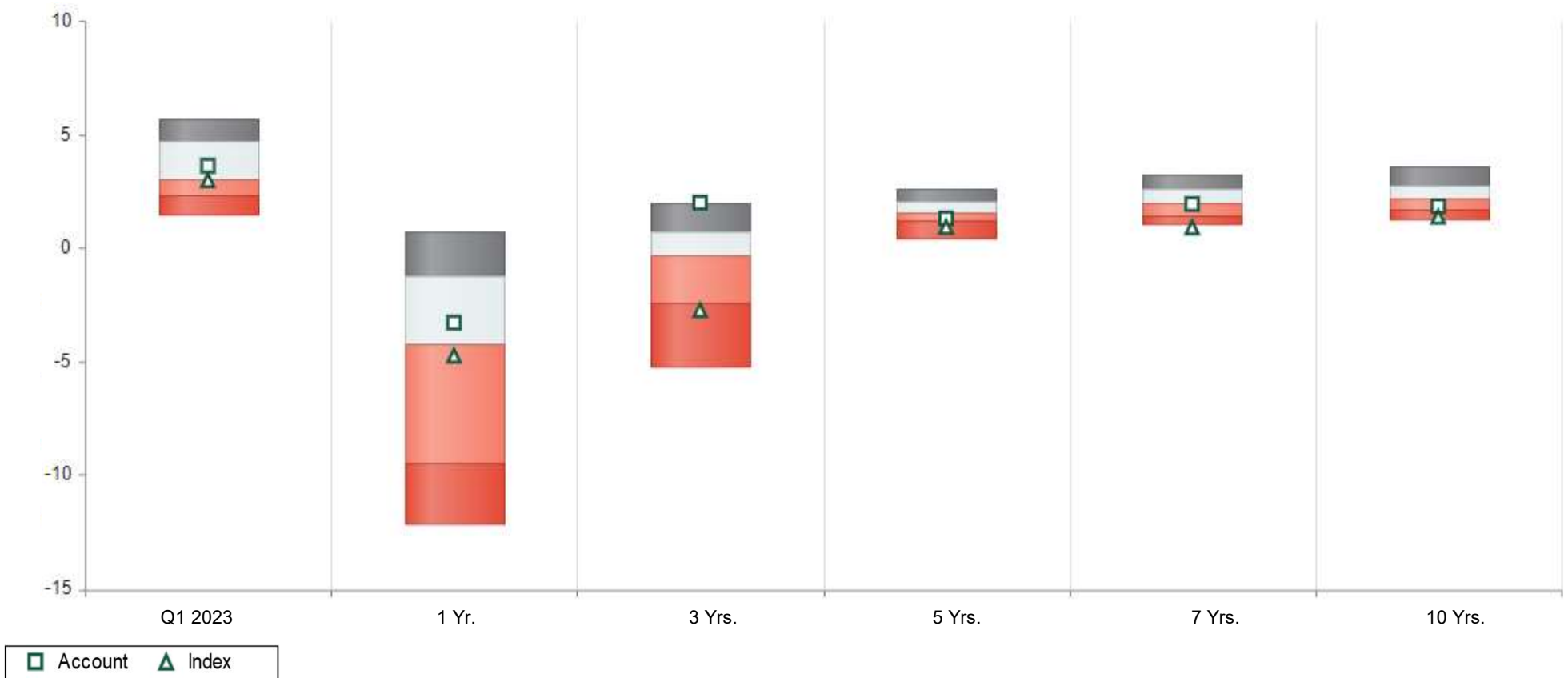
Investment Growth –4/1/2008 to 3/31/2023



Rolling Excess Return –4/1/2008 to 3/31/2023



Fixed Income vs Universe



	Q1 2023	1 Yr.	3 Yrs.	5 Yrs.	7 Yrs.	10 Yrs.
Account Return	3.6	-3.3	2.0	1.3	1.9	1.8
Percentile Rank	39	40	11	71	54	68
Index Return	3.0	-4.8	-2.8	0.9	0.9	1.4
Percentile Rank	55	61	78	82	93	86
1st Quartile	4.9	-1.1	0.7	2.0	2.6	2.7
Median	3.1	-3.9	-0.3	1.6	2.0	2.2
3rd Quartile	2.4	-9.5	-2.4	1.2	1.4	1.7
Observations	95	93	95	95	94	91

Relative Investment Performance – Fixed Income Managers

As of March 31, 2023

	1st Qtr	1 Year	3 Year	5 Year	7 Year	10 Year
Reams	4.0%	-2.6%	0.7%	3.5%	2.8%	2.6%
<i>Bloomberg U.S. Agg.</i>	1.0%	2.2%	3.4%	2.6%	1.9%	1.3%
Loomis Sayles	3.2%	-3.9%	2.5%	2.2%	3.9%	3.0%
<i>Bloomberg U.S. Agg.</i>	0.3%	0.9%	5.2%	1.3%	3.0%	1.7%
BlackRock Index	3.2%	-4.3%	N/A	N/A	N/A	N/A
<i>Bloomberg U.S. Government</i>	0.2%	0.1%				
ERS Fixed Income	3.6%	-3.4%	1.9%	1.1%	1.8%	1.7%
<i>Bloomberg U.S. Agg.</i>	0.6%	1.4%	4.6%	0.2%	0.9%	0.3%

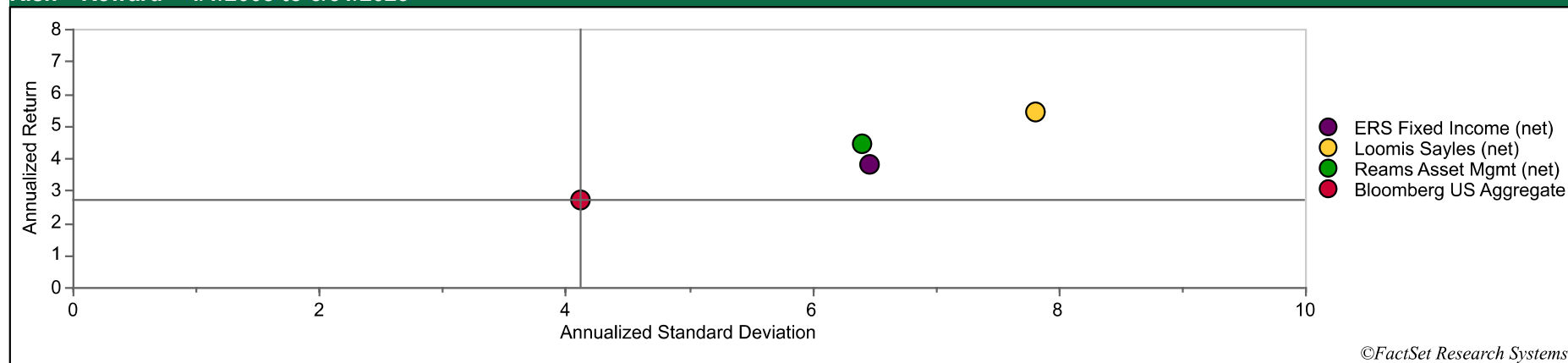
Relative outperformance in blue

Relative underperformance in red

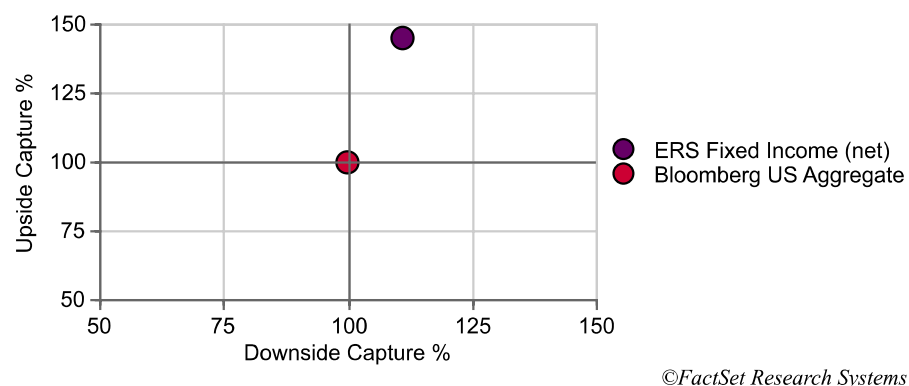
*Returns net of fees

Fixed Income Statistics

Risk – Reward – 4/1/2008 to 3/31/2023



15 Year Upside-Downside – 4/1/2008 to 3/31/2023



Batting Average



15 Year Risk – 4/1/2008 to 3/31/2023

	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error	Beta
Total Fixed Income (Net)	3.8	6.5	0.1	0.5	0.1	4.8
Bloomberg US Aggregate	2.7	4.1	0.0	0.5	--	--

Risk – 7/1/2013 to 3/31/2023

	Annualized Return	Standard Deviation	Sharpe Ratio	Information Ratio	Tracking Error	Beta
Total Fixed Income (Net)	2.0	6.1	0.0	0.2	0.0	4.5
Bloomberg US Aggregate	1.6	4.3	0.0	0.2	--	--

Absolute Return

Relative Investment Performance – Absolute Return Managers

As of March 31, 2023

	1st Qtr	1 Year	3 Year	5 Year	7 Year
UBS A&Q <i>1 Year Libor / SOFR + 4%</i>	0.9% 1.2%	8.3% 1.7%	10.9% 5.8%	7.9% 1.8%	7.2% 1.2%
Aptitude <i>SOFR + 4%</i>	0.2% 1.9%	N/A	N/A	N/A	N/A
ERS Absolute Return <i>3 Month T-Bill + 3%</i>	0.7% 1.2%	8.0% 1.8%	16.6% 12.4%	5.8% 1.4%	5.6% 1.3%

Relative outperformance in blue

Relative underperformance in red

Risk Adjusted Returns (6/30/14 - 3/31/23)

	Return	Std Dev	Sharpe Ratio	Max Drawdown
ERS Public Equity (net)	7.5%	15.7%	0.4	-25.3%
ERS Fixed Income (net)	1.5%	6.5%	0.1	-13.6%
ERS Absolute Return (net)	5.5%	9.9%	0.5	-27.1%

*Returns net of fees

Performance Update

Performance Update

Estimated ERS Total Fund Market Value is \$5.61 billion as of April 27, 2023

Period	ERS Fund*	Benchmark
Q1 2023	3.3%	4.3%
April MTD (Estimate)	0.0%	0.3%
YTD Through April 27, 2023 (Estimate)	3.4%	4.6%

*Returns Net of Fees

Appendix

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CastleArk.....	36
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BlackRock Russell 1000 Value Portfolio Snapshot – March 31, 2022

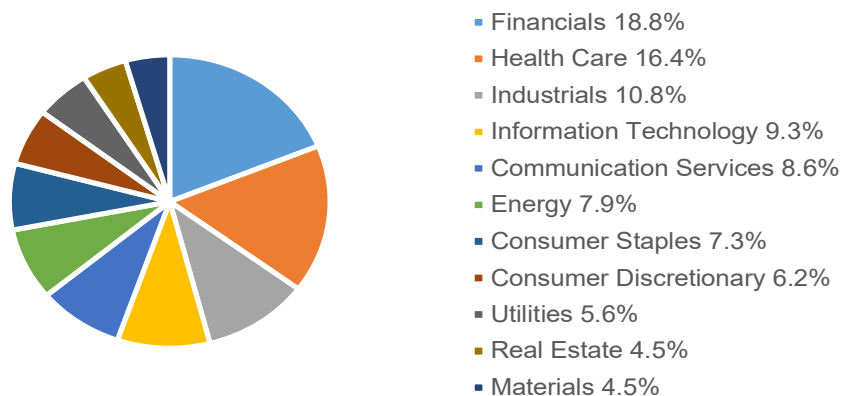
Rolling Returns Since Inception 4/1/2017 (One Year, One Month Shift)



Trailing Returns

	QTR	1 Year	3 Year	5 Year	Inception 4/1/2017
BlackRock R1000 Value (Net)	1.0	-5.9	18.0	7.6	7.5
Russell 1000 Value	1.0	-5.9	17.9	7.5	7.4

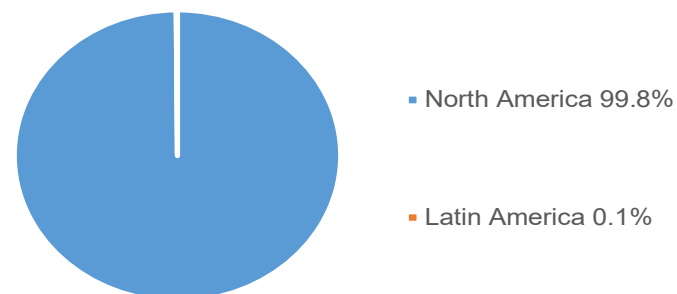
Equity Sector Exposure (GICS)



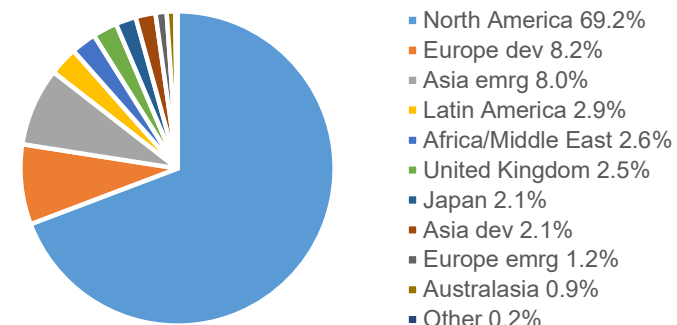
Top 10 Holdings

	Portfolio Weight	Quarterly Return
Berkshire Hathaway Inc.	3.03	-0.04
Exxon Mobil Corporation	2.46	0.24
Johnson & Johnson	2.22	-11.61
JPMorgan Chase & Co.	2.07	-2.13
Meta Platforms, Inc.	2.02	76.12
Chevron Corporation	1.72	-8.24
Pfizer Inc.	1.26	-19.64
Cisco Systems, Inc.	1.17	10.59
Walmart Inc.	1.14	4.39
Procter & Gamble Company	1.10	-1.26

Regional Exposure by Domicile



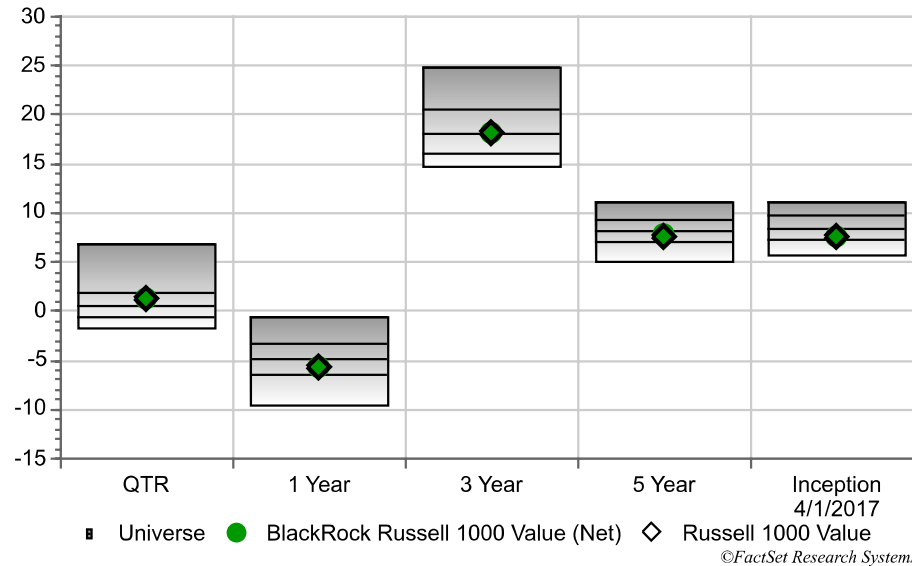
Regional Exposure by Source of Revenue



BlackRock Russell 1000 Value vs Universe & Benchmark

Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US:Large-Cap Value

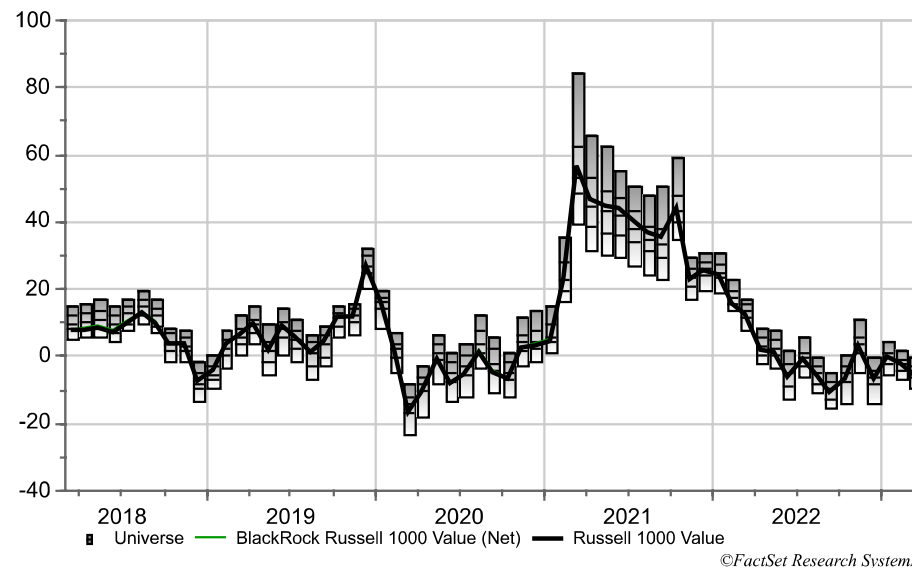


Investment Growth Since Inception 4/1/2017



Rolling Returns 4/1/2017 –3/31/2023 (1 Year, 1 Month Shift)

Universe: Lipper US:Large-Cap Value

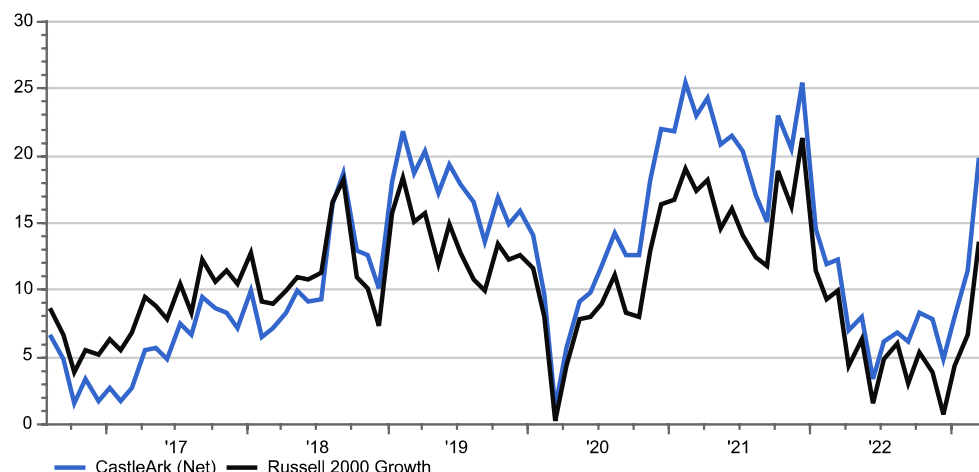


Risk Since Inception 4/1/2017

	Return	Std Dev	Sharpe Ratio	Tracking Error
BlackRock R1000 Value (Net)	7.5	17.3	0.4	0.1
Russell 1000 Value	7.4	17.3	0.3	--

CastleArk Portfolio Snapshot – March 31, 2023

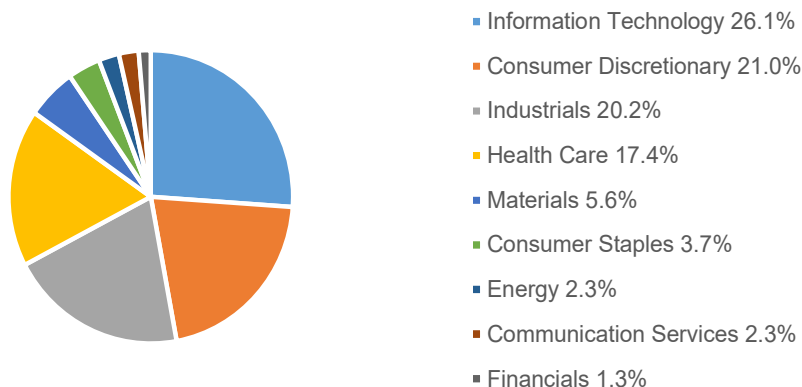
Rolling Returns Since Inception 9/1/2013 (Three Year, One Month Shift)



Trailing Returns

	QTR	1 Year	3 Year	5 Year	Inception 9/1/2013
CastleArk (Net)	5.0	-11.2	19.8	7.9	9.3
Russell 2000 Growth	6.1	-10.6	13.4	4.3	7.9

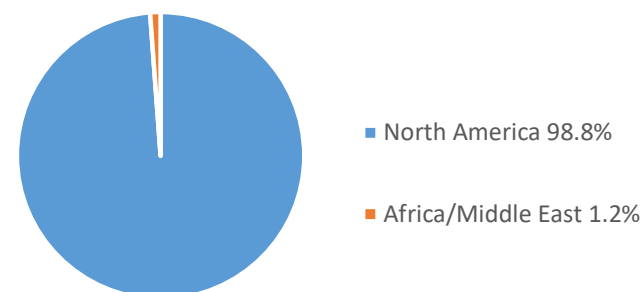
Equity Sector Exposure (GICS)



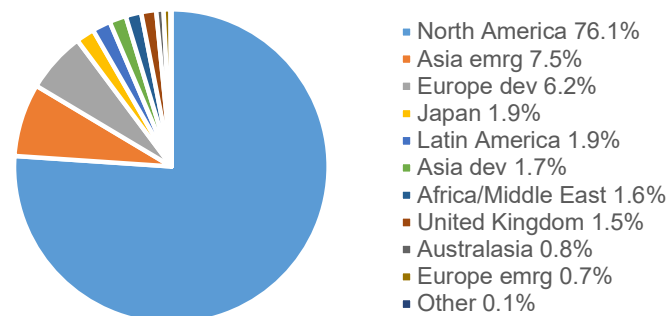
Top 10 Holdings

	Portfolio Weight	Quarterly Return
ATI, Inc.	1.84	32.15
Wingstop, Inc.	1.73	33.53
TransMedics Group, Inc.	1.73	22.70
APi Group Corporation	1.63	19.51
Shift4 Payments, Inc.	1.62	18.36
Inspire Medical Systems, Inc.	1.59	-7.07
Willscot Mobile Mini Holdings Corp.	1.48	3.79
Manhattan Associates, Inc.	1.43	27.55
WESCO International, Inc.	1.42	23.73
Axon Enterprise, Inc.	1.40	35.51

Regional Exposure by Domicile



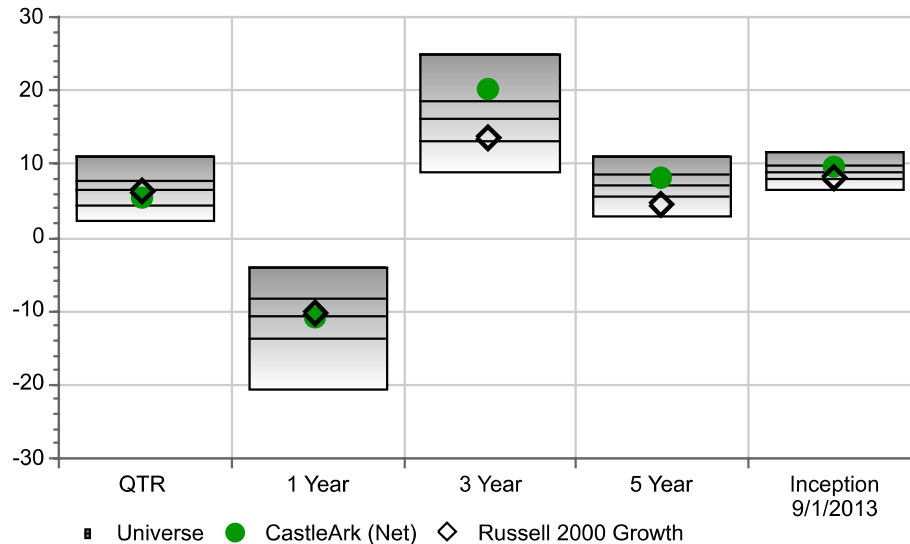
Regional Exposure by Source of Revenue



CastleArk vs Universe & Benchmark

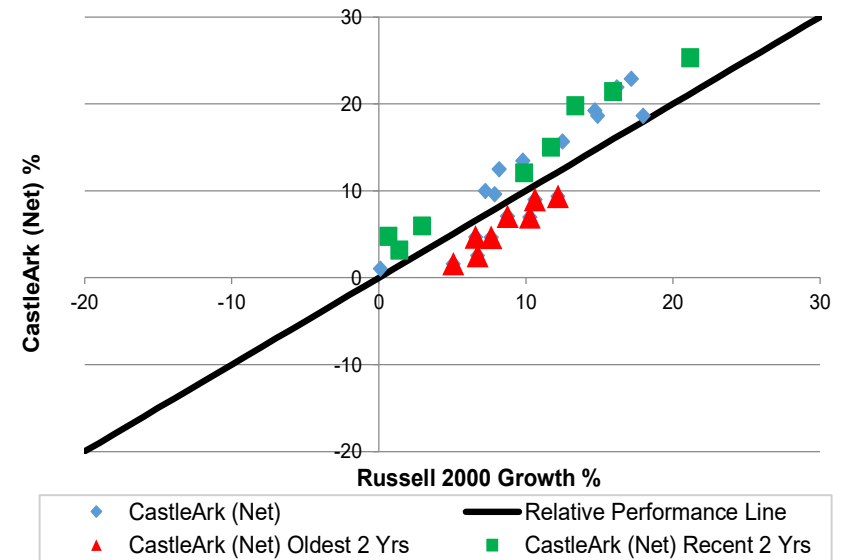
Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US Small-Cap Growth



