



## **Arkansas Public Employees' Retirement System**

Investments and Finance Sub-Committee

Tuesday, November 7, 2023 at 9:00 a.m.

124 West Capitol Avenue, Suite 400, Little Rock 72201

*Hybrid Meeting: Arkansas Public Employees' Retirement System Board Room and Video Conference*

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### **AGENDA**

1. Update on Domestic Equity Large Cap Growth Manager Process
2. Update on Private Equity
3. Proposed Investment Policy Statement
4. Update on Securities Litigation
5. Real Estate Investment



August 2023  
**Arkansas Public Employees'  
Retirement System**  
Investment Manager Search  
Large Cap Growth Equity

**CONFIDENTIAL**

## Large Cap Growth Manager Evaluation

	<b>Investment Manager</b>	<b>Strategy</b>
The following investment manager organizations have submitted information to Callan regarding their investment management capabilities. The information has been summarized in this report for the consideration of Arkansas Public Employees' Retirement System.	Federated Hermes, Inc.	Federated Hermes MDT Large Cap Growth Institutional
	Jennison Associates LLC	Large Cap Growth Equity
	J.P. Morgan Asset Management	JPM US Large Cap Growth
	T. Rowe Price Associates, Inc.	US Large-Cap Growth Equity Strategy
	William Blair & Company LLC	Large Cap Growth
	Winslow Capital Management, LLC	Large Cap Growth

The investment manager organizations contained herein have submitted information to Callan regarding their investment management capabilities, for which information Callan has not necessarily verified the accuracy or completeness of or updated. The information provided to Callan has been summarized in this report for your consideration. Unless otherwise noted, performance figures reflect a commingled fund or a composite of discretionary accounts. All written comments in this report are based on Callan's standard evaluation procedures which are designed to provide objective comments based upon facts provided to Callan. The appropriateness of the candidate investment vehicle(s) discussed herein is based on Callan's understanding of the client's portfolio as of the date hereof. Certain operational topics may be addressed in this investment evaluation for information purposes. Unless Callan has been specifically engaged to do so, Callan has not conducted due diligence of the operations of the candidate or investment vehicle(s), as may be typically performed in an operational due diligence evaluation assignment. The investment evaluation and any related due diligence questionnaire completed by the candidate may contain highly confidential information that is covered by a non-disclosure or other related agreement with the candidate which must be respected by the client and its representatives. The client agrees to adhere to the conditions of any applicable confidentiality or non-disclosure agreement.

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## Search Process, Profile & Summary

## Search Process

### Steps in the Manager Search Process

**1** Client & Candidate Profiles

**2** Quantitative Analysis

**3** Qualitative Assessment

**4** Manager Search Committee

**5** Semi-Finalist Review

**Finalists**

## Candidate Profile

### 1. Manager Type

Only qualified investment counselors or organizations registered under the Investment Advisers Act of 1940 that are currently managing assets will be considered. This includes investment counselors and investment counseling subsidiaries of banks, brokerage houses and insurance companies.

### 2. Investment Style

The client is seeking a U.S. Large Cap Growth manager. The manager will be benchmarked against the Russell 1000 Growth Index and the Callan Large Cap Growth peer group. The strategy should complement the existing CastleArk All Cap Growth portfolio, which includes significant exposure to the CastleArk Large Cap Growth strategy.

### 3. Managed Assets

Firms should have a minimum of \$5 billion in AUM. Strategy assets should be greater than \$3 billion; however, strategies with less than this will be considered on a case-by-case basis. Vehicle assets will also be considered on a case-by-case basis.

### 4. Professional Staff

Investment staff should be stable and of sufficient depth and breadth to perform the ongoing duties of the firm and to ensure continuity of the investment process. The firm's executive management team should be experienced and stable. Additionally, there should be a sufficient number of client service professionals relative to the firm's client base to ensure that the client has reasonable access to the firm.

### 5. Portfolio Manager Structure & Experience

Team approach is preferred but not required. Key professionals should have at least 10 years of investment experience. Teams that have worked together for at least five years are preferred.

### 6. Investment Vehicle

APERS prefers a commingled fund but will consider separate accounts and mutual funds. Daily valuation and liquidity is preferred, but monthly is acceptable.

### 7. Historical Performance & Risk Criteria

Performance over multiple cumulative, annual and rolling periods will be evaluated relative to the appropriate peer group and index. Risk-adjusted measures and holdings-based portfolio characteristics will also be considered. A track record of at least three years is preferred, and performance records from previous firms will be evaluated on a case-by-case basis.

## Candidate Profile

### 8. Qualities Specifically Sought

- Firm must be a viable, ongoing business
- Organizational infrastructure to support institutional client base
- Disciplined investment process
- Low turnover of key personnel
- Low dispersion of returns within appropriate composite
- Commitment to client service and an ability to effectively articulate their investment process
- Willingness to visit client as needed

### 9. Qualities To Be Avoided

- Concentrated client base
- Candidates currently involved in a merger, acquisition, or recent transaction impacting the firm's senior executives
- Excessive recent personnel turnover

### 10. Specific Client Requests & Additional Considerations

The client would like to review 4 to 6 candidates. The client would like to include quantitative strategies if available.



## Manager Summary Matrix

	Organization/Team	Strategy/Portfolio	Summary Opinion
<p><b>Federated Hermes, Inc.</b></p> <p>Federated Hermes MDT Large Cap Growth Institutional</p>	<ul style="list-style-type: none"> <li>- Publicly traded company (NYSE ticker: FII) but privately controlled and headquartered in Pittsburgh, Pennsylvania.</li> <li>- In July 2018, Federated acquired a majority interest in Hermes Investment Management from BTPS and in 2020 rebranded as Federated Hermes. The remaining interest in Hermes was acquired in 2021.</li> <li>- In 2019, Federated acquired segments of PNC's liquidity, fixed, and equity business. \$15bn, a majority gov't money market, transitioned into existing/new mutual funds.</li> <li>- Daniel Mahr succeeded founder David Goldsmith as MDT's lead in 2008. Mahr is part of the five person PM team.</li> <li>- Ten person team performs all quantitative research; the remaining members focus on performance reporting and trade implementation</li> </ul>	<ul style="list-style-type: none"> <li>- Quantitative approach using machine learning approaches to iterate models.</li> <li>- MDT's model forecasts 3 month returns using valuation factors based on structural earnings, tangible BV, and forward earnings estimates, along with growth factors which include analyst conviction, long-term EPS growth, stock price trends. Quality factors such as leverage, solvency, and adjusted volatility are also included in the model.</li> <li>- Team tests thousands of potential factor combinations using regression (or decision) trees based on 30-plus years of U.S. stock data; applying multiple regression trees (regression forest) enables model to identify historically successful factor blends.</li> <li>- Holds 100-150 stocks; sector weights +/- 1.0% of benchmark; position weights +/- 2.5%.</li> </ul>	<ul style="list-style-type: none"> <li>- MDT has demonstrated long history of successful quantitative investing - model is unique amongst quantitative applications and results in less correlated results relative to other quantitative and fundamental portfolios.</li> <li>- MDT's quantitative approach seeks companies with attractive short-term returns resulting in higher trading and turnover.</li> <li>- Impressive trailing returns due to strong performance from 2021-2022.</li> </ul>

## Manager Summary Matrix

	Organization/Team	Strategy/Portfolio	Summary Opinion
<b>Jennison Associates LLC</b>  Large Cap Growth Equity	<ul style="list-style-type: none"> <li>- Jennison is a wholly owned subsidiary of PGIM and operates via revenue sharing agreement; PGIM is owned by PGIM Holding Co, which is owned by publicly traded Prudential Financial (ticker NYSE: PRU).</li> <li>- Longtime PM Sig Segalas, who co-founded the firm and had been managing strategy since its 1969 inception, passed away in January 2023. Kathleen McCarragher (PM since 1998) remains head of Growth Equity (as of 2003) and co-head of Large Cap Growth. Michael Del Balso (1999), co-head Large Growth Blair Boyer (2003), and Natasha Kuhlkin (2014) round out the PM team.</li> <li>- Most recent team departures include PM Mark Shattan in 2018 and two HC analysts (in 1Q22 and 4Q22). HC analyst positions have been replaced. PM Rebecca Irwin transitioned to a PM role on the Global Growth strategy in April 2023.</li> <li>- PM team is supported by dedicated sector analysts.</li> </ul>	<ul style="list-style-type: none"> <li>- Portfolio managers seek companies growing faster than the S&amp;P 500, preferably in terms of top-line sales growth.</li> <li>- PMs willing to pay higher multiples for higher duration growth attributes while emphasizing stronger balance sheets via lower-debt levels.</li> <li>- Strategy typically holds 50-75 names and averages 30-60% turnover.</li> <li>- May hold up to 20% non-U.S. allocation; typically ranged from 5-15% over the strategy history.</li> </ul>	<ul style="list-style-type: none"> <li>- Segalas passing was a meaningful event but multi-year succession planning at the firm and a multi-portfolio manager structure causes little disruption at the strategy management level going forward.</li> <li>- Investment process leads to a higher volatility style than large cap growth peers and the Russell 1000 Growth Index.</li> <li>- Underperformed Russell 1000 Growth Index across 5- and 7- year trailing time periods; results driven by up market participation - downside capture will be higher relative to index.</li> </ul>