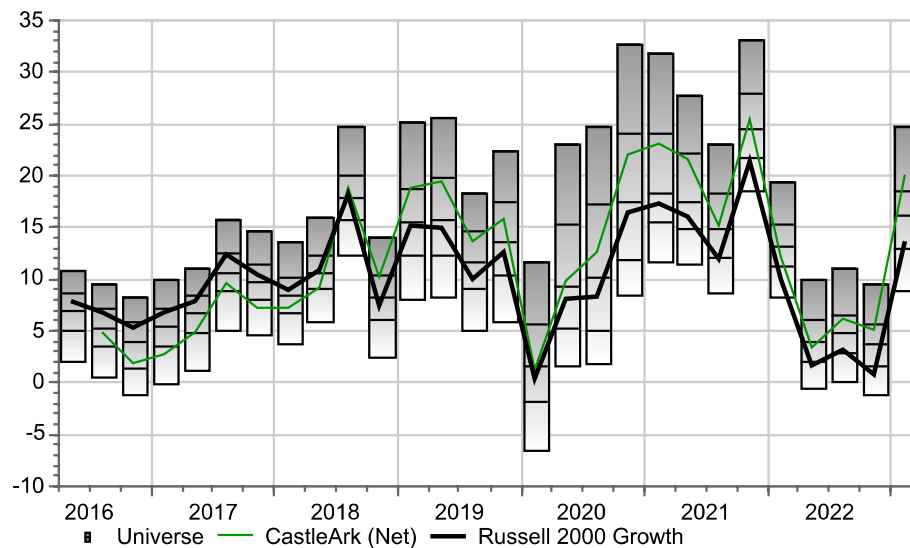
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Three-Year Rolling Return Versus Benchmark



Rolling Returns 9/1/2013 –3/31/2023 (3 Year, 3 Month Shift)

Universe: Lipper US:Small-Cap Growth



©FactSet Research Systems

Over/Under Benchmark Analysis

19	Outperform
8	Underperform
27	# Observations
70%	% Outperform

CastleArk Attribution Analysis – March 31, 2023

Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Axon Enterprise, Inc.	1.74	1.74	0.55
ATI, Inc.	1.67	1.30	0.36
DoubleVerify Holdings, Inc.	1.01	1.01	0.35
Wingstop, Inc.	1.48	1.09	0.33
PulteGroup, Inc.	1.18	1.18	0.30
Xponential Fitness, Inc.	0.94	0.93	0.29
Manhattan Associates, Inc.	1.12	1.12	0.28
TransMedics Group, Inc.	1.57	1.40	0.28
WESCO International, Inc.	1.35	1.35	0.28
World Wrestling Entertainment, Inc.	0.40	0.40	0.28

Top 10 Leading Detractors

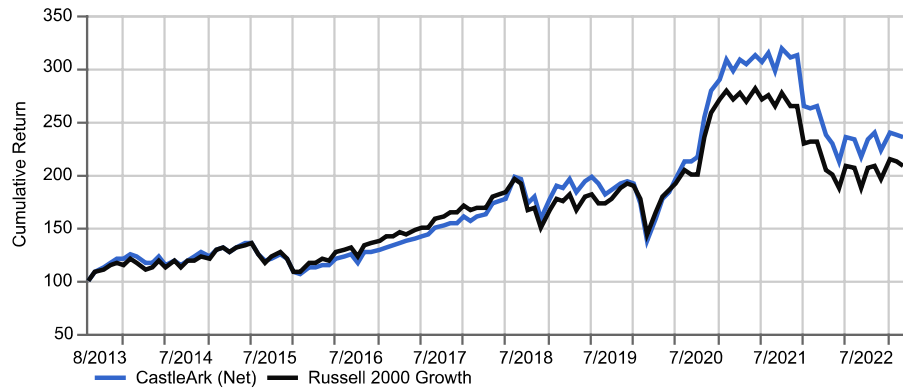
	Avg. Weights	Relative Weights	Active Return
Halozyyme Therapeutics, Inc.	1.92	1.35	-0.48
Calix, Inc.	1.15	0.94	-0.44
Silk Road Medical, Inc.	1.43	1.27	-0.29
Consensus Cloud Solutions, Inc.	0.64	0.60	-0.20
Azenta, Inc.	0.54	0.54	-0.19
Acadia Healthcare Company, Inc.	1.34	1.34	-0.18
Shyft Group, Inc.	0.31	0.23	-0.16
Citi Trends, Inc.	0.47	0.47	-0.15
Super Micro Computer, Inc.	0.16	-0.16	-0.14
NV5 Global, Inc.	0.75	0.61	-0.14

Sector Attribution

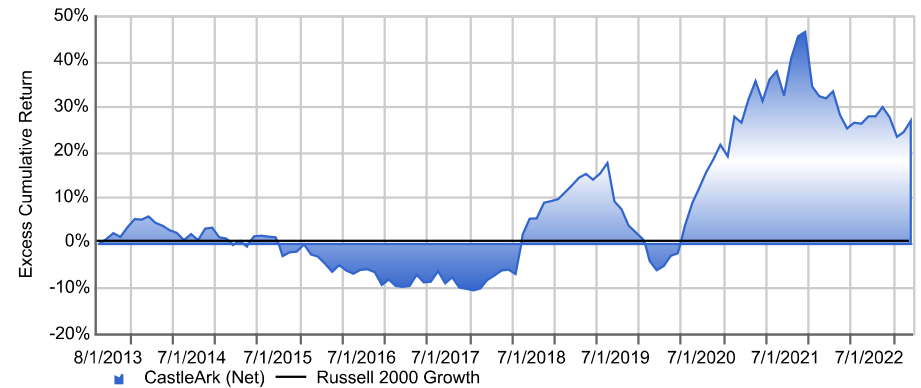
	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	-0.8	9.5	13.0	0.0	-0.1	-0.1
Consumer Discretionary	6.7	14.2	12.9	0.3	0.3	0.7
Consumer Staples	-0.5	6.5	8.7	0.0	-0.1	-0.1
Energy	-3.6	-6.4	-7.3	0.5	0.0	0.5
Financials	-4.1	8.5	1.0	0.2	0.1	0.3
Health Care	-0.7	-5.3	-0.1	-0.1	-1.4	-1.5
Industrials	4.7	7.2	8.4	0.2	-0.3	-0.2
Information Technology	1.5	4.3	12.4	0.1	-1.5	-1.3
Materials	-0.2	21.9	9.4	-0.1	0.4	0.3
Real Estate	-2.2	0.0	0.8	0.1	0.0	0.1
Utilities	-1.7	0.0	4.2	0.0	0.0	0.0
Cash	0.9	1.1	0.0	0.0	0.0	0.0
Total	0.0	4.8	6.0	1.3	-2.5	-1.3

CastleArk Inception Performance & Statistics

Investment Growth Since Inception 9/1/2013



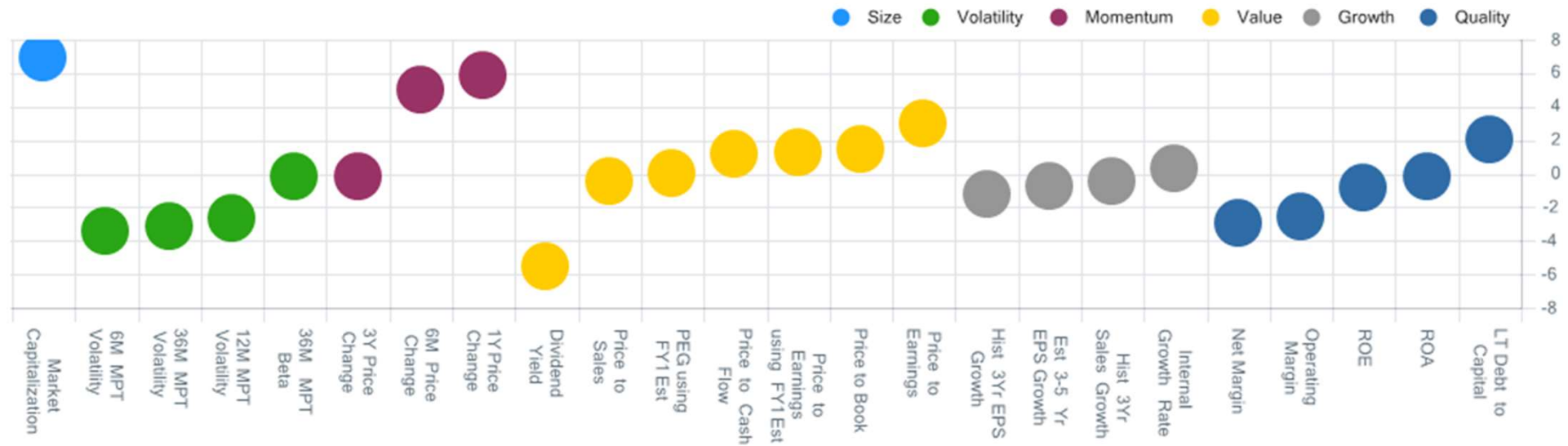
Relative Cumulative Performance Since Inception 9/1/2013



Risk Since Inception 9/1/2013

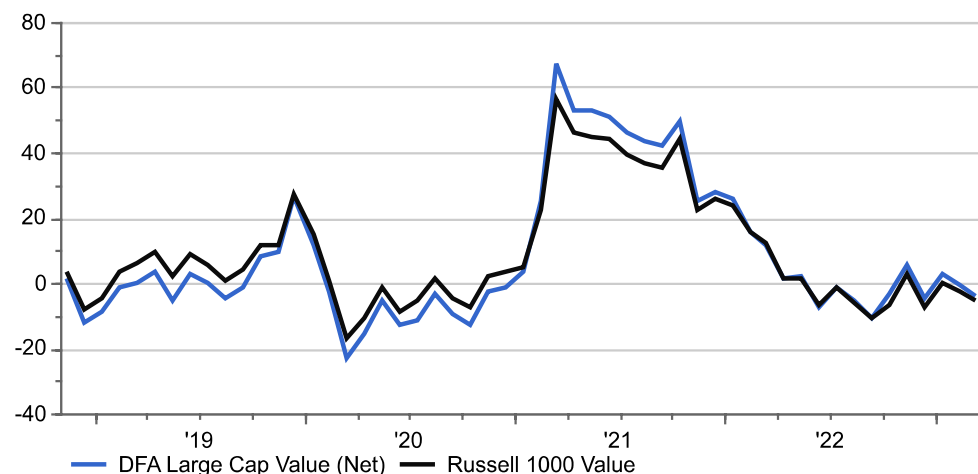
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
CastleArk (Net)	9.3	20.4	1.5	0.4	0.3	5.1	1.0
Russell 2000 Growth	7.9	20.1	--	0.3	--	--	1.0

Characteristics Tilt vs Benchmark 3/31/2023



DFA LCV Portfolio Snapshot – March 31, 2023

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

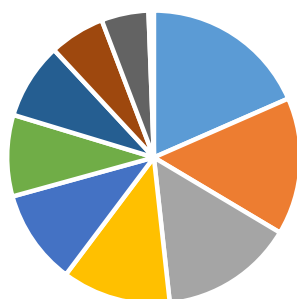


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Trailing Returns

	QTR	1 Year	3 Year	5 Year	Inception 12/1/2017
DFA US Large Value	1.1	-4.4	21.0	6.4	6.0
Russell 1000 Value	1.0	-5.9	17.9	7.5	6.7

Equity Sector Exposure (GICS)

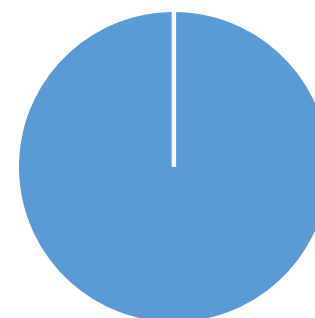


Financials	18.4%
Energy	15.2%
Health Care	14.7%
Industrials	12.0%
Communication Services	10.5%
Materials	8.9%
Information Technology	8.4%
Consumer Discretionary	6.1%
Consumer Staples	5.2%
Real Estate	0.4%
Utilities	0.2%

Top 10 Holdings

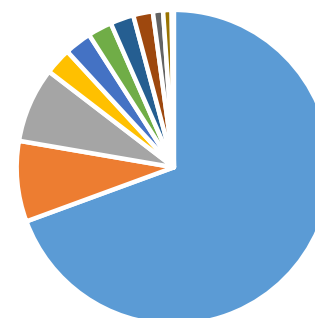
	Portfolio Weight	Quarterly Return
Exxon Mobil Corporation	4.60	0.24
JPMorgan Chase & Co.	3.43	-2.13
Chevron Corporation	3.28	-8.24
Pfizer Inc.	2.58	-19.64
Meta Platforms, Inc.	2.19	76.12
Berkshire Hathaway Inc.	2.03	-0.04
Comcast Corporation	1.76	9.15
Verizon Communications Inc.	1.69	0.25
ConocoPhillips Company	1.69	-15.00
AT&T Inc.	1.47	5.99

Regional Exposure by Domicile



North America 100.0%

Regional Exposure by Source of Revenue

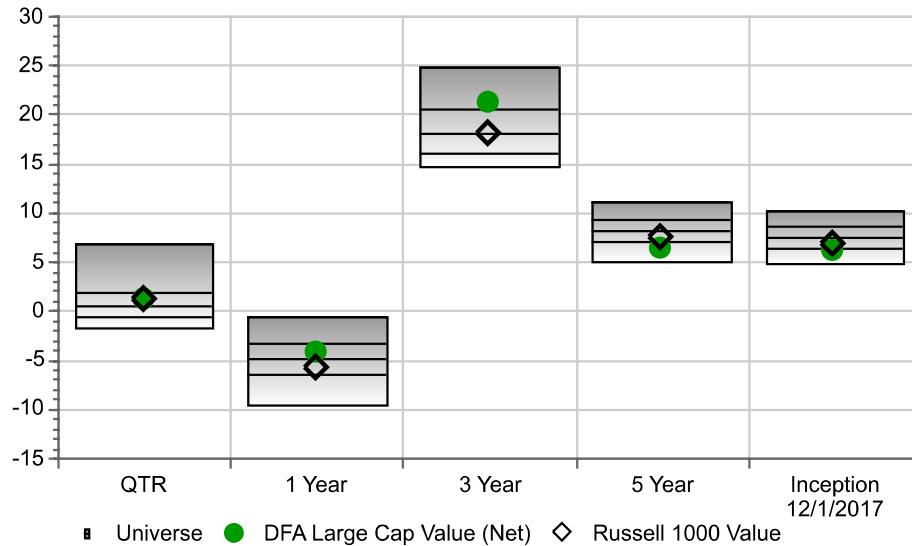


North America	69.4%
Asia emrg	8.3%
Europe dev	7.7%
Latin America	2.8%
United Kingdom	2.8%
Asia dev	2.5%
Africa/Middle East	2.4%
Japan	2.0%
Europe emrg	1.0%
Australasia	0.9%
Other	0.2%

DFA LCV vs Universe & Benchmark

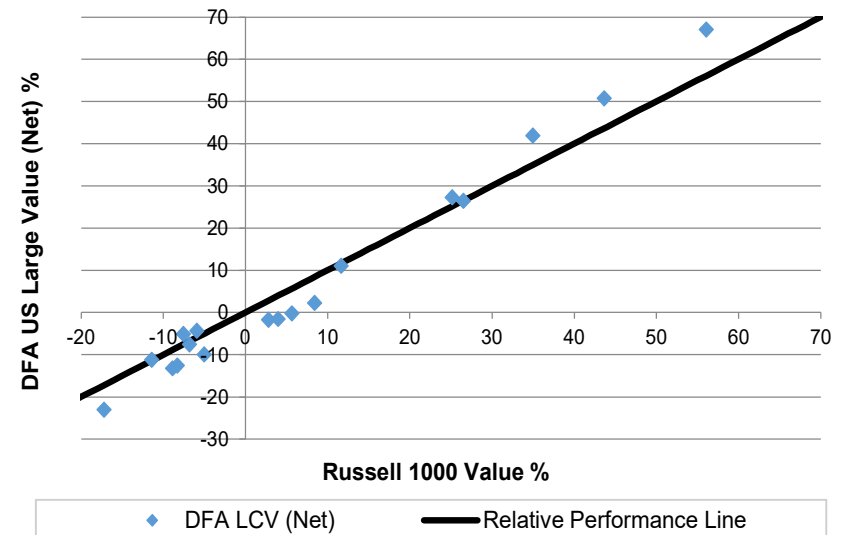
Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US Large Cap Value



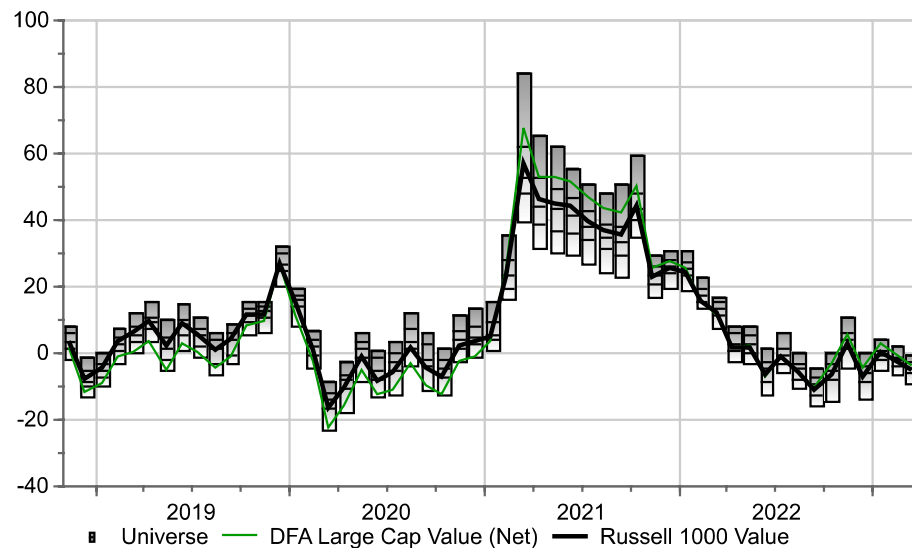
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One-Year Rolling Return Versus Benchmark



Rolling Returns 12/1/2017 –3/31/2023 (1 Year, 1 Month Shift)

Universe: Lipper US Large Cap Value



©FactSet Research Systems

Over/Under Benchmark Analysis

7	Outperform
11	Underperform
18	# Observations
39%	% Outperform

DFA LCV Attribution Analysis – March 31, 2023

Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Warner Bros. Discovery, Inc.	0.36	0.32	0.13
Nucor Corporation	1.08	0.86	0.12
Intel Corporation	1.04	0.46	0.10
PulteGroup, Inc.	0.38	0.35	0.09
FedEx Corporation	0.52	0.28	0.08
Micron Technology, Inc.	0.66	0.39	0.07
Steel Dynamics, Inc.	0.65	0.55	0.07
Comcast Corporation	1.69	0.84	0.07
D.R. Horton, Inc.	0.81	0.73	0.07
Reliance Steel & Aluminum Co.	0.36	0.29	0.07

Top 10 Leading Detractors

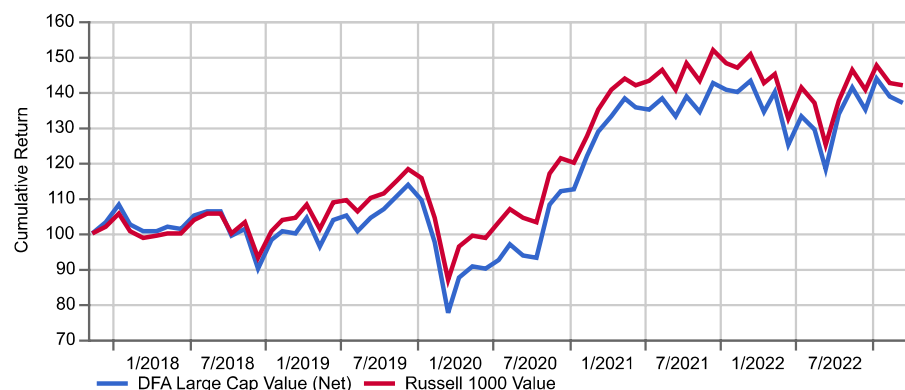
	Avg. Weights	Relative Weights	Active Return
Pfizer Inc.	2.82	1.45	-0.31
ConocoPhillips Company	2.02	1.26	-0.19
Chevron Corporation	3.25	1.47	-0.12
Cigna Group	0.91	0.49	-0.11
Salesforce, Inc.	0.38	-0.25	-0.11
General Electric Company	0.32	-0.12	-0.04
Warner Bros. Discovery, Inc.	0.35	0.31	-0.04
Raytheon Technologies Corp.	0.58	-0.18	-0.04
Carlisle Companies Incorporated	0.19	0.18	-0.04
Republic Services, Inc.	0.89	0.74	-0.04

Sector Attribution

	Avg. relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	1.5	15.7	19.7	0.3	-0.3	-0.1
Consumer Discretionary	-0.3	10.8	5.2	0.0	0.3	0.3
Consumer Staples	-1.5	1.0	-0.3	0.0	0.1	0.0
Energy	7.2	-4.5	-4.8	-0.4	0.0	-0.4
Financials	0.1	-6.6	-5.7	0.0	-0.1	-0.2
Health Care	-1.5	-8.9	-5.8	0.1	-0.5	-0.4
Industrials	0.6	5.9	3.9	0.0	0.2	0.2
Information Technology	-1.2	16.1	14.2	-0.2	0.1	0.0
Materials	4.2	8.3	5.1	0.2	0.3	0.4
Real Estate	-4.1	-6.3	1.7	0.0	0.0	-0.1
Utilities	-5.4	6.3	-3.5	0.2	0.0	0.3
Cash	0.3	1.1	0.0	0.0	0.0	0.0
Total	0.0	1.0	0.8	0.1	0.0	0.2

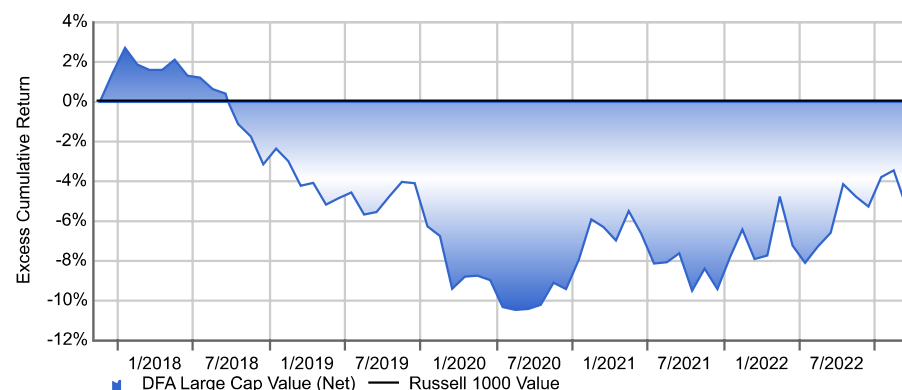
DFA LCV Inception Performance & Statistics

Investment Growth Since Inception 12/1/2017



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Relative Cumulative Performance Since Inception 12/1/2017

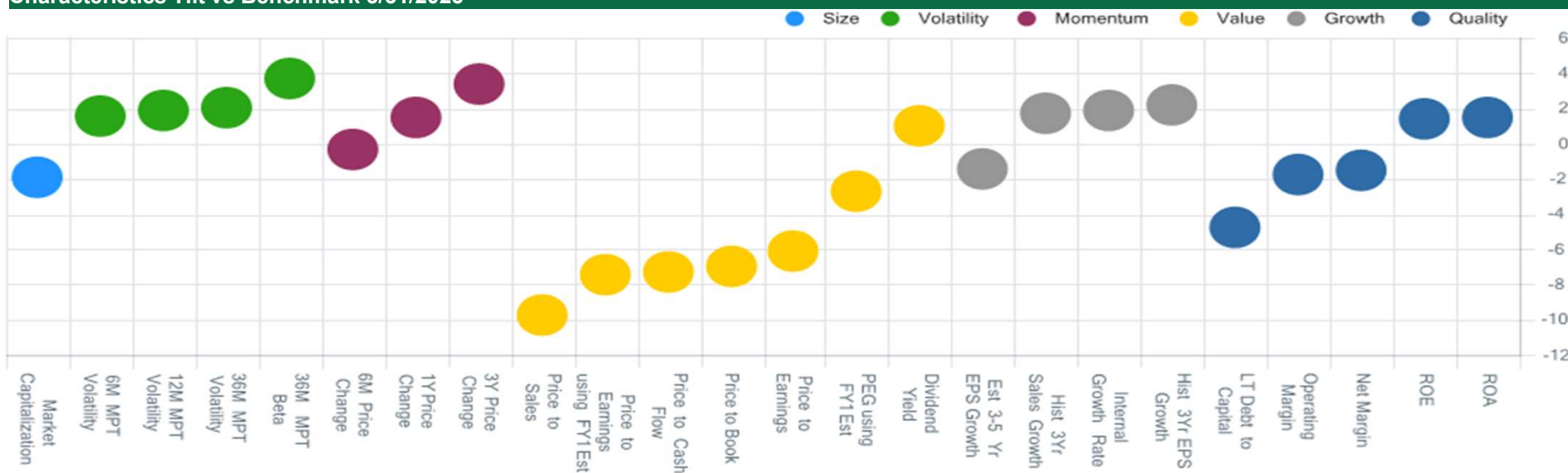


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Risk Since Inception 12/1/2017

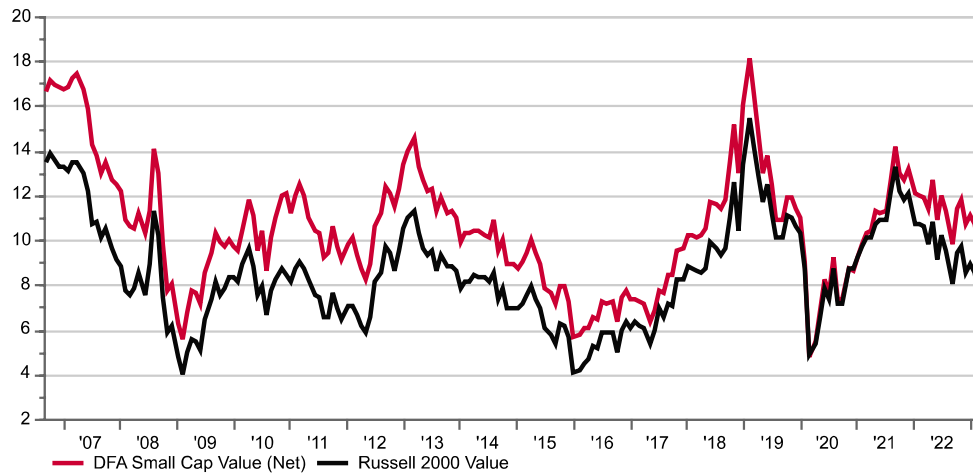
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
DFA US Large Value	6.0	21.1	-1.1	0.2	-0.2	4.0	1.1
Russell 1000 Value	6.7	18.3	--	0.3	--	--	1.0

Characteristics Tilt vs Benchmark 3/31/2023



DFA US SCV Portfolio Snapshot – March 31, 2023

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



Top 10 Holdings

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Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
DFA Small Cap Value (Net)	0.7	-2.4	33.0	8.1	9.4	9.4
Russell 2000 Value	-0.7	-13.0	21.0	4.5	7.2	7.2

Equity Sector Exposure (GICS)

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Regional Exposure by Domicile

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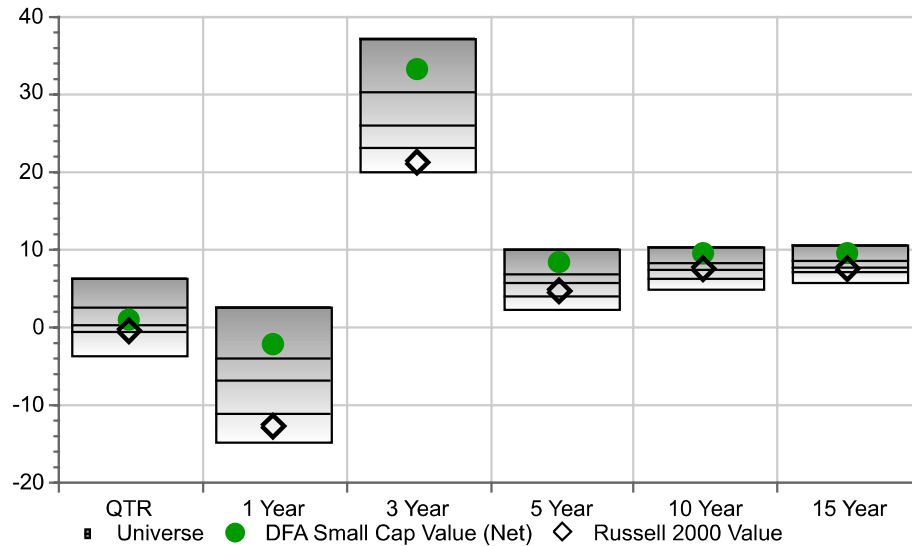
Regional Exposure by Source of Revenue

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DFA US SCV vs Universe & Benchmark

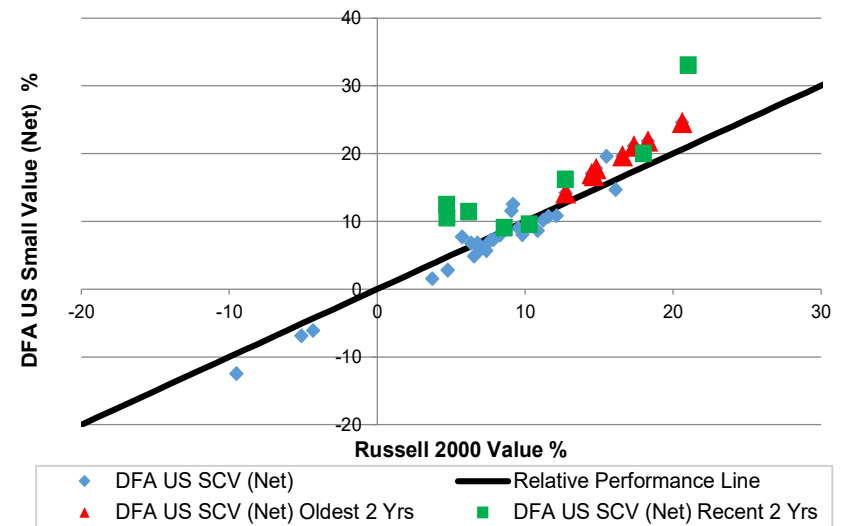
Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US Small Cap Value



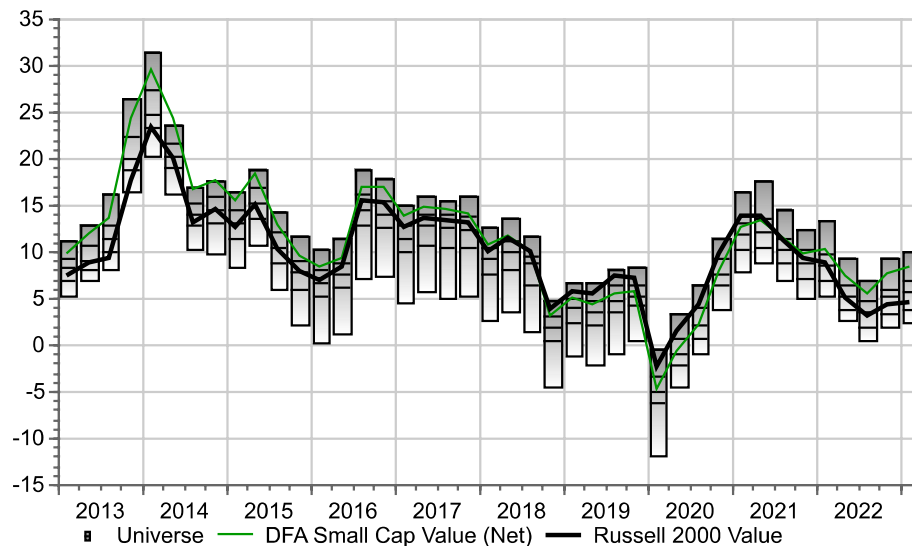
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Three-Year Rolling Return Versus Benchmark



Rolling Returns 4/1/2008 –3/31/2023 (5 Year, 3 Month Shift)

Universe: Lipper US Small Cap Value



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Over/Under Benchmark Analysis

21	Outperform
19	Underperform
40	# Observations
53%	% Outperform

DFA US SCV Attribution Analysis – March 31, 2023

Top 10 Leading Contributors

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Top 10 Leading Detractors

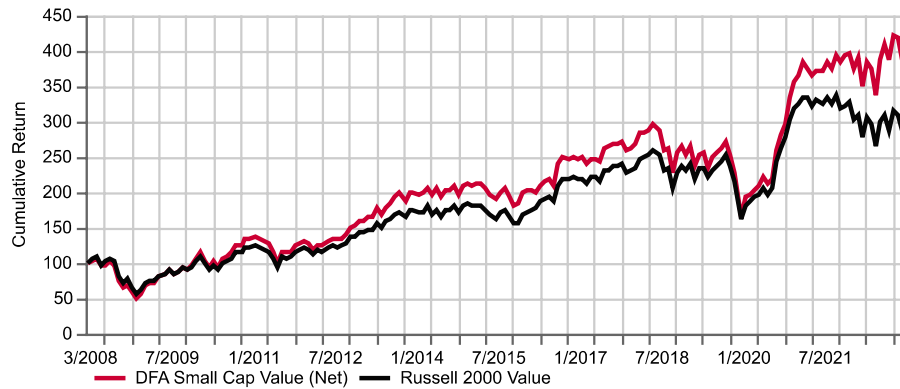
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Sector Attribution

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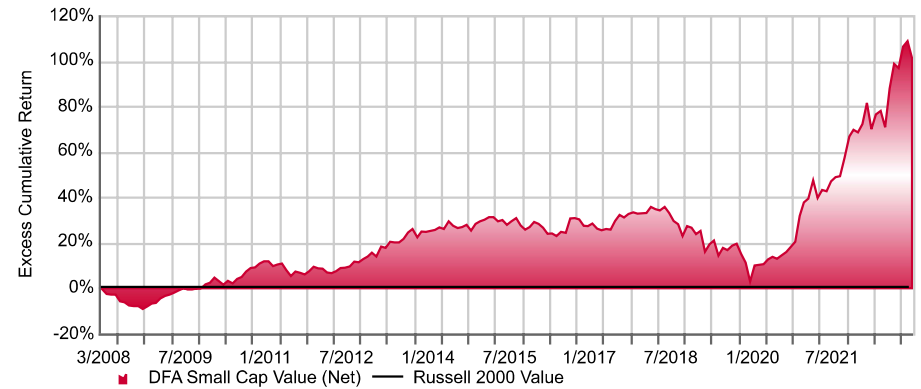
DFA US SCV 15 Year Performance & Statistics

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)	9.4	23.6	1.8	0.4	0.5	4.0	1.1
Russell 2000 Value	7.2	21.6	--	0.3	--	--	1.0

Characteristics Tilt vs Benchmark 3/31/2023

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Earnest Portfolio Snapshot – March 31, 2023

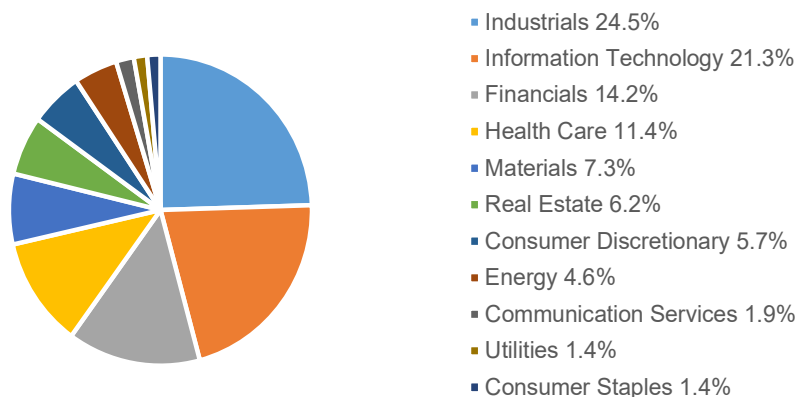
Rolling Returns Since Inception 5/1/2005 (Ten Year, One Month Shift)



Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
Earnest Partners (Net)	4.5	-6.5	20.6	10.6	12.1	10.7
Russell Midcap	4.1	-8.8	19.2	8.1	10.1	9.5

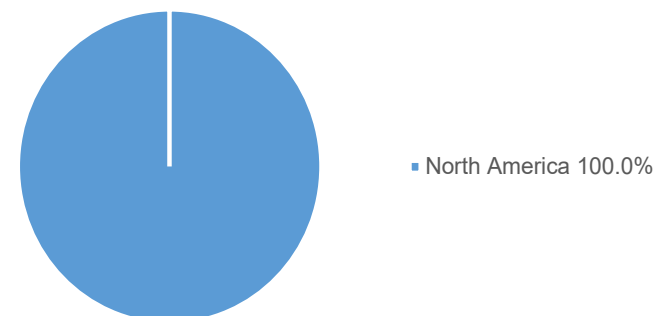
Equity Sector Exposure (GICS)



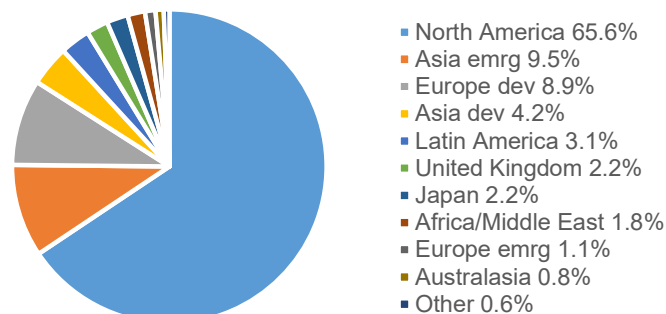
Top 10 Holdings

	Portfolio Weight	Quarterly Return
Republic Services, Inc.	2.74	5.21
Keysight Technologies, Inc.	2.45	-5.61
Synopsys, Inc.	2.42	20.97
Darden Restaurants, Inc.	2.41	13.08
ANSYS, Inc.	2.37	37.75
CBRE Group, Inc.	2.20	-5.39
Progressive Corporation	2.17	10.37
Agilent Technologies, Inc.	2.14	-7.56
Sensata Technologies Holding PLC	2.12	24.14
Masco Corporation	2.06	7.11

Regional Exposure by Domicile



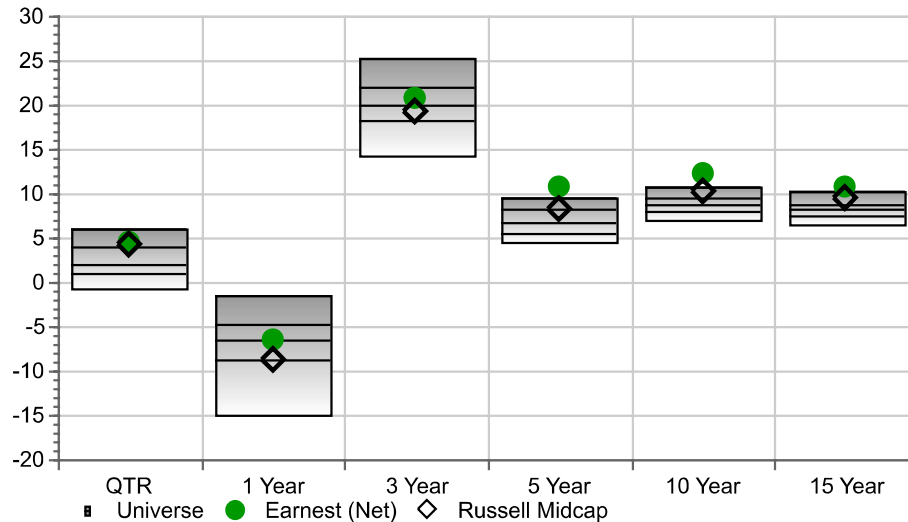
Regional Exposure by Source of Revenue



Earnest vs Universe & Benchmark

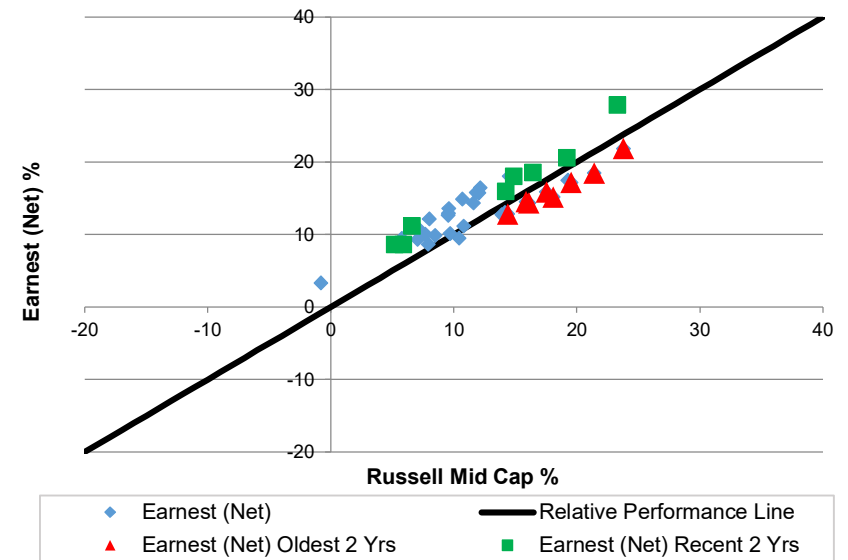
Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US: Mid Cap Core



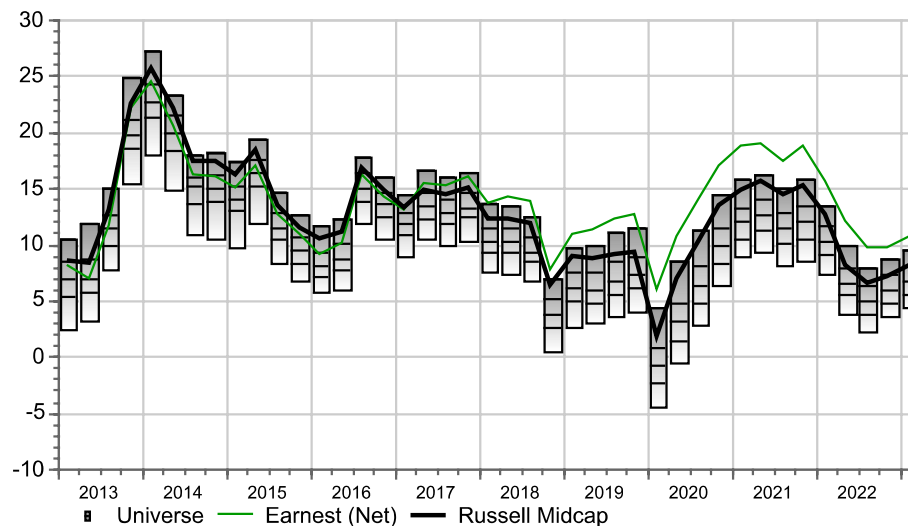
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Three-Year Rolling Return Versus Benchmark



Rolling Returns 4/1/2008 –3/31/2023 (5 Year, 3 Month Shift)

Universe: Lipper US: Mid Cap Core



©FactSet Research Systems

Over/Under Benchmark Analysis

28	Outperform
12	Underperform
40	# Observations
70%	% Outperform

Earnest Attribution Analysis – March 31, 2023

Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
ANSYS, Inc.	1.91	1.67	0.55
Scotts Miracle-Gro Company	1.67	1.64	0.52
Catalent, Inc	1.37	1.26	0.43
Sensata Technologies Holding PLC	1.98	1.91	0.40
Skyworks Solutions, Inc.	1.65	1.48	0.39
Entegris, Inc.	1.85	1.73	0.37
Synopsys, Inc.	2.15	1.61	0.31
Applied Materials, Inc.	1.21	1.21	0.28
Progressive Corporation	2.58	2.58	0.26
Arrow Electronics, Inc.	1.54	1.47	0.26

Top 10 Leading Detractors

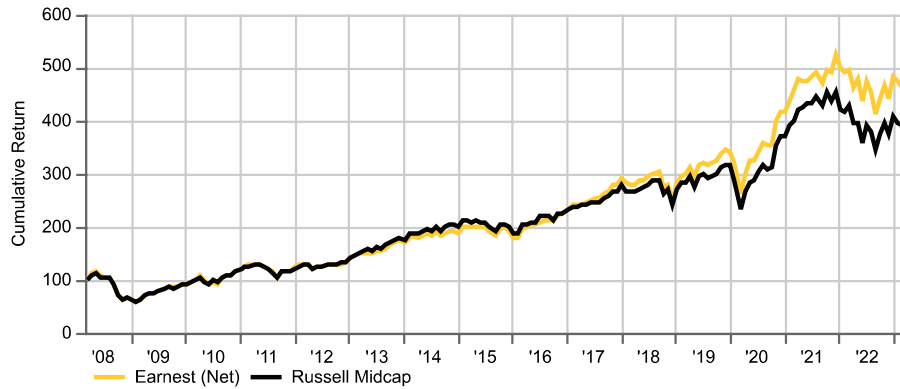
	Avg. Weights	Relative Weights	Active Return
KeyCorp	1.43	1.26	-0.32
Helmerich & Payne, Inc.	1.11	1.11	-0.31
Raymond James Financial, Inc.	2.21	1.99	-0.23
Boston Properties, Inc.	1.22	1.11	-0.19
Murphy Oil Corporation	1.05	1.05	-0.14
General Dynamics Corporation	1.74	1.74	-0.14
Agilent Technologies, Inc.	2.27	1.82	-0.13
Stericycle, Inc.	1.13	1.08	-0.12
Global Payments Inc.	1.64	1.32	-0.09
Black Knight, Inc.	1.52	1.42	-0.08

Sector Attribution

	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	-1.7	11.8	13.4	-0.1	0.0	-0.2
Consumer Discretionary	-6.8	8.1	8.0	-0.3	0.0	-0.3
Consumer Staples	-2.2	1.5	3.5	0.0	0.0	0.0
Energy	0.0	-10.0	-7.9	0.0	-0.1	-0.1
Financials	1.6	-2.1	-6.8	-0.1	0.7	0.6
Health Care	-0.5	6.9	3.4	0.1	0.3	0.4
Industrials	7.9	5.5	7.9	0.3	-0.6	-0.3
Information Technology	4.0	12.8	13.8	0.4	-0.2	0.2
Materials	1.0	9.1	4.1	0.0	0.4	0.3
Real Estate	-0.9	-6.5	0.5	0.0	-0.5	-0.4
Utilities	-4.3	1.7	-1.7	0.3	0.0	0.3
Cash	1.9	1.1	0.0	-0.1	0.0	-0.1
Total	0.0	4.6	4.1	0.5	0.0	0.5

Earnest 15 Year Performance & Statistics

Investment Growth – 15 Years



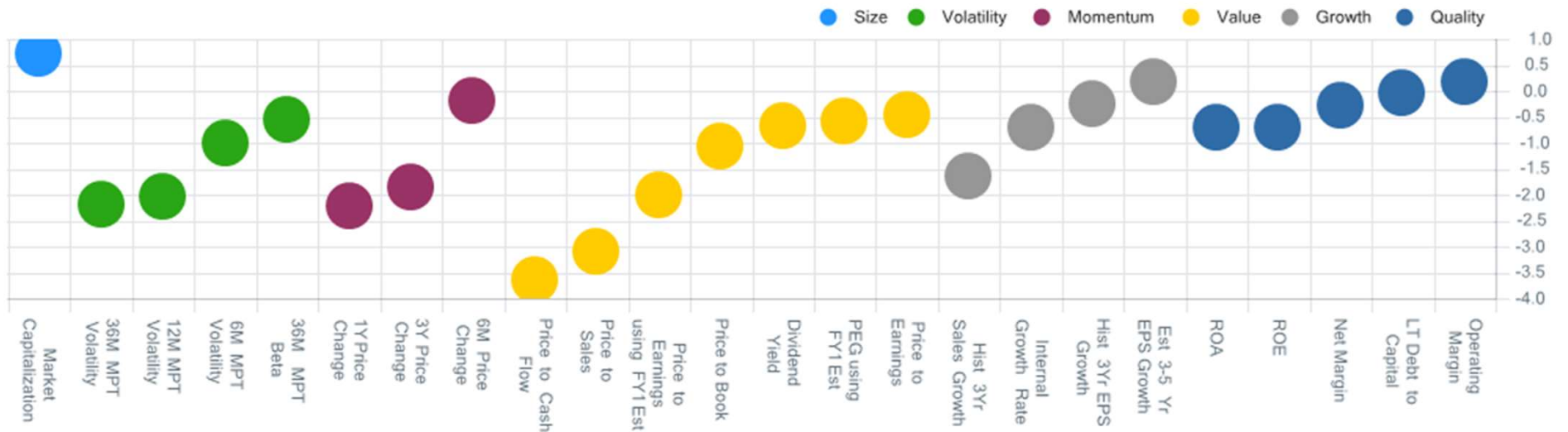
Relative Cumulative Performance – 15 Years



Risk – 15 Years

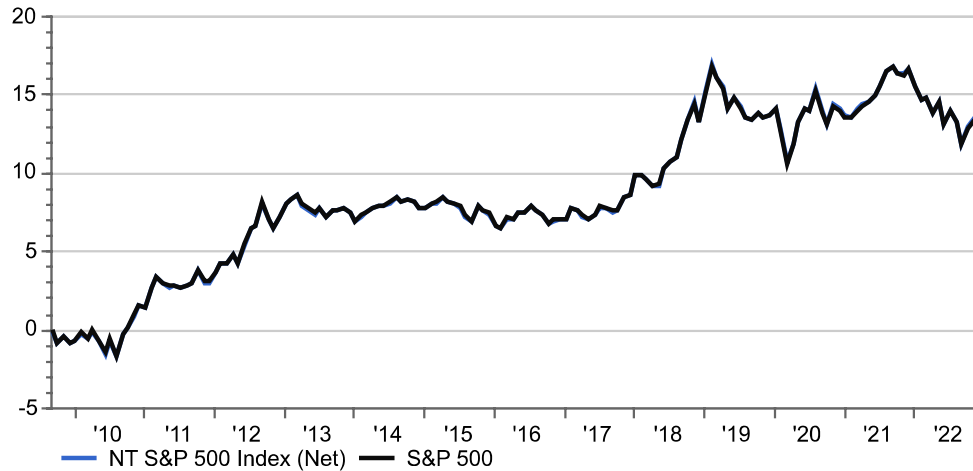
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
Earnest Partners (Net)	10.7	19.0	1.2	0.5	0.3	3.6	1.0
Russell Midcap	9.5	18.8	--	0.5	--	--	1.0

Characteristics Tilt vs Benchmark 3/31/2023



Northern Trust S&P 500 Portfolio Snapshot – March 31, 2023

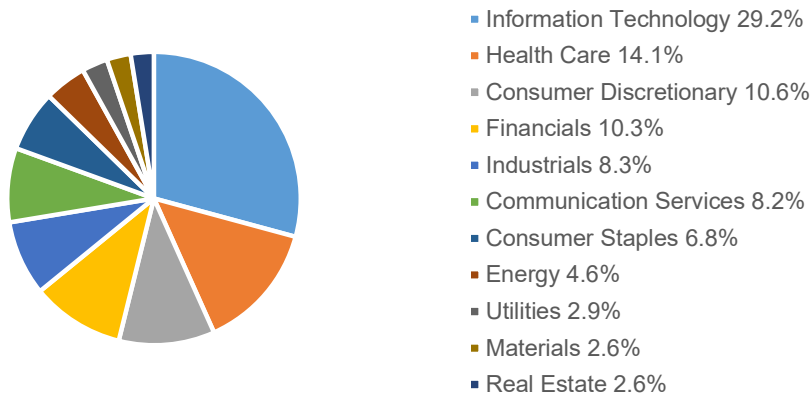
Rolling Returns Since 10/1/1999 (Ten Year, One Month Shift)



Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
NT S&P 500 Index (Net)	7.5	-7.7	18.6	11.2	12.3	10.1
S&P 500	7.5	-7.7	18.6	11.2	12.2	10.1

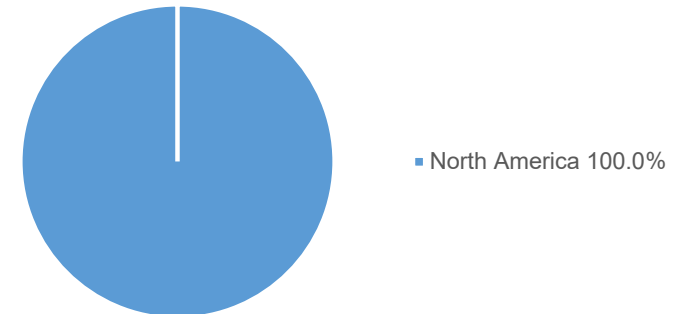
Equity Sector Exposure (GICS)



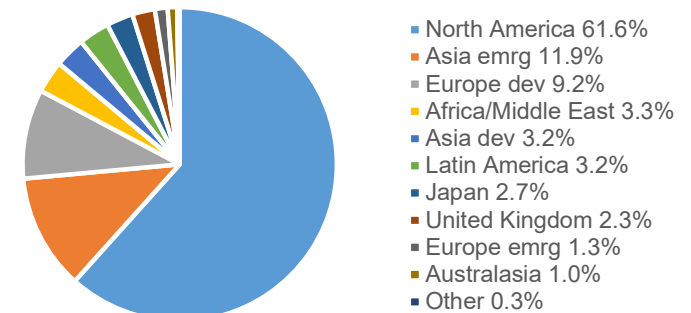
Top 10 Holdings

	Portfolio Weight	Quarterly Return
Apple Inc.	7.06	27.11
Microsoft Corporation	6.16	20.54
Alphabet Inc.	3.35	17.40
Amazon.com, Inc.	2.63	22.96
NVIDIA Corporation	1.98	90.10
Tesla, Inc.	1.60	68.42
Berkshire Hathaway Inc.	1.59	-0.04
Meta Platforms, Inc.	1.37	76.12
Exxon Mobil Corporation	1.29	0.24
UnitedHealth Group Incorporated	1.10	-10.55

Regional Exposure by Domicile



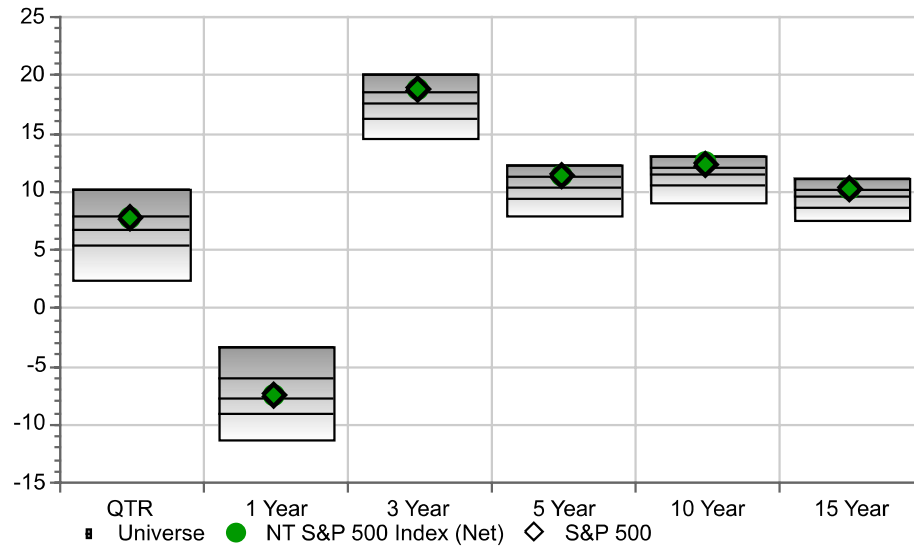
Regional Exposure by Source of Revenue



Northern Trust S&P 500 vs Universe & Benchmark

Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US: Large Cap Core



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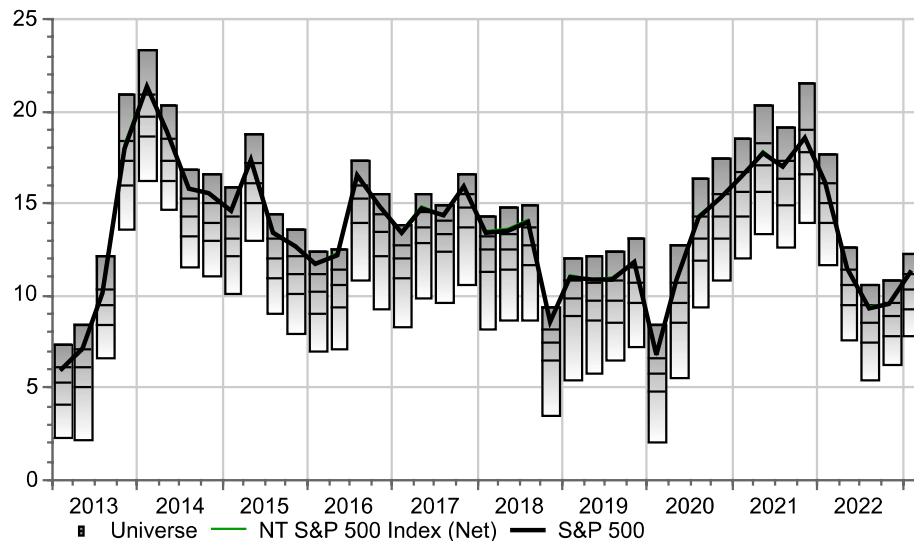
Investment Growth – 15 Years



©FactSet Research Systems

Rolling Returns 4/1/2008 –3/31/2023 (5 Year, 3 Month Shift)

Universe: Lipper US: Large Cap Core



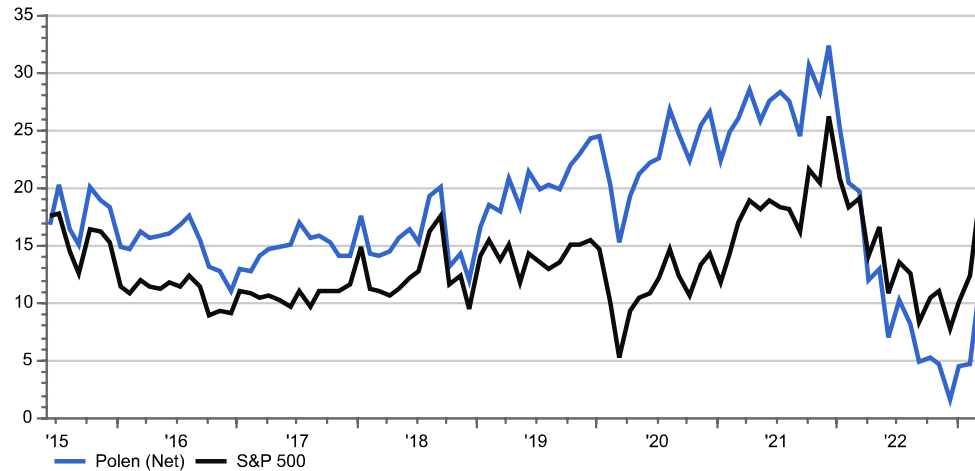
©FactSet Research Systems

Risk – 15 Years

	Return	Std Dev	Sharpe Ratio	Tracking Error
NT S&P 500 Index (Net)	10.1	16.3	0.6	0.2
S&P 500	10.1	16.2	0.6	--

Polen Portfolio Snapshot – March 31, 2023

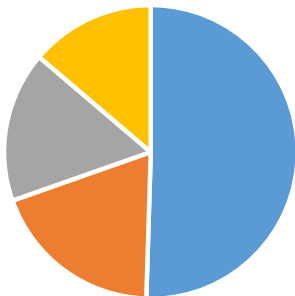
Rolling Returns Since Inception 7/1/2012 (Three Year, One Month Shift)



Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	Inception 7/1/2012
Polen (Net)	14.0	-17.6	10.9	11.6	13.6	13.7
S&P 500	7.5	-7.7	18.6	11.2	12.2	13.0
S&P 500 Growth	9.6	-15.3	16.8	11.9	13.6	14.0

Equity Sector Exposure (GICS)

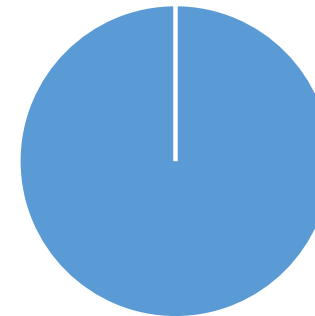


- Information Technology 50.5%
- Health Care 19.1%
- Consumer Discretionary 16.6%
- Communication Services 13.8%

Top 10 Holdings

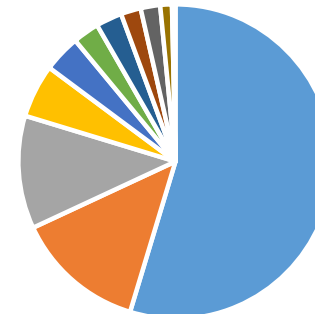
	Portfolio Weight	Quarterly Return
Amazon.com, Inc.	9.59	22.96
Netflix, Inc.	7.18	17.16
Microsoft Corporation	7.13	20.54
Alphabet Inc.	6.42	17.21
Salesforce, Inc.	6.38	50.68
ServiceNow, Inc.	5.78	19.69
Mastercard Incorporated	5.15	4.67
Visa Inc.	4.97	8.74
Adobe Incorporated	4.92	14.51
Autodesk, Inc.	4.42	11.39

Regional Exposure by Domicile



- North America 100.0%

Regional Exposure by Source of Revenue

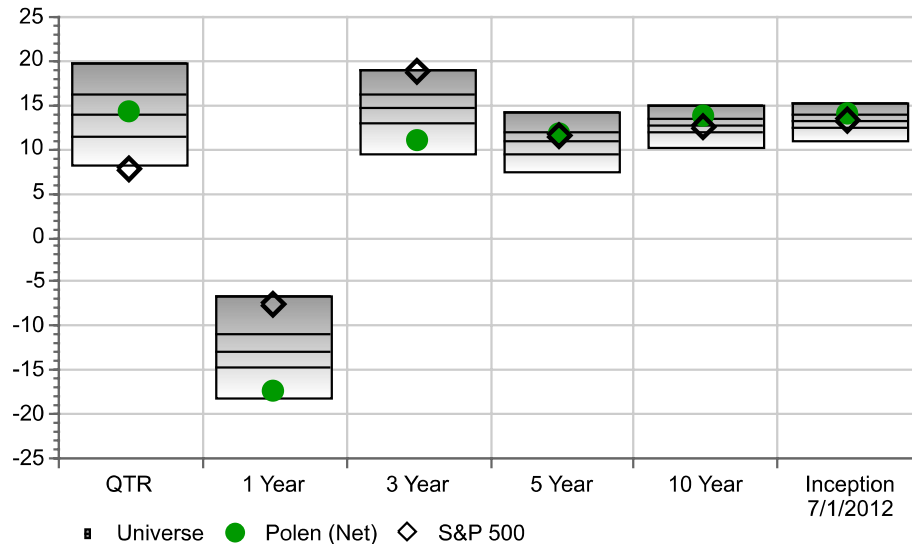


- North America 54.7%
- Europe dev 13.4%
- Asia emrg 11.6%
- Africa/Middle East 5.5%
- Latin America 3.8%
- United Kingdom 2.7%
- Japan 2.7%
- Europe emrg 2.1%
- Asia dev 2.0%
- Australasia 1.2%
- Other 0.4%

Polen vs Universe & Benchmark

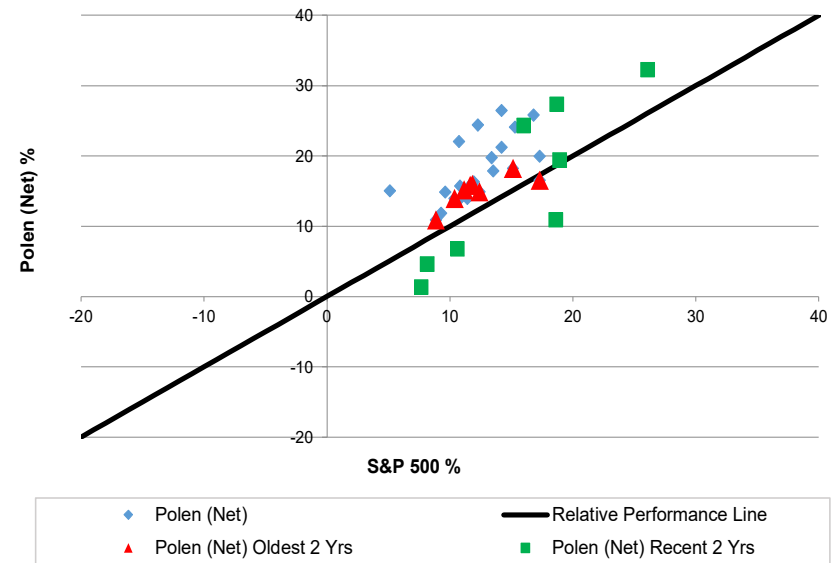
Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US Large Cap Growth



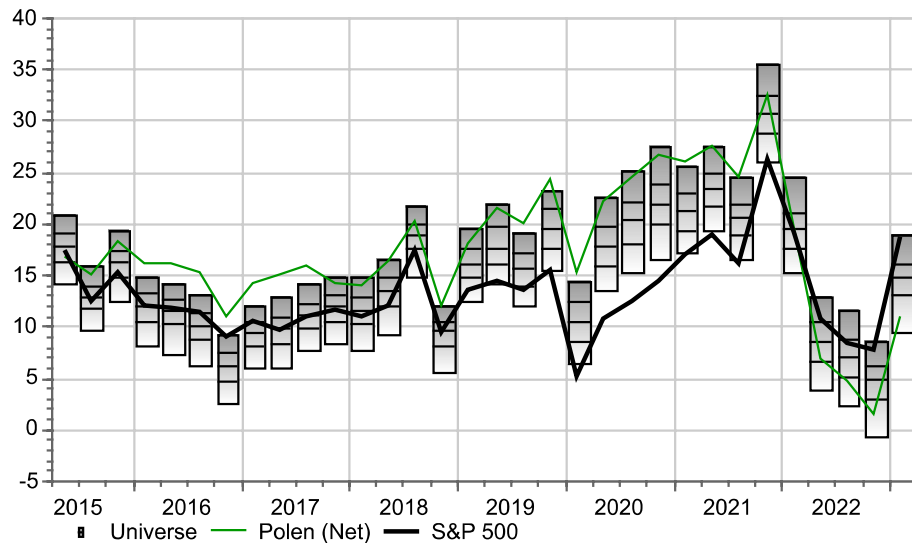
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Three-Year Rolling Return Versus Benchmark



Rolling Returns 7/1/2012 –3/31/2023 (3 Year, 3 Month Shift)

Universe: Lipper US Large Cap Growth



©FactSet Research Systems

Over/Under Benchmark Analysis

27	Outperform
5	Underperform
32	# Observations
84%	% Outperform

Polen Attribution Analysis – March 31, 2023

Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Salesforce, Inc.	5.08	4.61	2.10
Amazon.com, Inc.	9.40	6.90	1.51
Airbnb, Inc.	3.84	3.84	1.49
Netflix, Inc.	6.92	6.49	1.10
ServiceNow, Inc.	5.44	5.19	1.00
Adobe Incorporated	6.21	5.73	0.85
Alphabet Inc.	7.85	4.71	0.82
Align Technology, Inc.	1.11	1.06	0.52
Autodesk, Inc.	4.38	4.25	0.49
Illumina, Inc.	3.21	3.11	0.48

Top 10 Leading Detractors

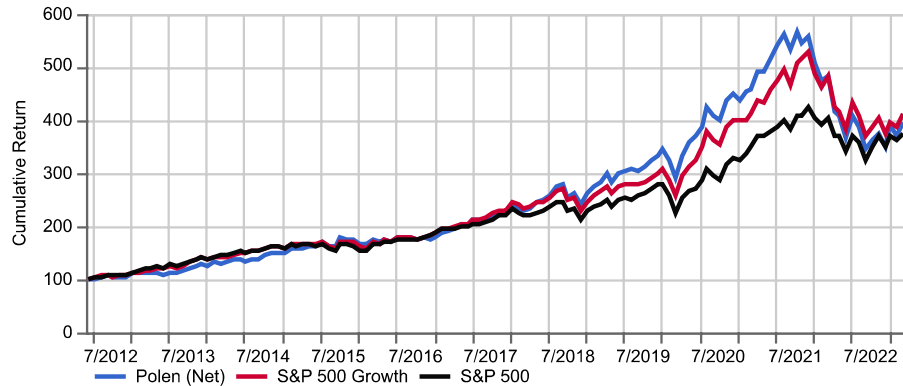
	Avg. Weights	Relative Weights	Active Return
Apple Inc.	0.03	-6.29	-1.61
NVIDIA Corporation	0.01	-1.42	-1.00
Tesla, Inc.	0.01	-1.34	-0.70
Meta Platforms, Inc.	0.00	-1.00	-0.63
UnitedHealth Group Incorporated	4.11	2.70	-0.32
Abbott Laboratories	4.24	3.68	-0.28
Advanced Micro Devices, Inc.	0.00	-0.35	-0.16
General Electric Company	0.00	-0.27	-0.12
Broadcom Inc.	0.00	-0.70	-0.11
Gartner, Inc.	2.95	2.87	-0.09

Sector Attribution

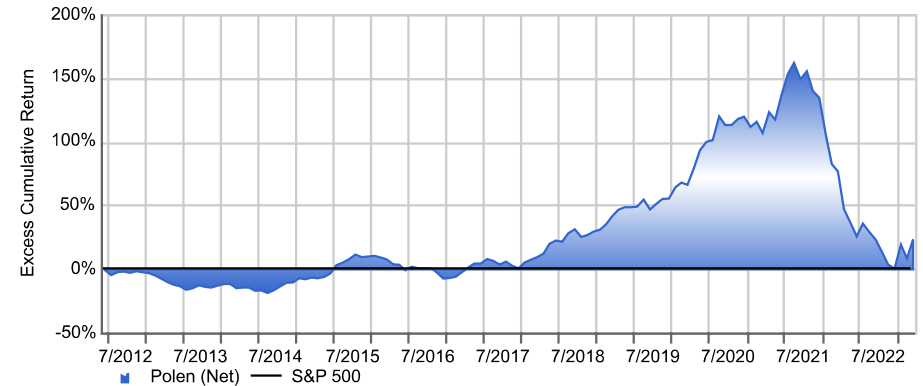
	Avg. relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	7.2	17.2	20.5	0.9	-0.4	0.5
Consumer Discretionary	5.4	24.7	16.0	0.4	1.3	1.7
Consumer Staples	-6.8	-2.7	1.0	0.5	0.0	0.5
Energy	-5.0	-9.4	-4.7	0.6	0.0	0.6
Financials	-11.6	-2.5	-5.5	1.5	0.0	1.5
Health Care	4.0	3.9	-4.4	-0.5	1.7	1.2
Industrials	-8.5	-0.3	3.5	0.3	0.0	0.3
Information Technology	22.5	14.9	21.7	3.1	-3.2	-0.1
Materials	-2.8	-1.6	4.3	0.1	0.0	0.1
Real Estate	-2.7	-7.7	2.0	0.2	0.0	0.2
Utilities	-3.0	-6.4	-3.2	0.3	0.0	0.3
Cash	1.3	1.1	1.1	-0.1	0.0	-0.1
Total	0.0	14.2	7.5	7.4	-0.7	6.8

Polen Inception Performance & Statistics

Investment Growth Since Inception 7/1/2012



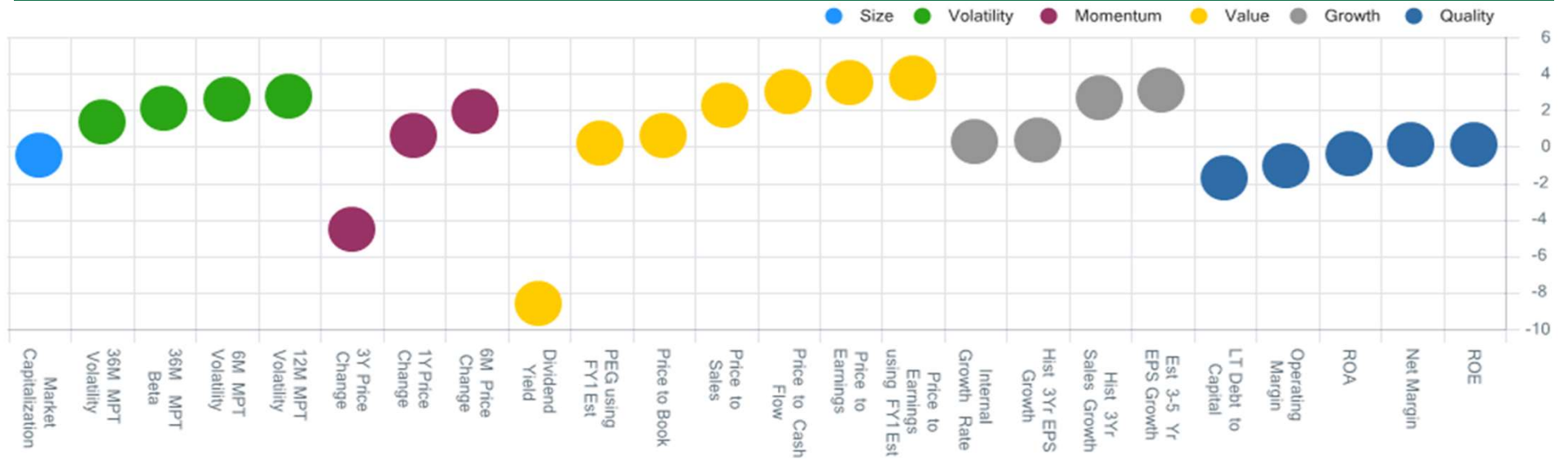
Relative Cumulative Performance Since Inception 7/1/2012



Risk Since Inception 7/1/2012

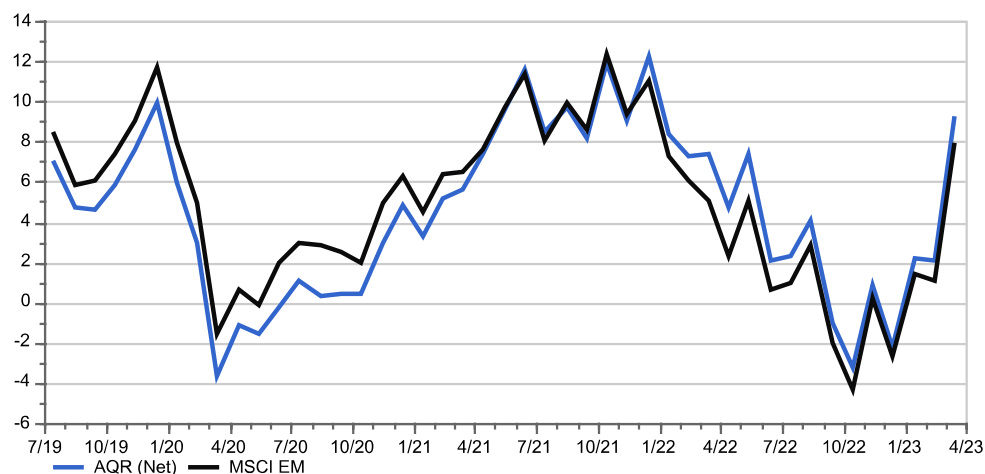
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
Polen (Net)	13.7	16.2	0.5	0.8	0.1	6.6	1.0
S&P 500	13.0	14.4	--	0.8	--	--	1.0
S&P 500 Growth	14.0	15.6	--	0.8	--	--	1.0

Characteristics Tilt vs Benchmark 3/31/2023



AQR Portfolio Snapshot – March 31, 2023

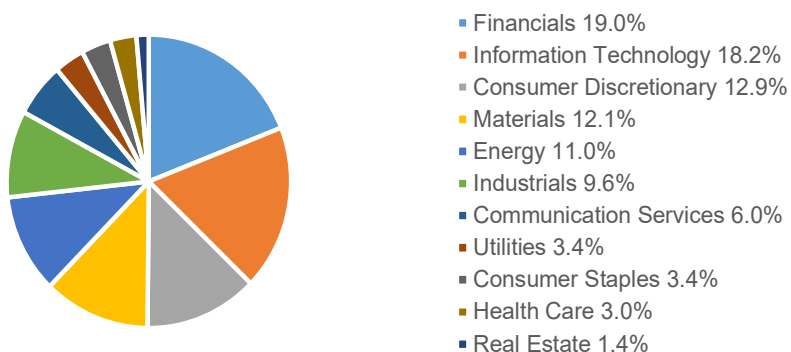
Rolling Returns Since Inception 8/1/2016 (Three Year, One Month Shift)



Trailing Returns

		QTR	1 Year	3 Year	5 Year	Inception 8/1/16
AQR (Net)		5.9	-13.0	9.2	-1.2	4.4
MSCI EM		4.0	-10.7	7.8	-0.9	4.3

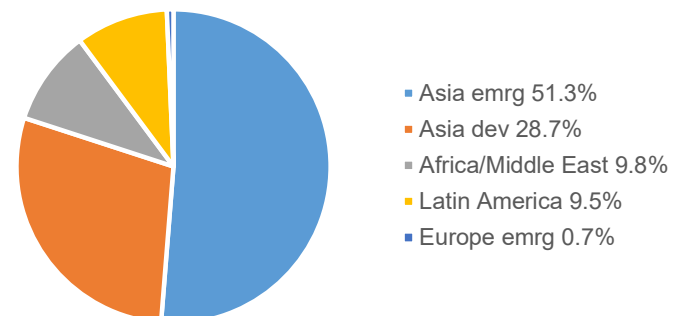
Equity Sector Exposure (GICS)



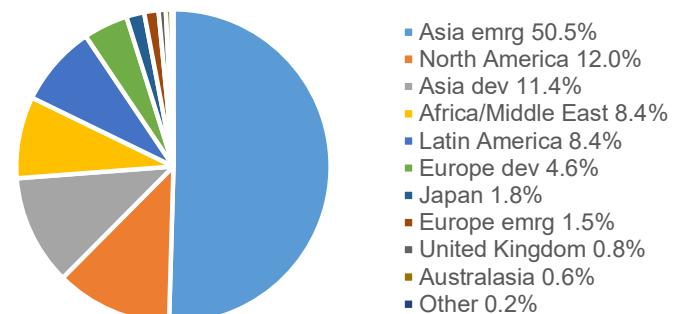
Top 10 Holdings

	Portfolio Weight	Quarterly Return
Taiwan Semi Mfg. Co. Ltd.	6.56	20.58
Tencent Holdings Ltd.	3.52	20.29
Alibaba Group Holding Limited	3.03	15.74
Samsung Electronics Co., Ltd.	2.56	13.05
China Construction Bank Corporation	1.84	3.49
Petroleo Brasileiro SA	1.61	-0.33
Hon Hai Precision Industry Co., Ltd.	1.59	5.09
Saudi Basic Industries Corp.	1.33	3.36
Kia Corp.	1.26	32.67
Meituan	1.17	-18.33

Regional Exposure by Domicile



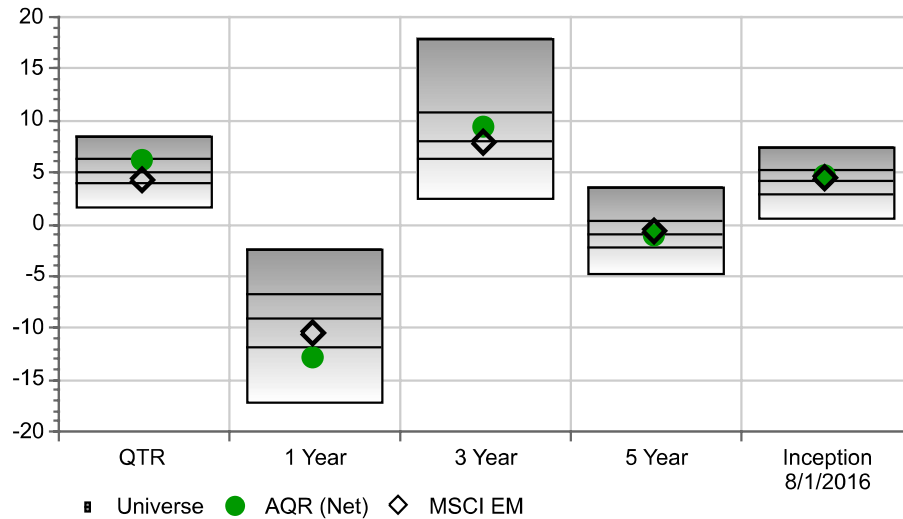
Regional Exposure by Source of Revenue



AQR vs Universe & Benchmark

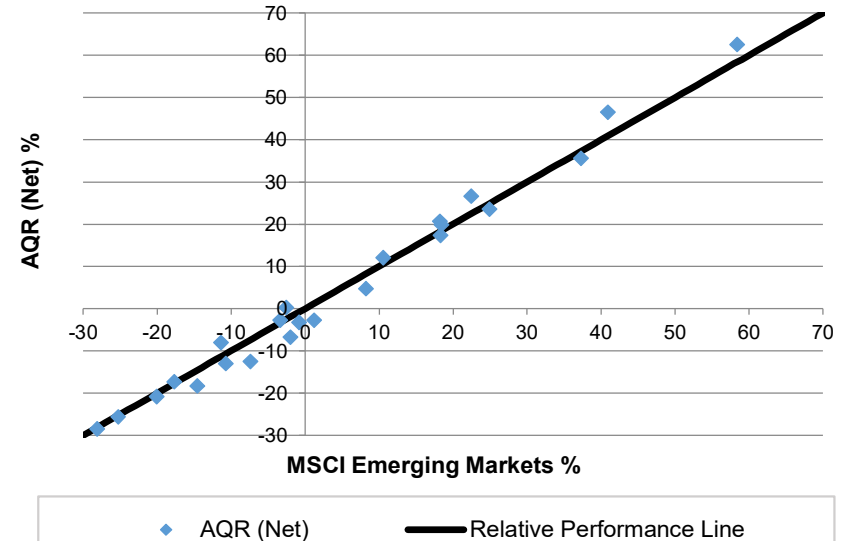
Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US Emerging Markets



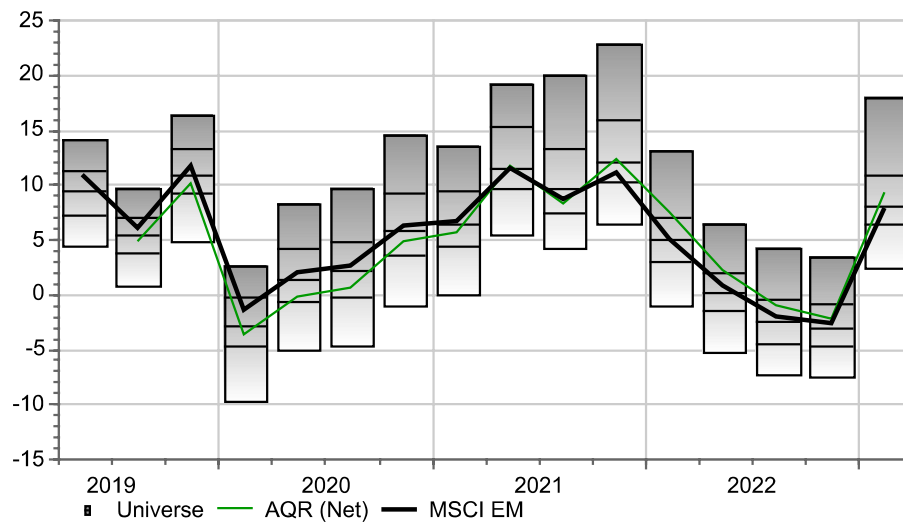
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One-Year Rolling Return Versus Benchmark



Rolling Returns 8/1/2016 –3/31/2023 (3 Year, 3 Month Shift)

Universe: Lipper US Emerging Markets



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Over/Under Benchmark Analysis

10 Outperform
13 Underperform
23 # Observations
43% % Outperform

AQR Attribution Analysis – March 31, 2023

Top 10 Leading Contributors

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Top 10 Leading Detractors

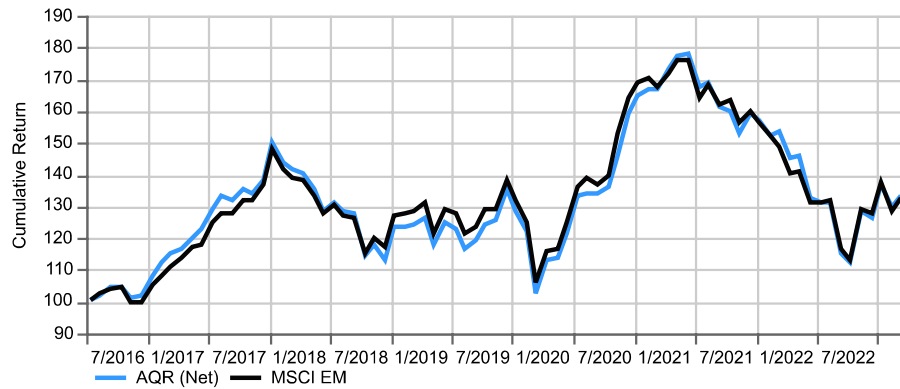
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Sector Attribution

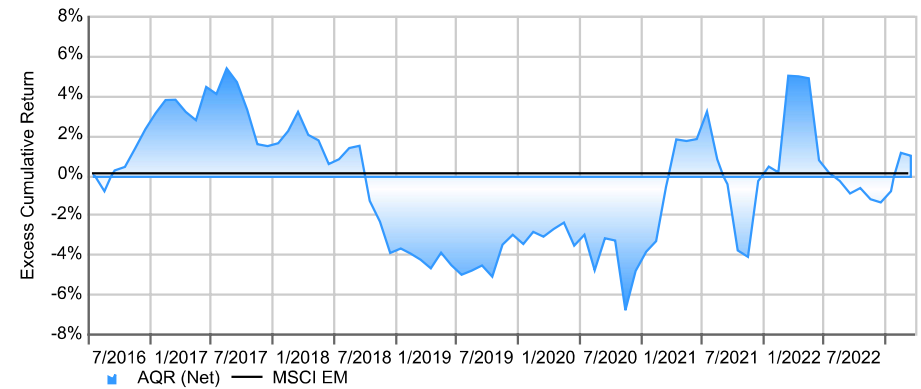
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AQR Inception Performance & Statistics

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)	4.4	17.8	0.2	0.2	0.0	3.4	1.0
MSCI EM	4.3	17.3	--	0.2	--	--	1.0

Characteristics Tilt vs Benchmark 3/31/2023

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Brandes Portfolio Snapshot – March 31, 2023

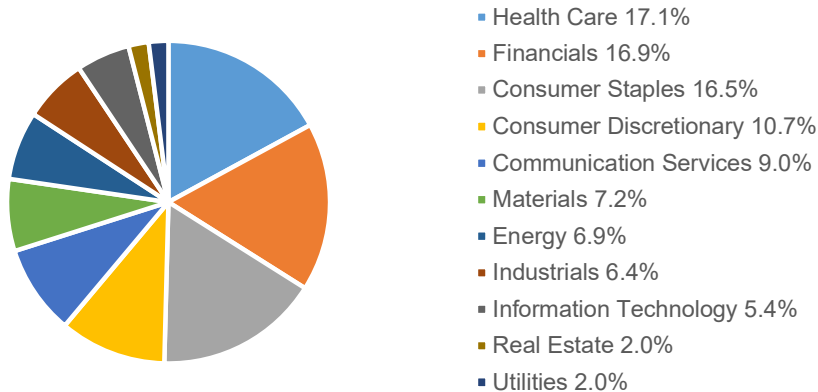
Rolling Returns Since Inception 2/1/1998 (Ten Year, One Month Shift)



Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
Brandes (Net)	11.1	6.0	18.2	3.3	5.7	3.4
MSCI EAFE	8.5	-1.4	13.0	3.5	5.0	3.0
MSCI EAFE Value	5.9	-0.3	14.6	1.7	3.7	1.9

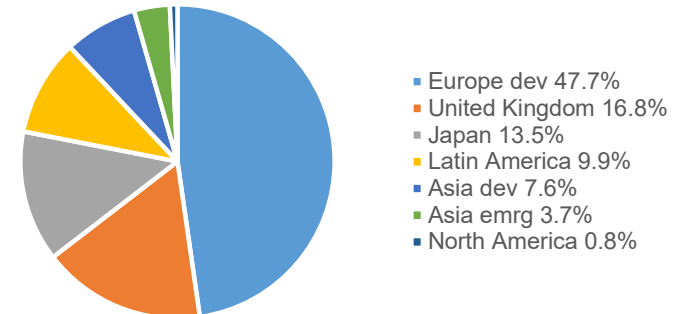
Equity Sector Exposure (GICS)



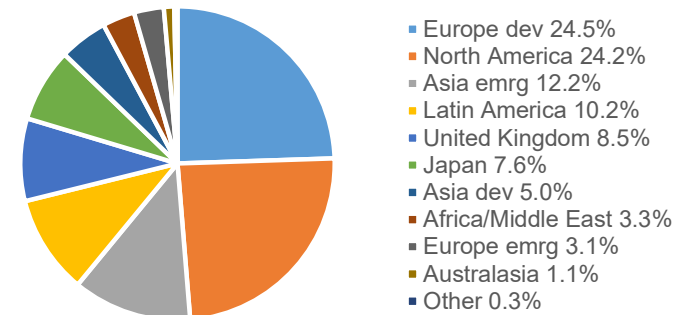
Top 10 Holdings

	Portfolio Weight	Quarterly Return
Takeda Pharmaceutical Company Limited	3.93	7.07
Alibaba Group Holding Limited	2.86	15.74
HeidelbergCement AG	2.69	28.51
Sanofi	2.66	13.58
Rolls-Royce Holdings plc	2.51	64.35
SAP SE	2.48	22.57
Swatch Group AG	2.44	21.27
Embraer S.A.	2.44	51.29
Novartis AG	2.31	5.36
Carrefour SA	2.26	21.26

Regional Exposure by Domicile



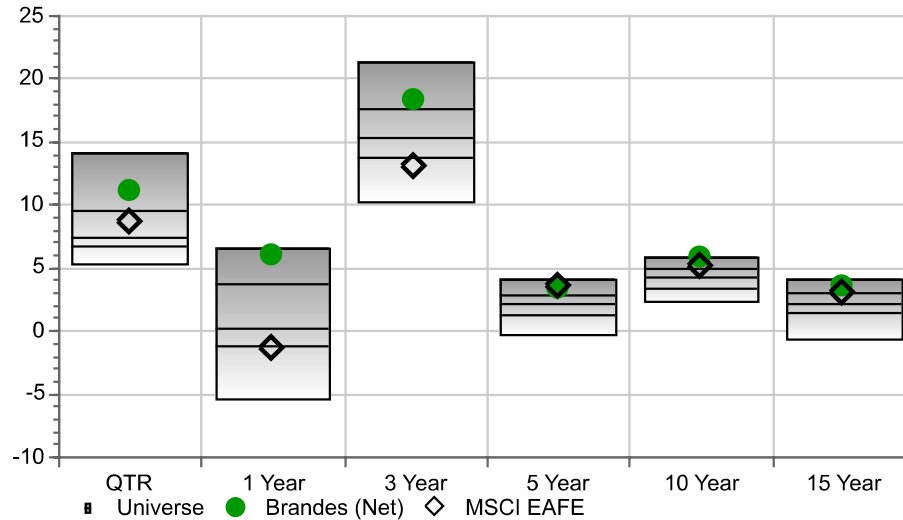
Regional Exposure by Source of Revenue



Brades vs Universe & Benchmark

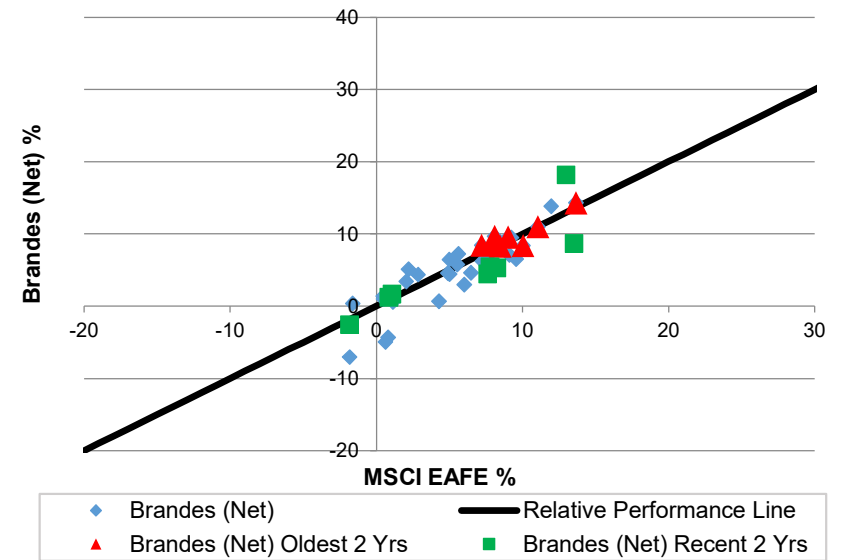
Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US Int'l Multi-Cap Value



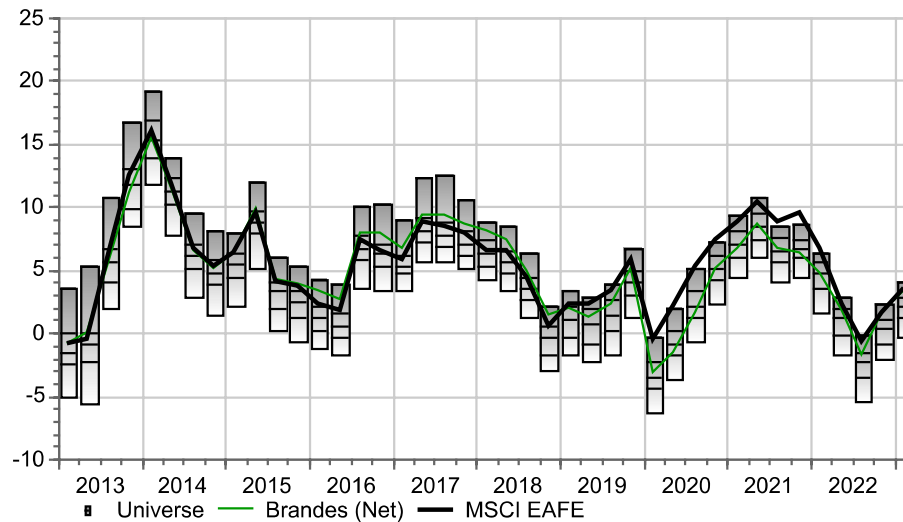
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Three-Year Rolling Return Versus Benchmark



Rolling Returns 4/1/2008 –3/31/2023 (5 Year, 3 Month Shift)

Universe: Lipper US Int'l Multi Cap Value



©FactSet Research Systems

Over/Under Benchmark Analysis

19	Outperform
21	Underperform
40	# Observations
48%	% Outperform

Brandes Attribution Analysis – March 31, 2023

Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Rolls-Royce Holdings plc	2.25	2.17	1.13
Embraer S.A.	1.92	1.92	0.89
HeidelbergCement AG	2.55	2.49	0.65
CEMEX, S.A.B. de C.V.	1.70	1.70	0.55
J Sainsbury plc	1.69	1.65	0.50
Swatch Group AG	2.45	2.36	0.48
Alibaba Group Holding Limited	2.80	2.80	0.46
Publicis Groupe SA	1.98	1.87	0.45
Fibra Uno Administracion SA de CV	2.02	2.02	0.43
Carrefour SA	2.09	2.02	0.40

Top 10 Leading Detractors

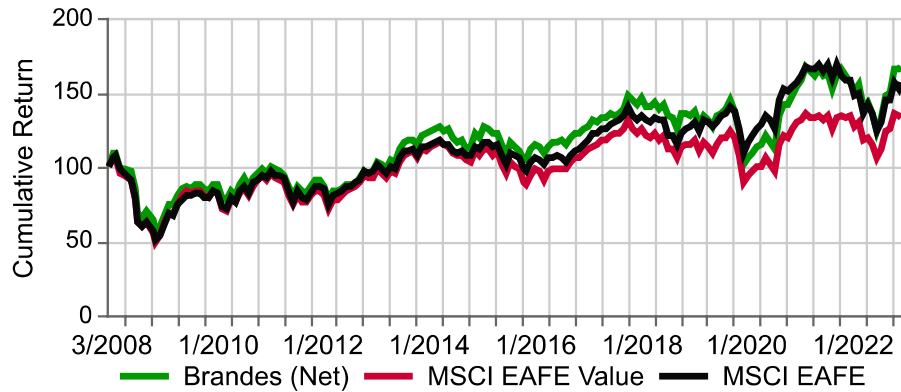
	Avg. Weights	Relative Weights	Active Return
Credit Suisse Group AG	1.35	1.28	-0.80
Grifols, S.A.	1.80	1.80	-0.23
KT&G Corporation	1.37	1.37	-0.14
Aegon N.V.	0.97	0.91	-0.12
Taisho Pharmaceutical Holdings Co., Ltd.	1.28	1.28	-0.07
Societe BIC SA	0.71	0.71	-0.05
Fresenius SE & Co. KGaA	1.49	1.41	-0.05
Willis Towers Watson	0.85	0.85	-0.04
SoftBank Group Corp.	0.85	0.50	-0.03
TotalEnergies SE	1.88	0.83	-0.03

Sector Attribution

	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	4.0	18.1	10.4	0.1	0.5	0.7
Consumer Discretionary	-1.0	16.2	17.0	-0.1	0.0	-0.2
Consumer Staples	5.7	14.3	7.5	-0.1	1.0	1.0
Energy	2.3	-0.3	0.4	-0.2	-0.2	-0.2
Financials	0.8	-2.2	2.5	0.0	-0.8	-0.8
Health Care	4.0	4.3	5.4	-0.2	-0.2	-0.3
Industrials	-10.3	47.1	11.9	-0.4	1.4	1.2
Information Technology	-3.1	19.6	19.0	-0.3	0.0	-0.3
Materials	-1.3	29.9	7.6	0.0	1.2	1.4
Real Estate	-0.6	22.0	-2.1	0.1	0.3	0.6
Utilities	-1.7	10.8	8.2	0.0	0.0	0.1
Cash	1.2	1.4	0.0	0.0	0.0	-0.1
Total	0.0	11.5	8.5	-1.0	3.4	3.1

Brandes 15 Year Performance & Statistics

Investment Growth – 15 Years



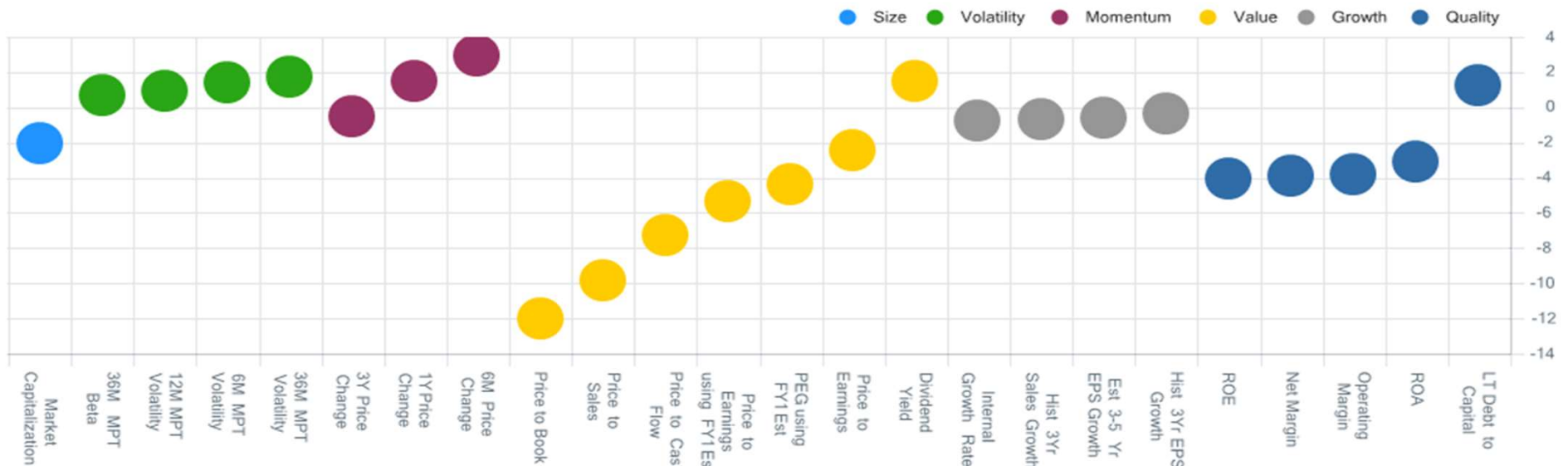
Relative Cumulative Performance – 15 Years



Risk – 15 Years

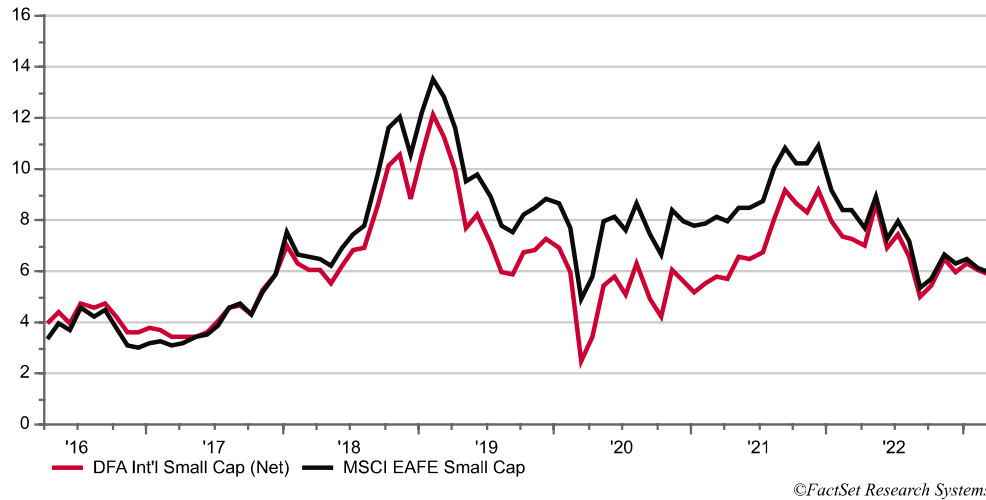
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
Brandes (Net)	3.4	18.7	0.6	0.1	0.1	5.4	1.0
MSCI EAFE	3.0	18.0	--	0.1	--	--	1.0
MSCI EAFE Value	1.9	19.4	--	0.1	--	--	1.1

Characteristics Tilt vs Benchmark 3/31/2023



DFA International Portfolio Snapshot –March 31, 2023

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



Top 10 Holdings

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Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
DFA Int'l Small Cap (Net)	6.5	-1.3	19.2	1.3	5.7	4.4
MSCI EAFE Small Cap	4.9	-9.8	12.1	0.9	5.9	4.6
MSCI World ex US Small Cap Value	4.6	-7.4	15.2	1.3	5.0	4.1

Regional Exposure by Domicile

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Equity Sector Exposure (GICS)

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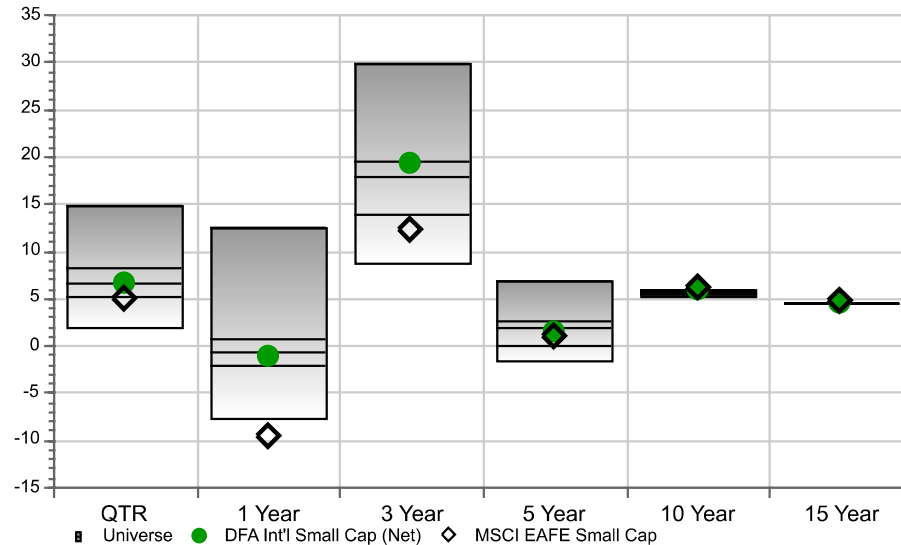
Regional Exposure by Source of Revenue

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DFA International vs Universe & Benchmark

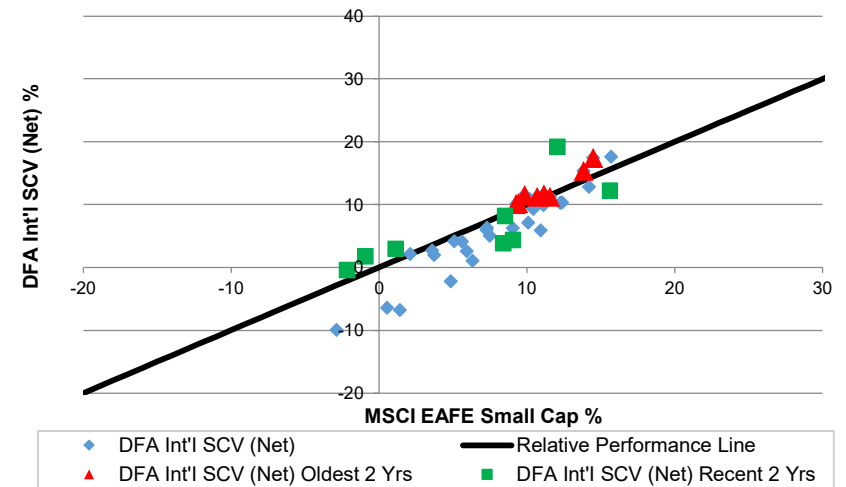
Performance Relative to Peer Group as of 3/31/2023

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



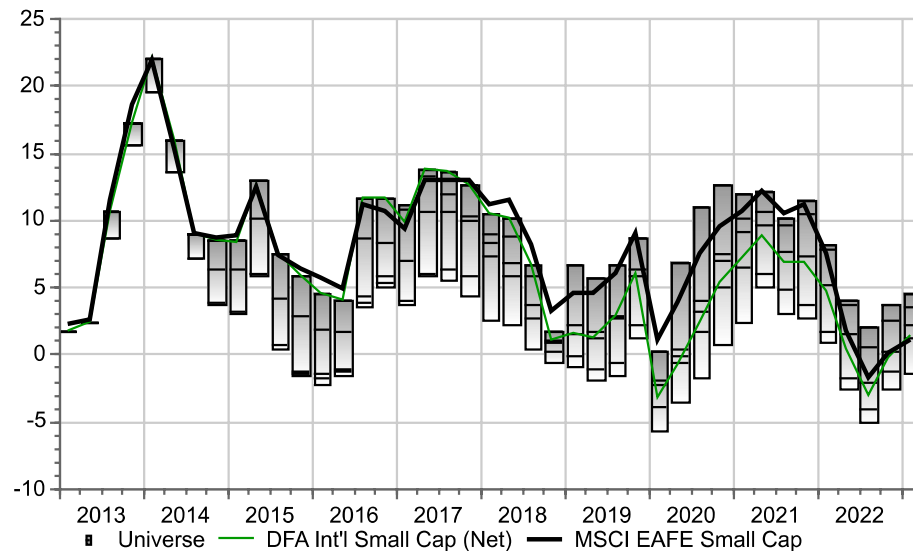
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Three-Year Rolling Return Versus Benchmark



Rolling Returns 4/1/2008 –3/31/2023 (5 Year, 3 Month Shift)

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



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Over/Under Benchmark Analysis

14	Outperform
26	Underperform
40	# Observations
35%	% Outperform

DFA International Attribution Analysis –March 31, 2023

Top 10 Leading Contributors

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Top 10 Leading Detractors

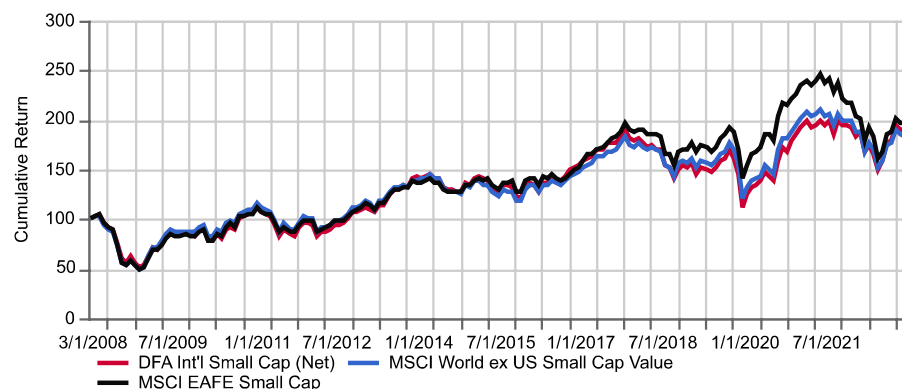
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Sector Attribution

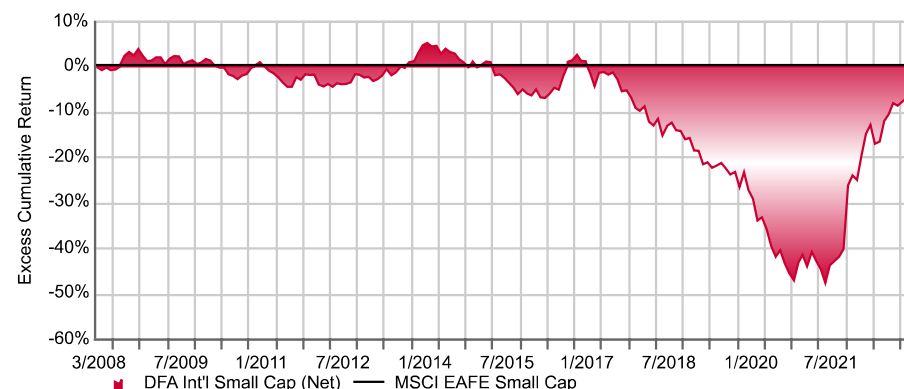
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DFA International Inception Performance & Statistics

Investment Growth – 15 Years



Relative Cumulative Performance – 15 Years



Risk – 15 Years

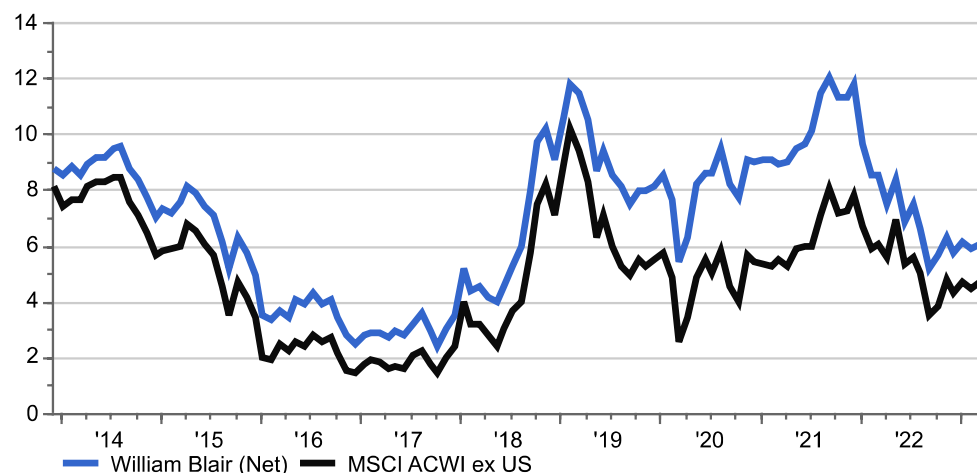
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
DFA Int'l Small Cap (Net)	4.4	20.5	-0.2	0.2	0.0	4.4	1.0
MSCI EAFE Small Cap	4.6	19.4	--	0.2	--	--	1.0
MSCI World ex US Small Cap Value	4.1	20.0	--	0.2	--	--	1.0

Characteristics Tilt vs Benchmark 3/31/2023

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William Blair Portfolio Snapshot –March 31, 2023

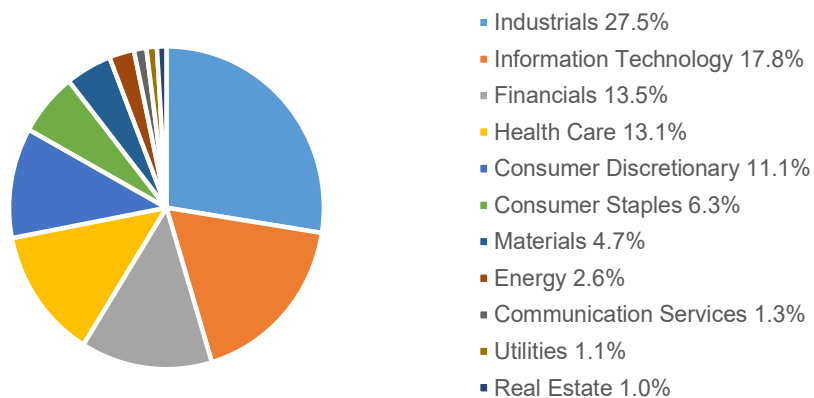
Rolling Returns Since Inception 1/1/2004 (Ten Year, One Month Shift)



Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
William Blair (Net)	8.5	-9.5	12.2	4.3	6.0	4.5
MSCI ACWI ex US	7.0	-4.6	12.3	3.0	4.7	3.1
MSCI ACWI ex US Growth	8.7	-6.0	9.8	3.7	5.4	3.6

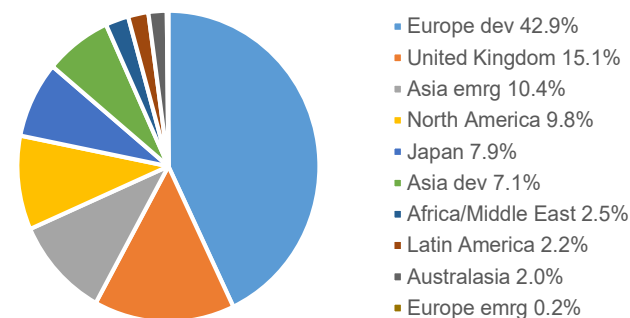
Equity Sector Exposure (GICS)



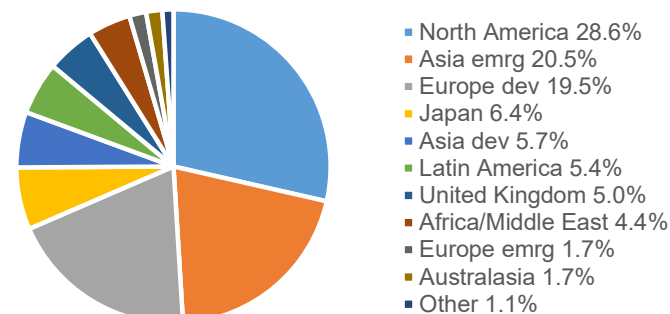
Top 10 Holdings

	Portfolio Weight	Quarterly Return
Novo Nordisk A/S	1.72	18.52
Taiwan Semi Mfg. Co., Ltd.	1.69	20.58
AIA Group Limited	1.67	-5.33
Keyence Corporation	1.58	24.55
Compass Group PLC	1.58	10.23
AstraZeneca	1.54	4.46
DSV A/S	1.47	23.54
Thales SA	1.45	16.35
Amadeus IT Group SA	1.43	29.29
Canadian Pacific Kansas City Ltd.	1.43	3.34

Regional Exposure by Domicile



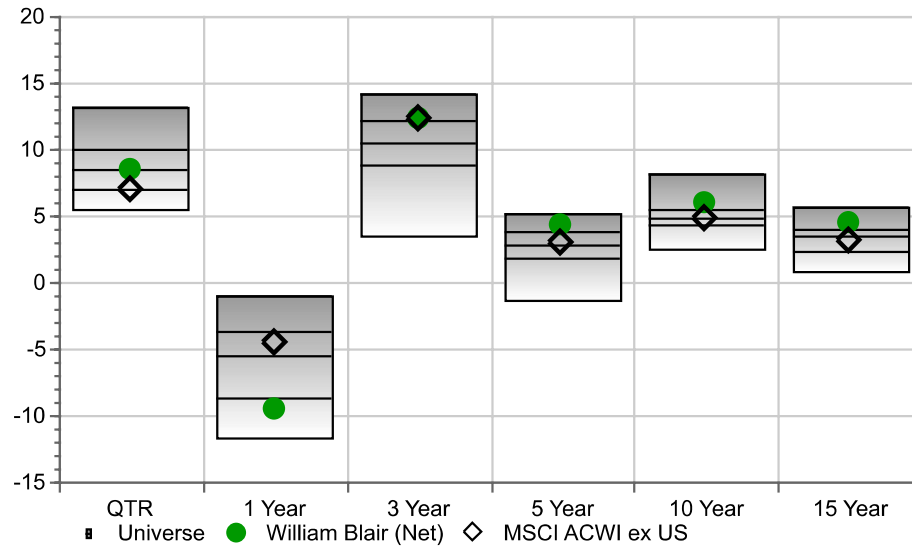
Regional Exposure by Source of Revenue



William Blair vs Universe & Benchmark

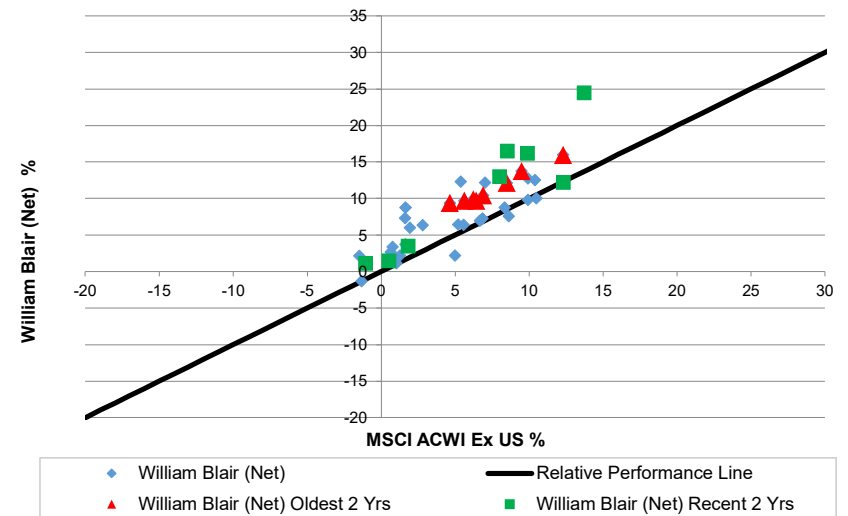
Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US:International Multi-Cap Growth



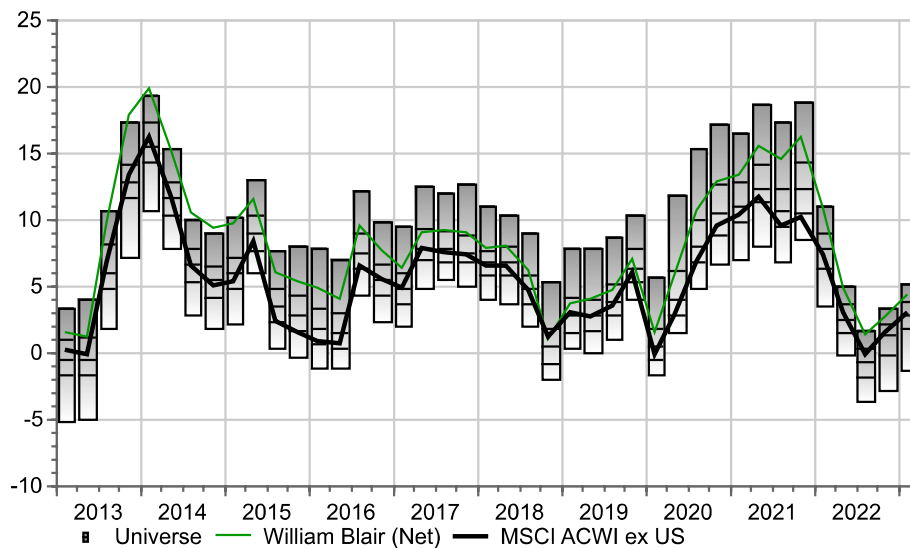
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Three-Year Rolling Return Versus Benchmark



Rolling Returns 4/1/2008 –3/31/2023 (5 Year, 3 Month Shift)

Universe: Lipper US:International Multi-Cap Growth



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Over/Under Benchmark Analysis

35	Outperform
5	Underperform
40	# Observations
88%	% Outperform

William Blair Attribution Analysis – March 31, 2023

Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Infineon Technologies AG	1.23	1.04	0.34
Amadeus IT Group SA	1.32	1.20	0.32
DSV A/S	1.33	1.19	0.26
Thales SA	1.44	1.38	0.21
Hermes International SCA	0.93	0.70	0.20
Lonza Group AG	1.23	1.05	0.20
MTU Aero Engines AG	1.30	1.25	0.19
Keyence Corporation	1.17	0.81	0.19
Safran SA	1.25	1.05	0.19
ICON plc	1.34	1.34	0.17

Top 10 Leading Detractors

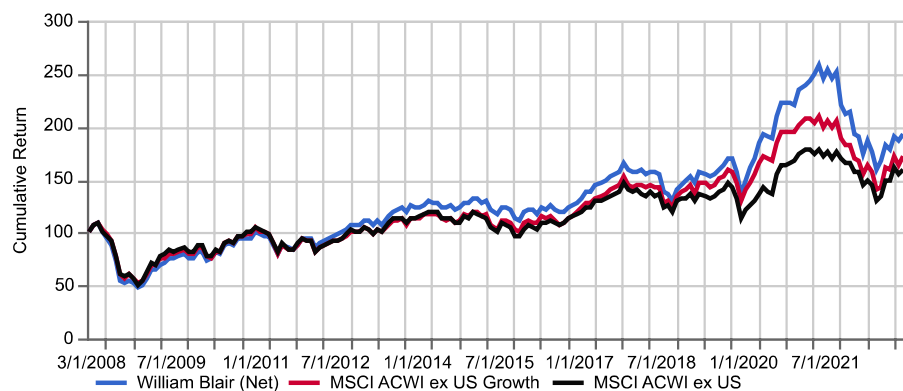
	Avg. Weights	Relative Weights	Active Return
Tencent Holdings Ltd.	0.29	-0.93	-0.19
Nihon M&A Center Holdings Inc.	0.22	0.21	-0.10
Tenaris S.A.	0.69	0.66	-0.10
Alibaba Group Holding Limited	0.30	-0.46	-0.07
Genmab A/S	0.69	0.58	-0.07
AIA Group Limited	1.78	1.21	-0.07
Olympus Corp.	1.37	1.25	-0.06
Shin-Etsu Chemical Co., Ltd.	0.08	-0.12	-0.05
Taiwan Semi Mfg. Co., Ltd.	1.21	-0.42	-0.05
Alibaba Group Holding Limited	0.22	-0.48	-0.05

Sector Attribution

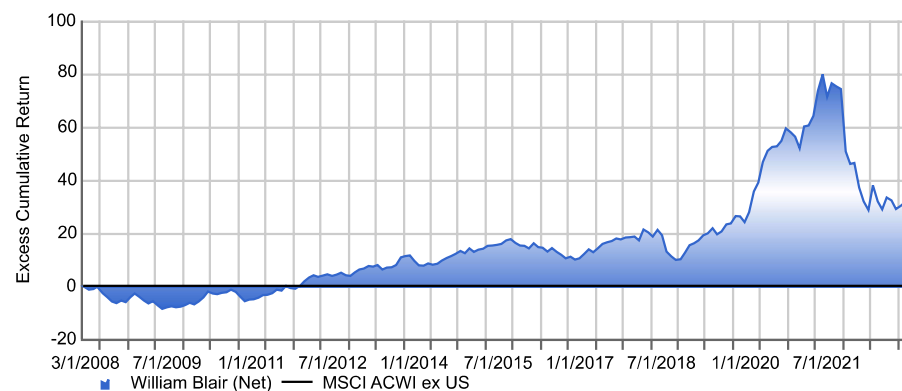
	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	-4.7	13.1	11.6	-0.2	0.0	-0.2
Consumer Discretionary	-1.9	12.9	11.3	-0.1	0.1	0.1
Consumer Staples	-3.1	6.6	6.5	0.0	0.0	0.0
Energy	-2.7	-7.0	-0.3	0.2	-0.2	-0.1
Financials	-4.1	0.4	1.4	0.2	-0.3	0.0
Health Care	3.3	6.7	4.2	-0.1	0.3	0.2
Industrials	13.5	10.9	10.0	0.4	0.1	0.6
Information Technology	4.4	18.7	17.3	0.5	0.1	0.7
Materials	-4.1	12.7	6.0	0.0	0.3	0.3
Real Estate	-1.3	2.6	-1.7	0.1	0.0	0.2
Utilities	-2.2	7.4	3.4	0.1	0.0	0.1
Cash	2.9	1.1	0.0	-0.1	0.0	-0.1
Total	0.0	8.8	6.9	1.1	0.4	1.9

William Blair 15 Year Performance & Statistics

Investment Growth – 15 Years



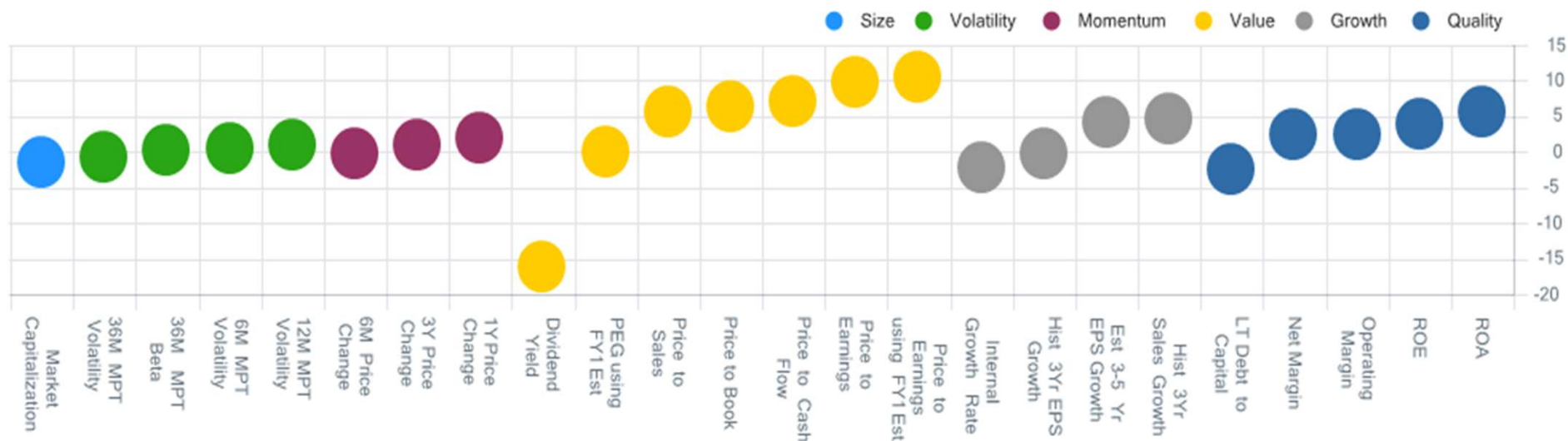
Relative Cumulative Performance – 15 Years



Risk – 15 Years

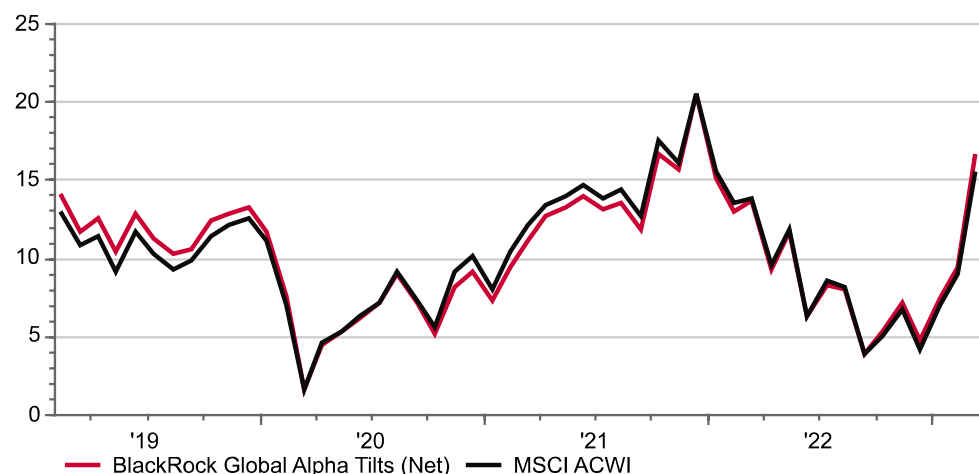
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
William Blair (Net)	4.5	18.4	1.5	0.2	0.2	5.5	1.0
MSCI ACWI ex US	3.1	18.2	--	0.1	--	--	1.0
MSCI ACWI ex US Growth	3.6	17.9	--	0.2	--	--	1.0

Characteristics Tilt vs Benchmark 3/31/2023



BlackRock Global Portfolio Snapshot – March 31, 2023

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



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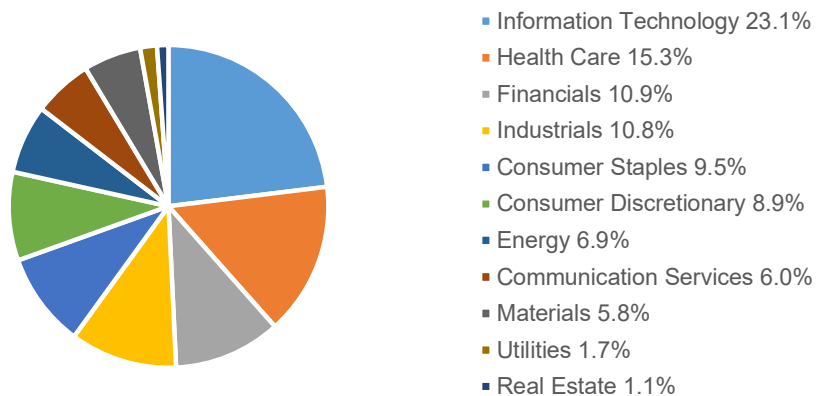
Top 10 Holdings

	Portfolio Weight	Quarterly Return
Microsoft Corporation	4.15	20.54
Apple Inc.	3.91	27.11
Alphabet Inc.	2.61	17.40
Amazon.com, Inc.	1.82	22.96
Chevron Corporation	1.60	-8.24
NVIDIA Corporation	1.44	90.10
Visa Inc.	1.27	8.74
Bristol-Myers Squibb Company	1.21	-2.91
Adobe Incorporated	1.16	14.51
Johnson & Johnson	1.14	-11.61

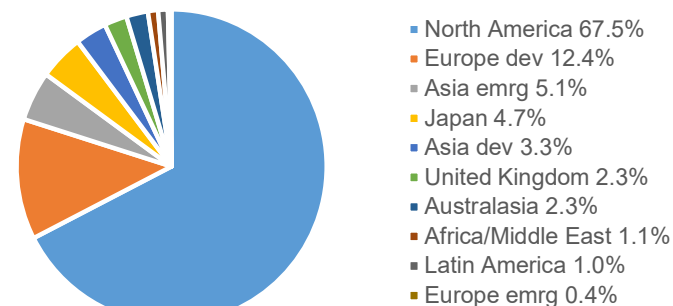
Trailing Returns

	QTR	1 Year	3 Year	5 Year	Inception 3/1/2016
BlackRock Global Alpha Tilts (Net)	7.5	-5.8	16.5	6.6	10.7
MSCI ACWI	7.3	-7.4	15.4	6.9	10.2

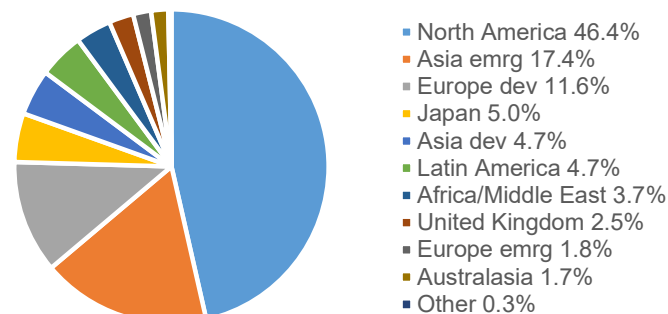
Equity Sector Exposure (GICS)



Regional Exposure by Domicile



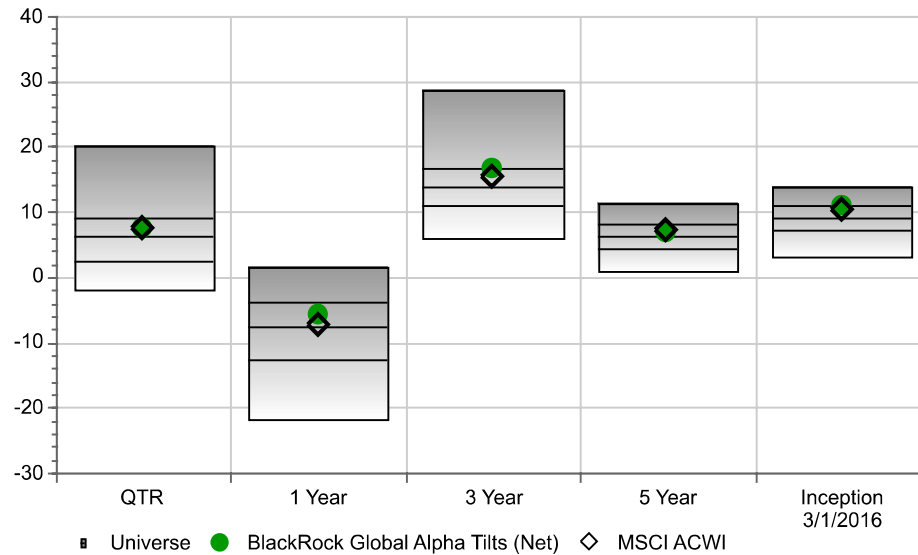
Regional Exposure by Source of Revenue



BlackRock Global vs Universe & Benchmark

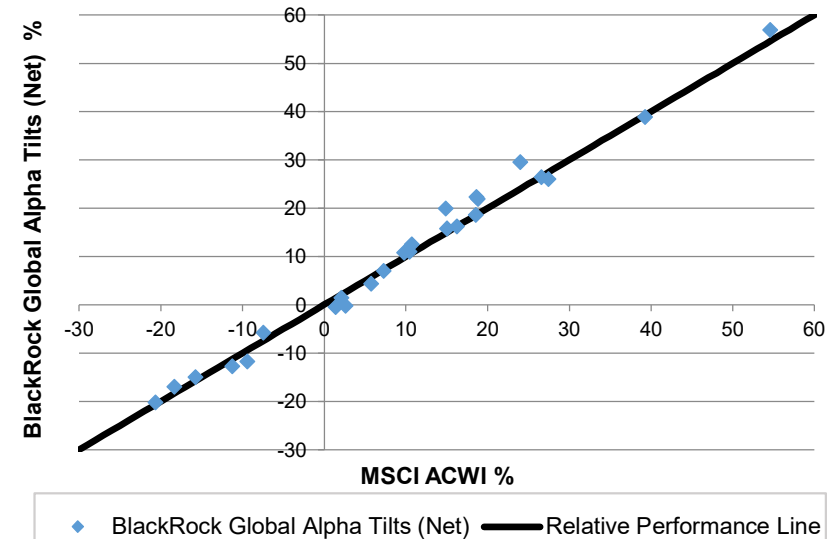
Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US:Global



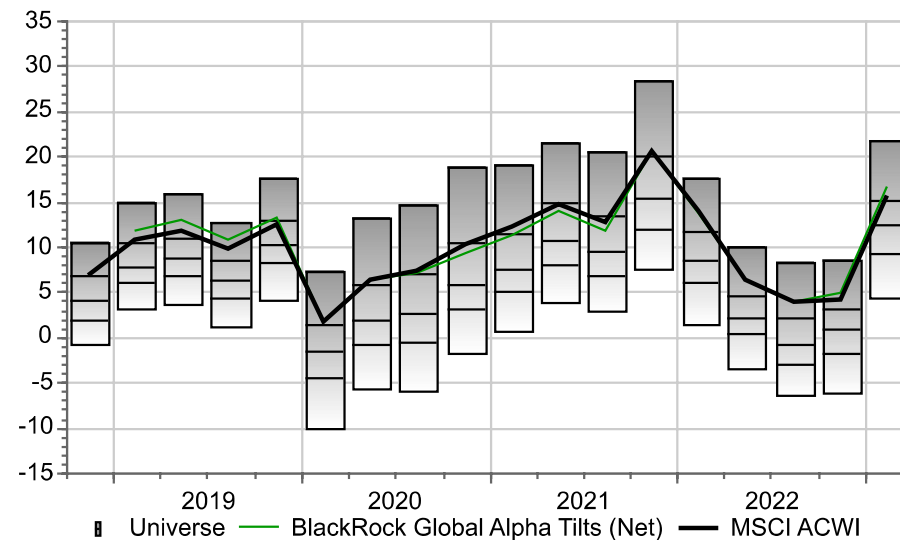
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One-Year Rolling Return Versus Benchmark



Rolling Returns 3/1/2016 – 3/31/2023 (3 Year, 3 Month Shift)

Universe: Lipper US Global Equity



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Over/Under Benchmark Analysis

15	Outperform
10	Underperform
25	# Observations
60%	% Outperform

BlackRock Global Attribution Analysis –March 31, 2023

Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
L'Oreal S.A.	0.81	0.65	0.16
Analog Devices, Inc.	0.92	0.77	0.15
Microsoft Corporation	3.65	0.66	0.12
Meta Platforms, Inc.	0.77	0.19	0.12
Mercedes-Benz Group AG	0.82	0.72	0.12
Novo Nordisk A/S	0.80	0.41	0.09
Siemens Aktiengesellschaft	0.71	0.51	0.09
BHP Group Limited	0.28	0.00	0.08
Adobe Incorporated	0.94	0.67	0.08
Honda Motor Co., Ltd.	0.54	0.47	0.08

Top 10 Leading Detractors

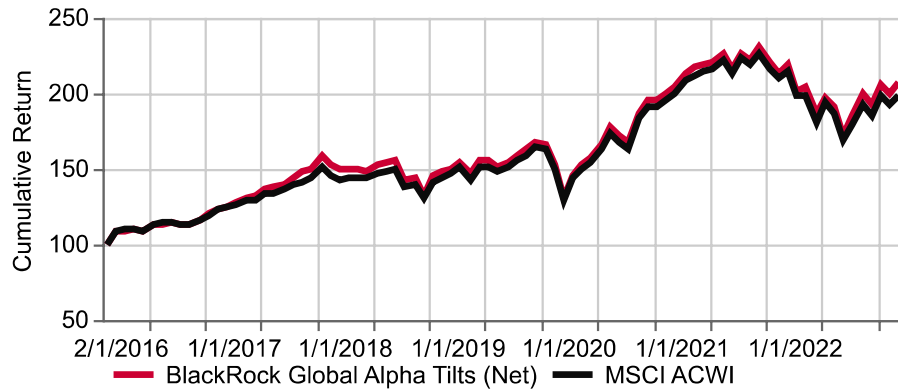
	Avg. Weights	Relative Weights	Active Return
NVIDIA Corporation	0.28	-0.54	-0.39
Tesla, Inc.	0.45	-0.32	-0.13
Equinor ASA	0.50	0.43	-0.09
Chevron Corporation	1.57	1.03	-0.09
Agilent Technologies, Inc.	1.08	1.01	-0.09
Cigna Group	0.50	0.34	-0.08
General Dynamics Corporation	1.05	0.96	-0.08
Johnson & Johnson	1.30	0.56	-0.08
British American Tobacco p.l.c.	0.96	0.82	-0.08
U.S. Bancorp	0.44	0.33	-0.08

Sector Attribution

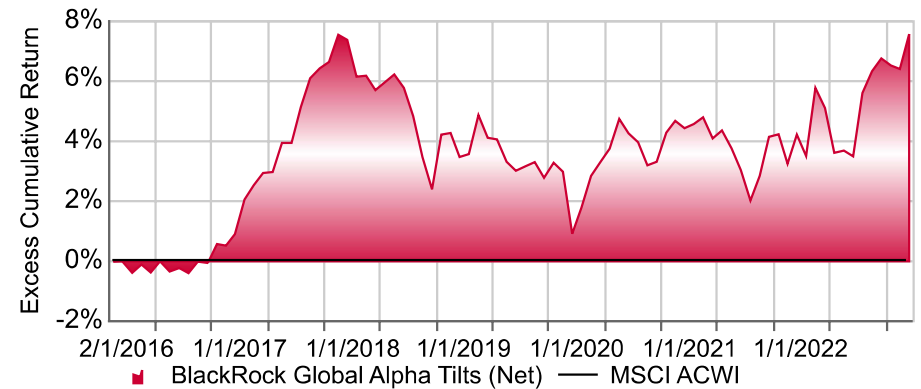
	Avg. relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	-0.6	20.7	17.3	-0.1	0.2	0.1
Consumer Discretionary	-0.4	15.3	14.2	0.0	0.1	0.1
Consumer Staples	1.2	3.0	3.5	0.0	0.0	-0.1
Energy	1.9	-2.8	-2.9	-0.2	0.1	-0.2
Financials	-3.6	1.6	-1.4	0.2	0.4	0.6
Health Care	2.7	-2.2	-1.7	-0.2	-0.1	-0.3
Industrials	0.3	5.5	6.8	0.0	-0.1	-0.1
Information Technology	1.5	19.0	20.5	0.2	-0.3	-0.1
Materials	-1.8	5.7	5.4	0.1	0.0	0.1
Real Estate	-0.8	3.5	0.7	0.1	0.1	0.1
Utilities	-0.3	4.3	-0.5	0.0	0.1	0.1
Total	0.0	7.7	7.4	0.0	0.3	0.4

BlackRock Global Inception Performance & Statistics

Investment Growth Since Inception 3/1/2016



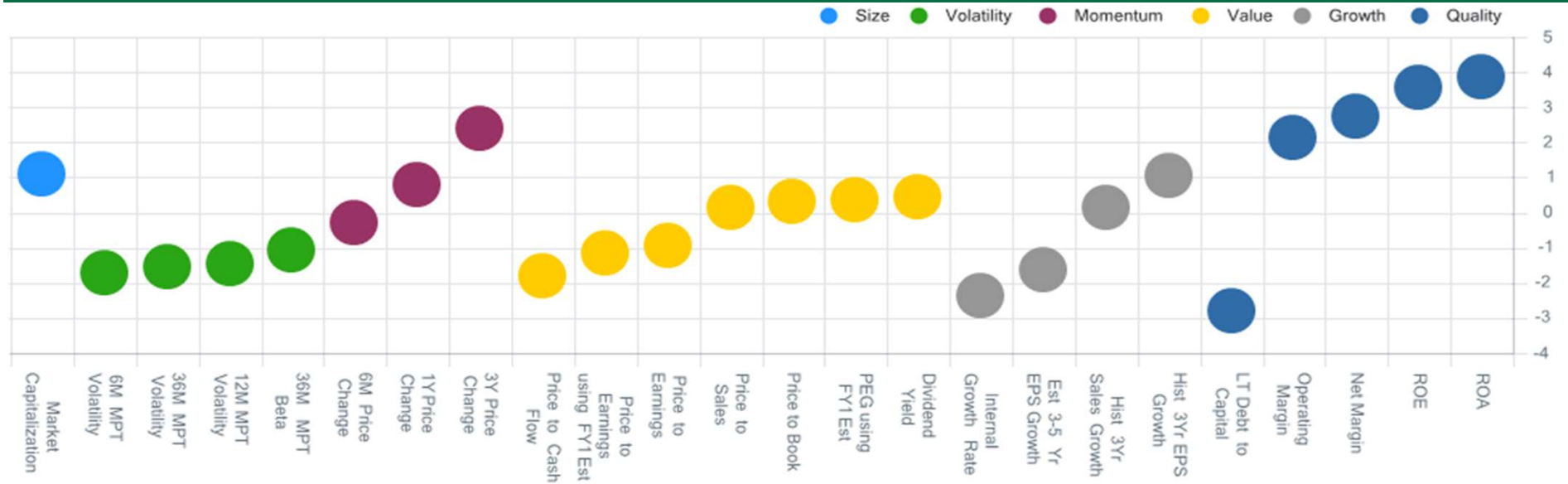
Relative Cumulative Performance Since Inception 3/1/2016



Risk Since Inception 3/1/2016

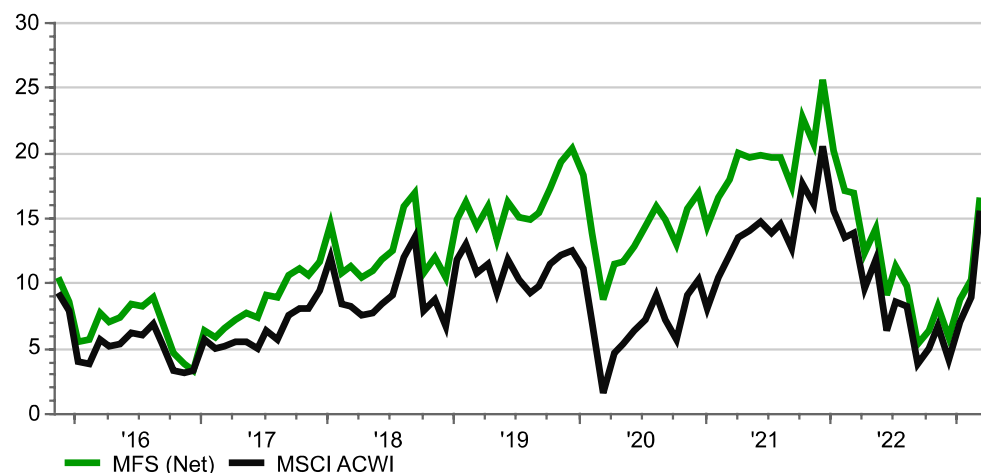
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
BlackRock Global Alpha Tilts (Net)	10.7	15.7	0.5	0.6	0.4	1.6	1.0
MSCI ACWI	10.2	15.5	--	0.6	--	--	1.0

Characteristics Tilt vs Benchmark 3/31/2023



MFS Portfolio Snapshot –March 31, 2023

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



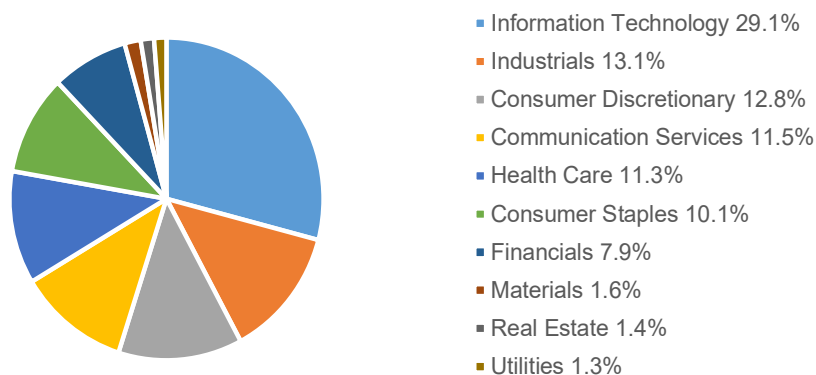
Top 10 Holdings

	Portfolio Weight	Quarterly Return
Microsoft Corporation	5.08	20.54
Alphabet Inc.	4.74	17.57
Visa Inc.	2.86	8.74
Accenture plc	2.81	7.54
Canadian Pacific Kansas City Ltd.	2.60	3.34
Church & Dwight Co., Inc.	2.54	10.03
Tencent Holdings Ltd.	2.35	20.29
Apple Inc.	2.32	27.11
Taiwan Semi Mfg. Co., Ltd.	2.11	20.58
LVMH Moët Hennessy Louis Vuitton SE	2.11	26.43

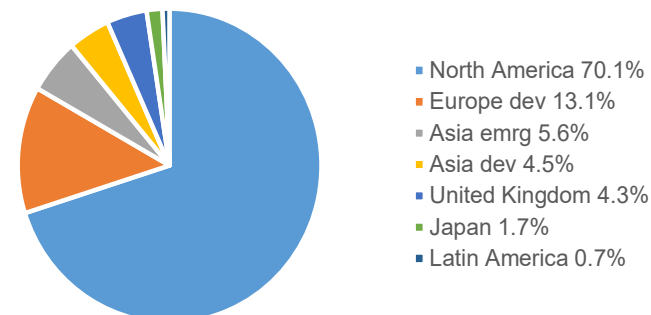
Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	Inception 12/1/2012
MFS (Net)	8.4	-4.6	16.4	10.6	10.9	11.4
MSCI ACWI	7.3	-7.4	15.4	6.9	8.1	8.7
MSCI ACWI Growth	13.8	-10.0	14.7	9.0	9.9	10.4

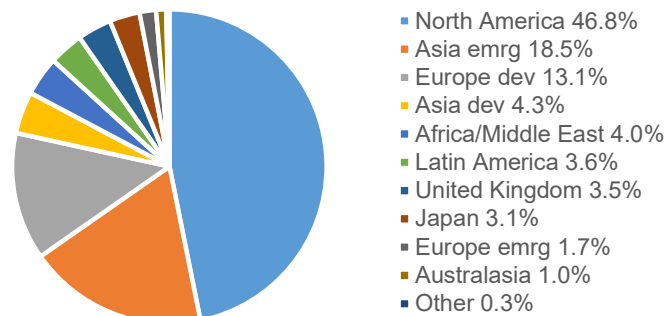
Equity Sector Exposure (GICS)



Regional Exposure by Domicile



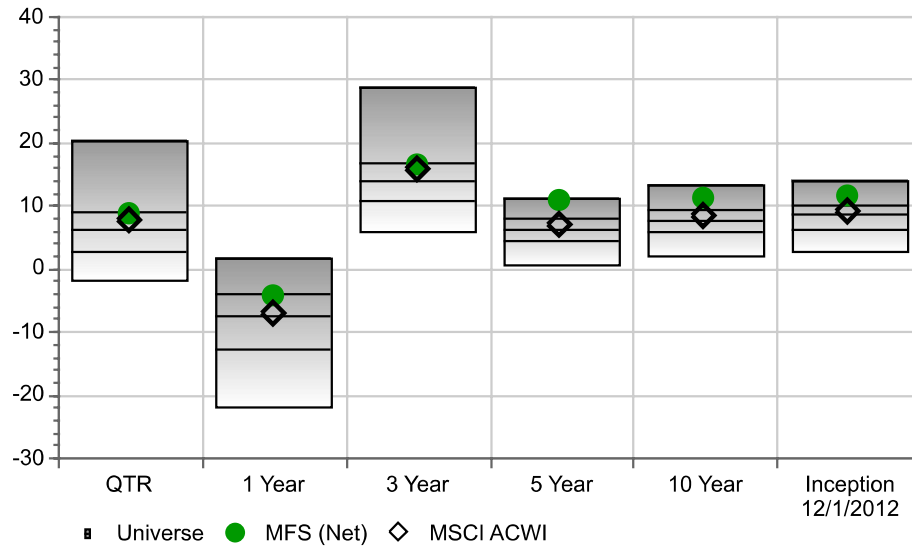
Regional Exposure by Source of Revenue



MFS vs Universe & Benchmark

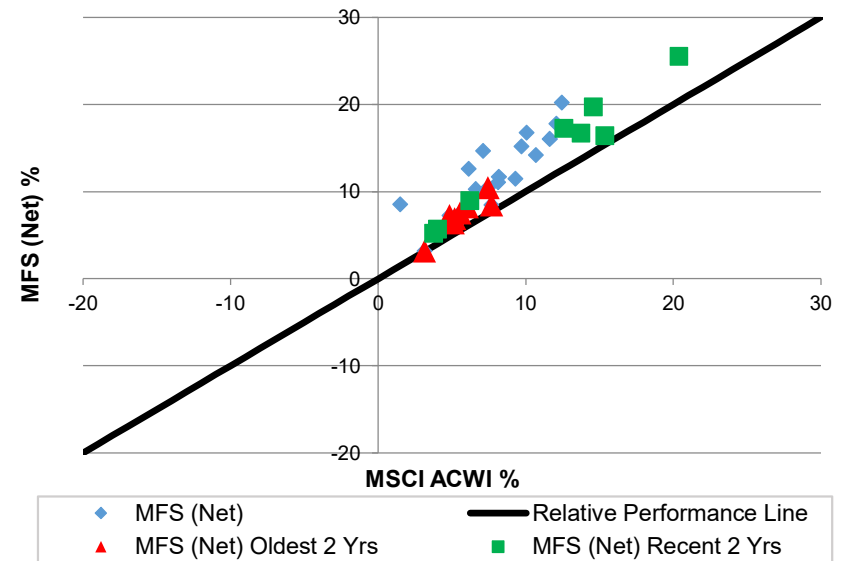
Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US:Global



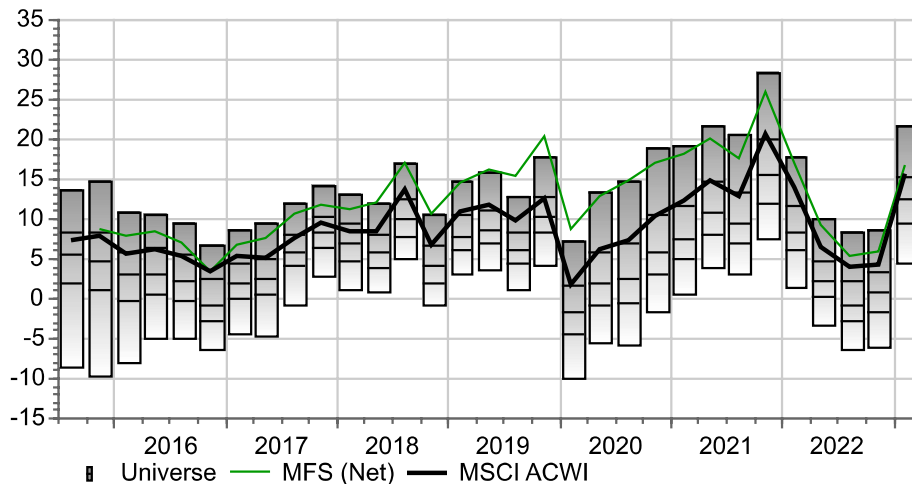
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Three-Year Rolling Return Versus Benchmark



Rolling Returns 12/1/2012 –3/31/2023 (3 Year, 3 Month Shift)

Universe: Lipper US Global Equity



©FactSet Research Systems

Over/Under Benchmark Analysis

30	Outperform
0	Underperform
30	# Observations
100%	% Outperform

MFS Attribution Analysis –March 31, 2023

Top 10 Leading Contributors

	Avg. Weights	Relative Weights	Active Return
Alphabet Inc.	4.42	2.59	0.45
LVMH Moet Hennessy Louis Vuitton SE	1.95	1.56	0.38
Tencent Holdings Ltd.	2.26	1.78	0.37
Burberry Group plc	1.30	1.28	0.36
Microsoft Corporation	4.54	1.55	0.31
adidas AG	1.08	1.03	0.29
Aptiv PLC	1.53	1.48	0.28
Analog Devices, Inc.	1.41	1.26	0.26
B&M European Value Retail SA	1.02	1.02	0.24
Church & Dwight Co., Inc.	2.32	2.28	0.24

Top 10 Leading Detractors

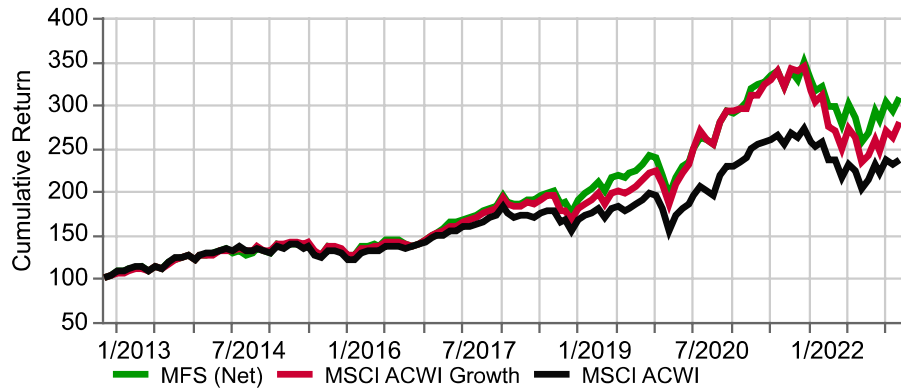
	Avg. Weights	Relative Weights	Active Return
Apple Inc.	2.07	-1.80	-0.45
Charles Schwab Corporation	1.25	1.05	-0.41
Fidelity National Information Services, Inc.	0.86	0.79	-0.15
Ross Stores, Inc.	1.48	1.41	-0.12
Black Knight, Inc.	1.21	1.19	-0.08
Danaher Corporation	1.45	1.15	-0.06
Agilent Technologies, Inc.	0.71	0.63	-0.05
Sherwin-Williams Company	0.84	0.74	-0.04
Roche Holding AG	1.14	0.73	-0.04
Gartner, Inc.	0.93	0.88	-0.03

Sector Attribution

	Average relative weighting (%)	Portfolio returns (%)	Benchmark returns (%)	Sector allocation (%)	Stock selection (%)	Relative contribution (%)
Communication Services	4.3	14.0	17.3	0.4	-0.3	0.0
Consumer Discretionary	2.2	14.3	14.2	0.2	-0.1	0.2
Consumer Staples	3.3	5.9	3.5	-0.1	0.3	0.2
Energy	-5.4	0.0	-2.9	0.6	0.0	0.6
Financials	-6.8	-2.0	-1.4	0.6	-0.1	0.5
Health Care	-2.0	1.5	-1.7	0.2	0.4	0.5
Industrials	2.6	9.6	6.8	0.0	0.4	0.3
Information Technology	7.7	11.8	20.5	1.0	-2.3	-1.3
Materials	-3.3	5.6	5.4	0.1	0.0	0.1
Real Estate	-1.5	-3.5	0.7	0.1	-0.1	0.0
Utilities	-2.2	-3.3	-0.5	0.2	0.0	0.2
Cash	1.1	1.1	0.0	-0.1	0.0	-0.1
Total	0.0	8.7	7.4	3.2	-1.8	1.3

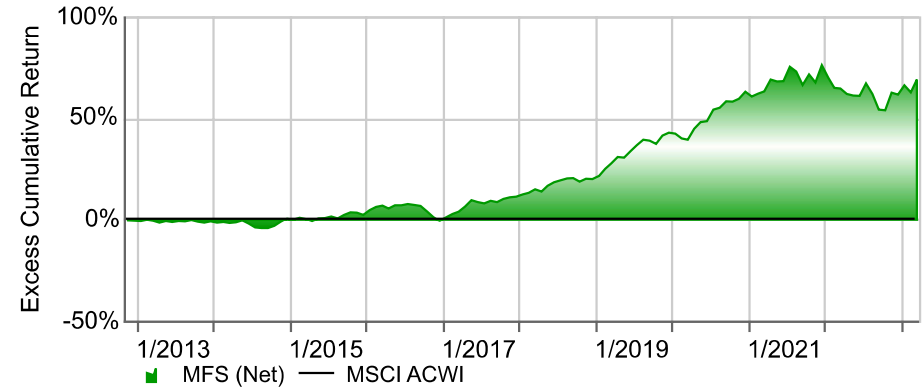
MFS Inception Performance & Statistics

Investment Growth Since Inception 12/1/2012



©FactSet Research Systems

Relative Cumulative Performance Since Inception 12/1/2012

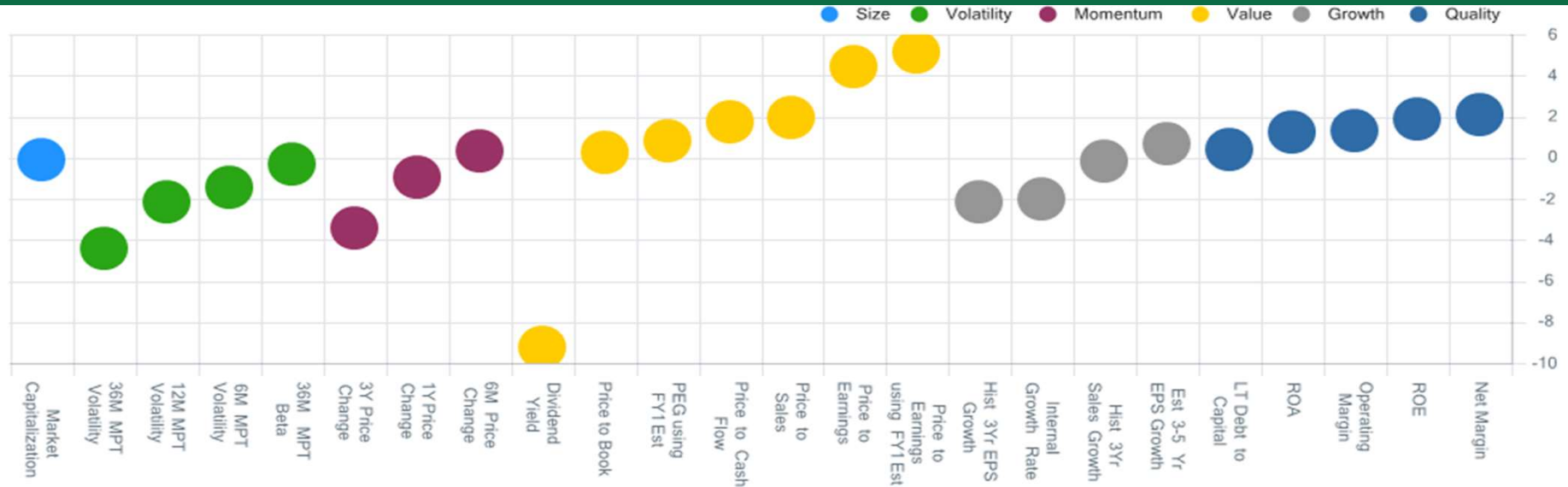


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Risk Since Inception 12/1/2012

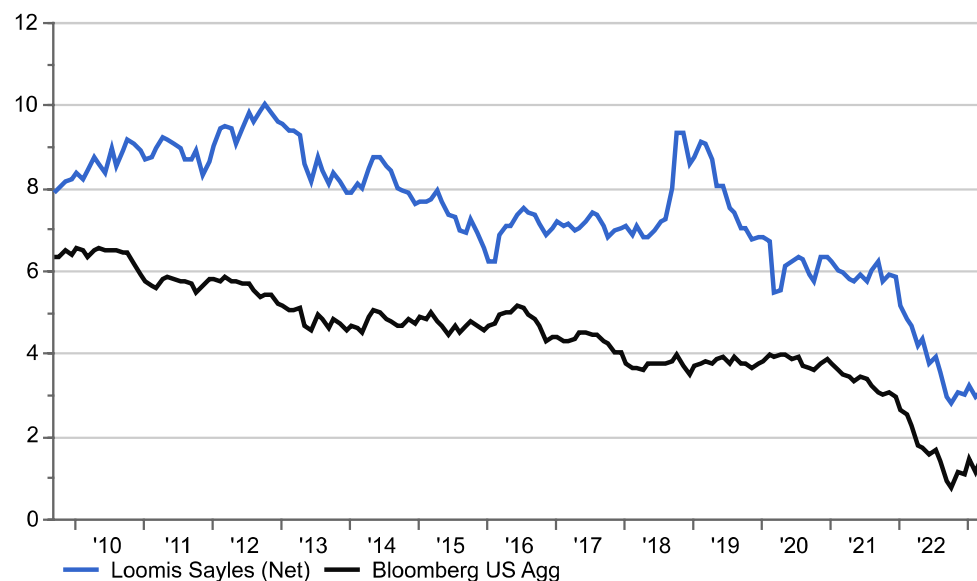
	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
MFS (Net)	11.4	14.3	2.7	0.7	0.8	3.2	1.0
MSCI ACWI	8.7	14.2	--	0.6	--	--	1.0
MSCI ACWI Growth	10.4	15.3	--	0.6	--	--	1.0

Characteristics Tilt vs Benchmark 3/31/2023



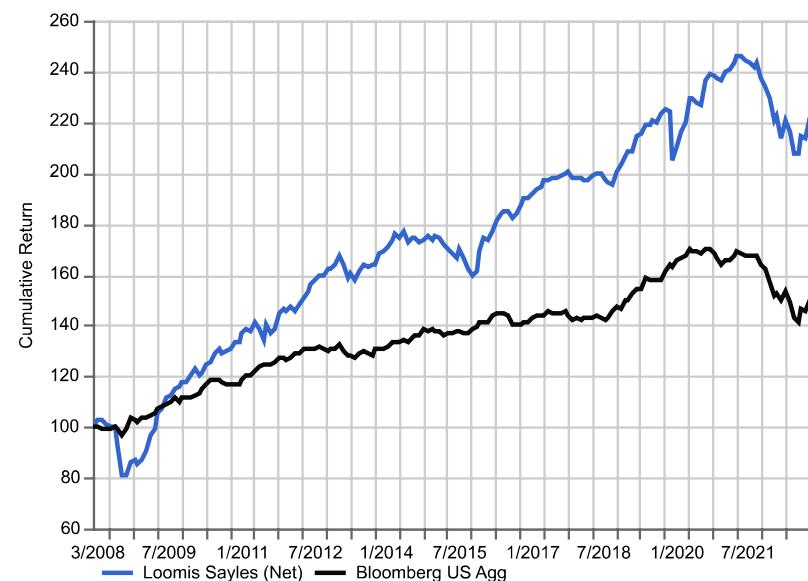
Loomis Sayles Portfolio Snapshot –March 31, 2023

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



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Investment Growth – 15 Years



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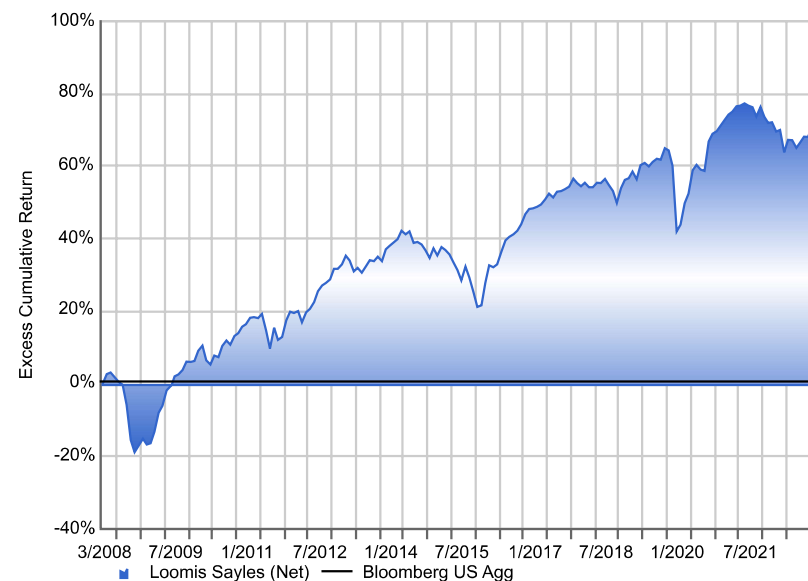
Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
Loomis Sayles (Net)	3.2	-3.9	2.5	2.2	3.0	5.4
Bloomberg US Aggregate	3.0	-4.8	-2.8	0.9	1.4	2.7

Risk – 15 Years

	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
Loomis Sayles (Net)	5.4	7.8	2.6	0.6	0.4	6.4	1.1
Bloomberg US Aggregate	2.7	4.1	--	0.5	--	--	1.0

Relative Cumulative Performance – 15 Years

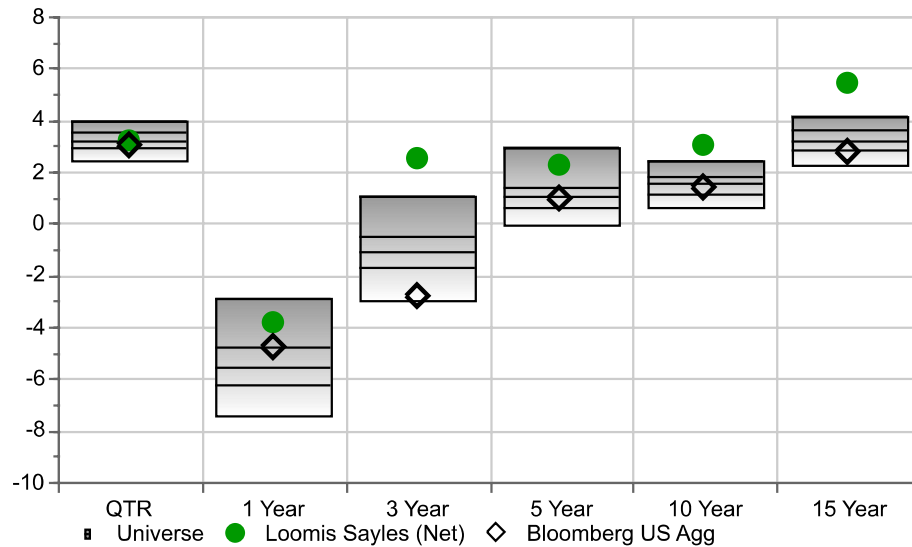


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Loomis Sayles vs Universe & Benchmark

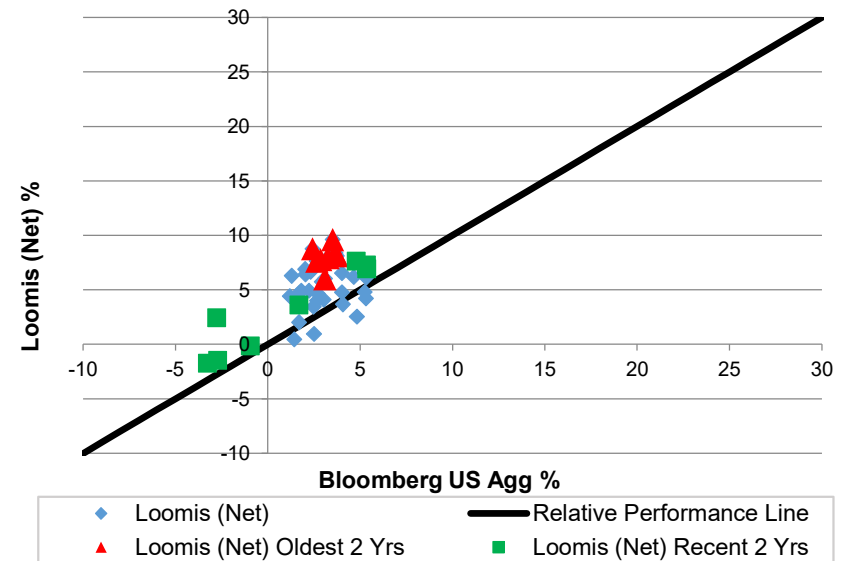
Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US Core Plus Bond



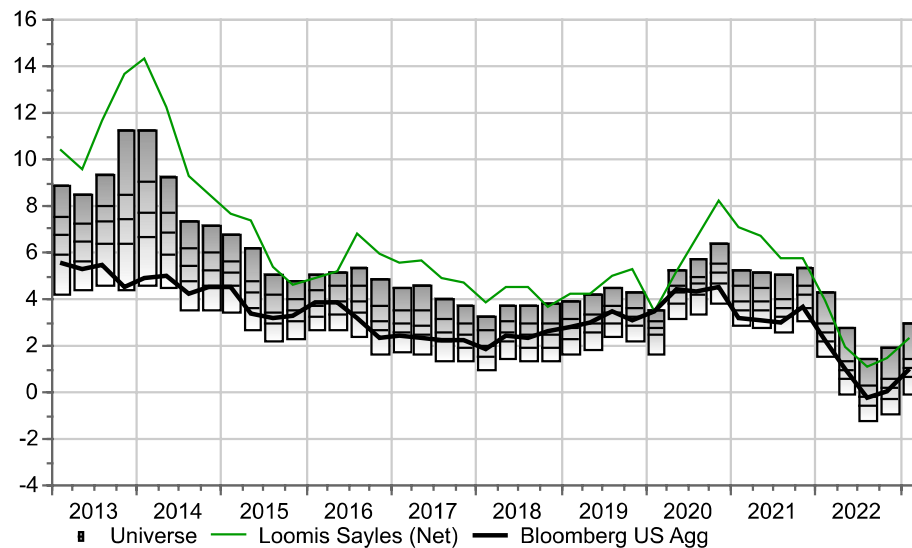
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Three-Year Rolling Return Versus Benchmark



Rolling Returns 4/1/2008 –3/31/2023 (5 Year, 3 Month Shift)

Universe: Lipper US:Core Plus Bond



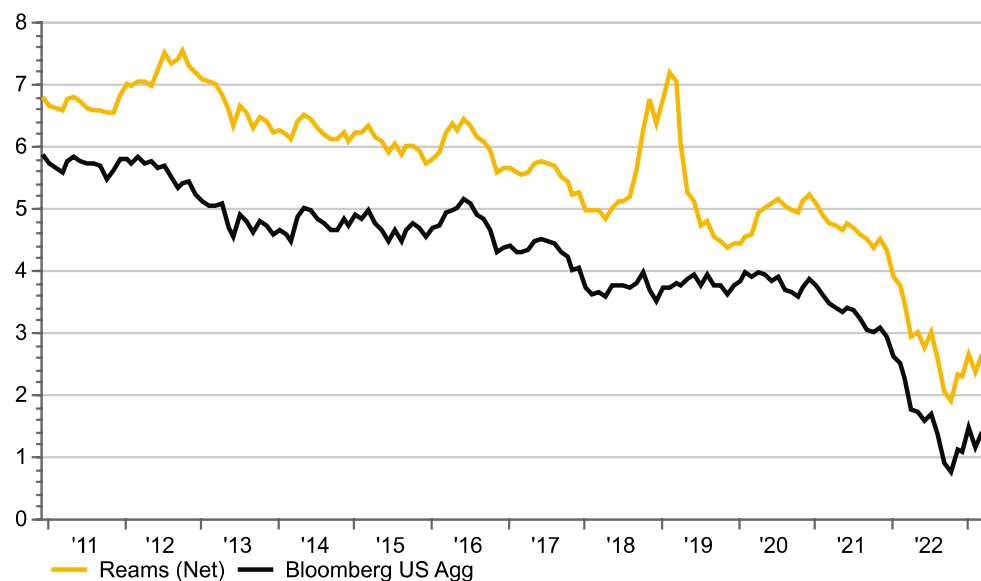
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Over/Under Benchmark Analysis

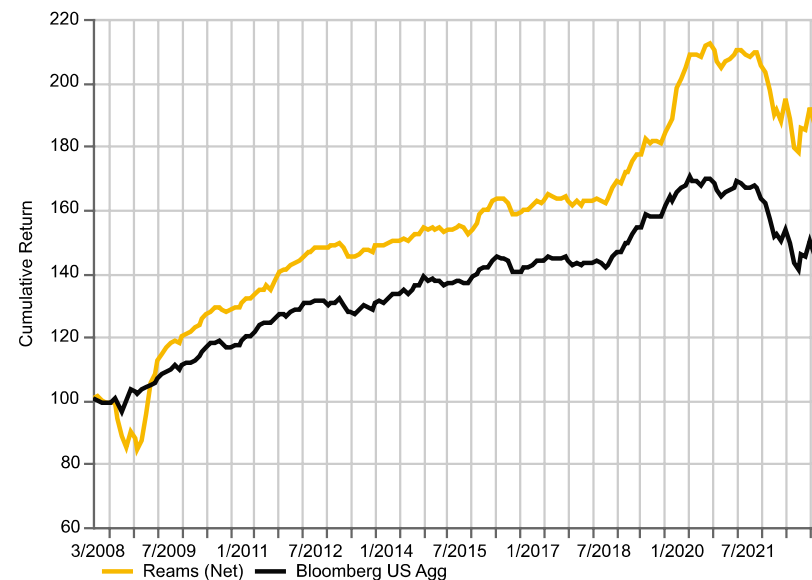
34	Outperform
6	Underperform
40	# Observations
85%	% Outperform

Reams Portfolio Snapshot –March 31, 2023

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



Investment Growth – 15 Years



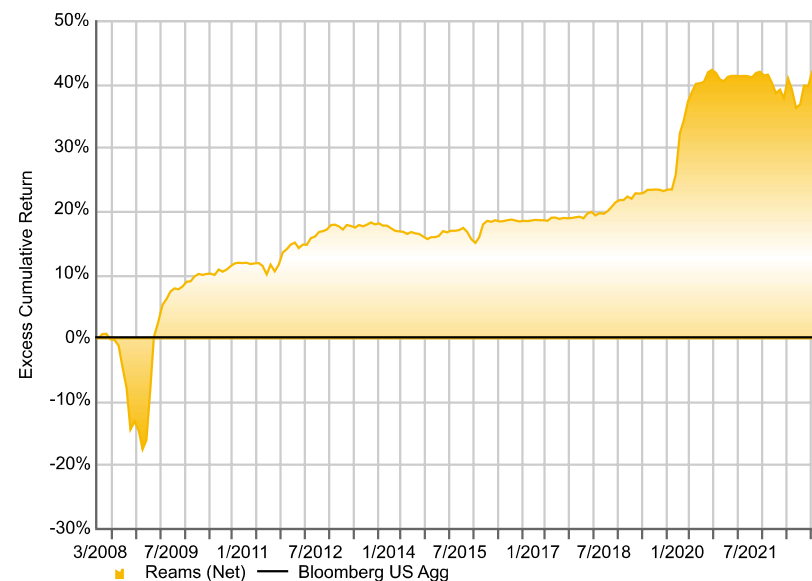
Trailing Returns

	QTR	1 Year	3 Year	5 Year	10 Year	15 Year
Reams (Net)	4.0	-2.6	0.7	3.5	2.6	4.5
Bloomberg US Aggregate	3.0	-4.8	-2.8	0.9	1.4	2.7

Risk – 15 Years

	Return	Std Dev	Alpha	Sharpe Ratio	Information Ratio	Tracking Error	Beta
Reams (Net)	4.5	6.4	1.6	0.6	0.4	4.6	1.1
Bloomberg US Aggregate	2.7	4.1	--	0.5	--	--	1.0

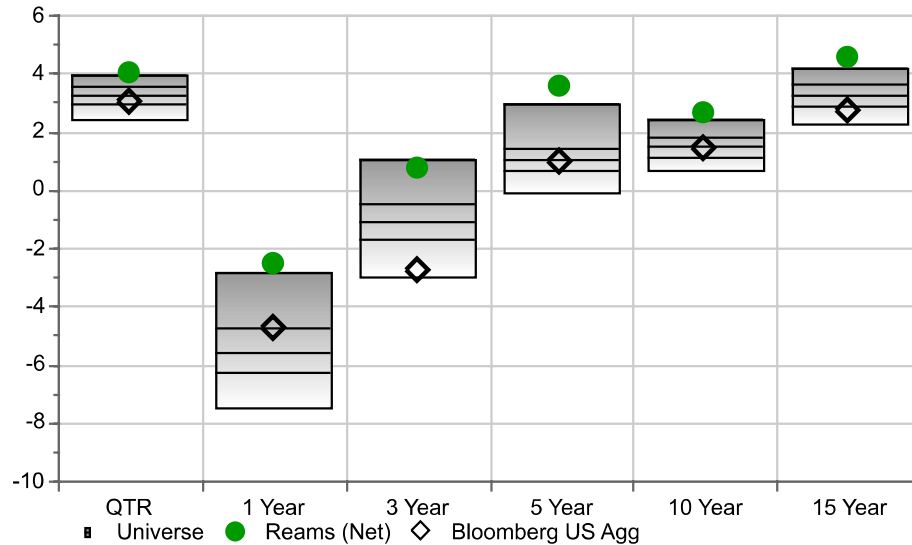
Relative Cumulative Performance – 15 Years



Reams vs Universe & Benchmark

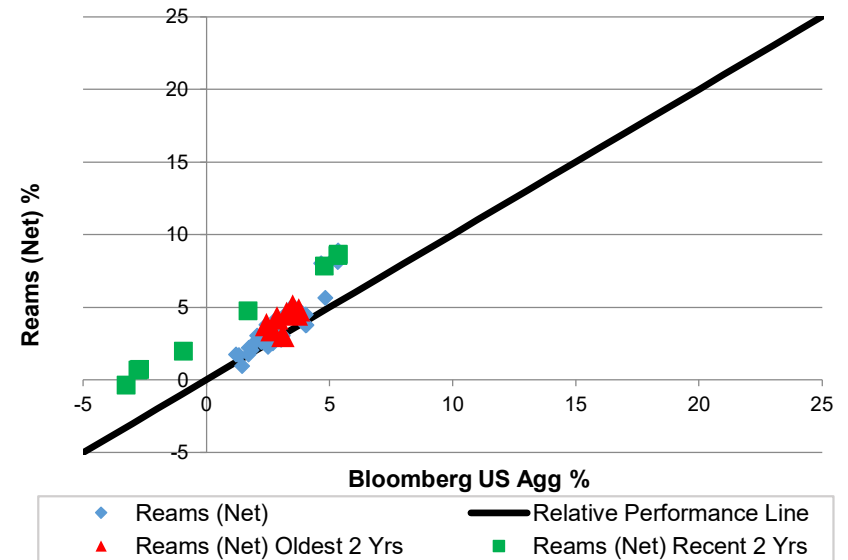
Performance Relative to Peer Group as of 3/31/2023

Universe: Lipper US Core Plus Bond



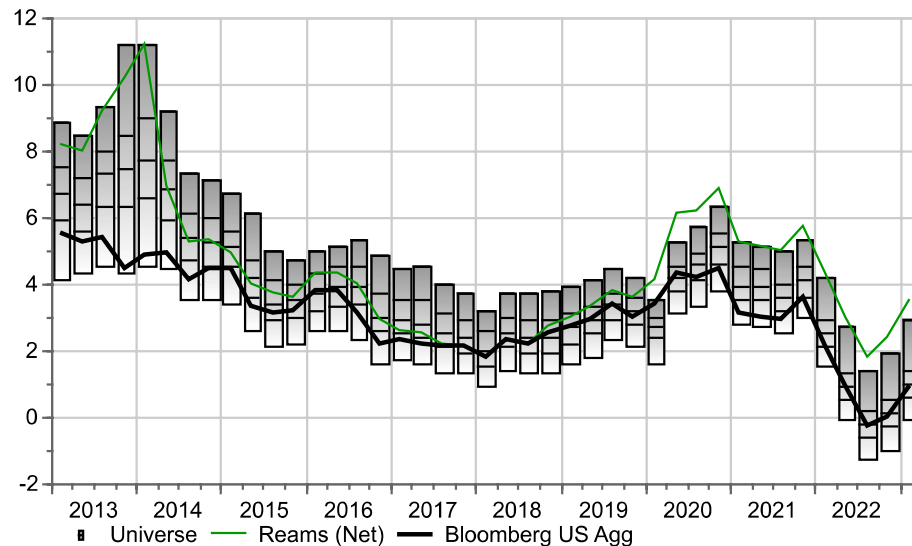
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Three-Year Rolling Return Versus Benchmark



Rolling Returns 4/1/2008 –3/31/2023 (5 Year, 3 Month Shift)

Universe: Lipper US Core Plus Bond



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Over/Under Benchmark Analysis

33	Outperform
7	Underperform
40	# Observations
83%	% Outperform