## Manager Summary Matrix

	Organization/Team	Strategy/Portfolio	Summary Opinion
<b>J.P. Morgan Asset Management</b>  JPM US Large Cap Growth	<ul style="list-style-type: none"> <li>- JPMAM is the asset management arm and an indirect wholly owned subsidiary of publicly traded JPMorgan Chase &amp; Co (NYSE: JPM).</li> <li>- Lead PM Giri Devulpally has managed LCG since 2005; he is supported by a group of dedicated Large Growth professionals (separate from the Core team at JPM that ranks large/mid securities).</li> <li>- In 2021, analysts Holly Fleiss, Larry Lee, Joe Wilson, and Rob Maloney were promoted to co-PM's on the strategy in recognition of their contributions to the portfolio; however, there were no changes to responsibilities or decision-making as a result of the promotions.</li> </ul>	<ul style="list-style-type: none"> <li>- Emphasize three tenets to generate alpha: 1) do not miss great winners; 2) do not get killed by big losers; and 3) take risks in favorable times.</li> <li>- Seek companies with large and/or growing addressable markets, sustainable competitive advantages, leading market share positions, and good price momentum.</li> <li>- Fundamentally driven portfolio but run quantitative screens based on earnings revisions, price momentum, and valuation; fundamental analysis is performed on smaller subset of names.</li> <li>- Projections and financial models created for 3-5 year time horizon.</li> <li>- 60-90 holdings and average 20-40% turnover annually.</li> </ul>	<ul style="list-style-type: none"> <li>- Successful domestic equity platform across style and capitalization spectrum.</li> <li>- Deeply resourced at the firm level with over 350 equity investment professionals worldwide.</li> <li>- Devulpally adept at trading around price momentum to reposition the portfolio in different growth environments.</li> <li>- Historically performed better in upward trending markets relative to declining markets but portfolio style shift in 2022 significantly helped relative results in strong down market.</li> <li>- Weighted average market cap in line with Russell 1000 Growth Index and large growth peers; style may fluctuate over time.</li> </ul>

## Manager Summary Matrix

	Organization/Team	Strategy/Portfolio	Summary Opinion
<b>T. Rowe Price Associates, Inc.</b>  US Large-Cap Growth Equity Strategy	<ul style="list-style-type: none"> <li>- Publicly traded, Baltimore-based asset management firm founded by Thomas Rowe Price, Jr. in 1937.</li> <li>- Firm split into two organizations, T. Rowe Price Associates (TRPA) and T. Rowe Price Investment Management (TRPIM), effective March 7, 2022. TRPIM houses six strategies and their respective teams.</li> <li>- Rob Sharps became CEO 1/1/2022 when Bill Stromberg retired.</li> <li>- Andy McCormick, head of Global Fixed Income, will retire 12/21/23 and Arif Husain will succeed him and also retain his role as CIO.</li> <li>- Taymour Tammadon is sole portfolio manager on the strategy.</li> <li>- Former Associate PM David Rowlett left team to join TRP Large Cap Core in 2Q 2020. Jon Friar, who served as a portfolio manager for the firm's Business Services portfolio, joined as associate portfolio manager in January 2023.</li> <li>- TRP centralized research analyst platform supports PM decision making; analyst coverage divided by industry, sector, and geography.</li> </ul>	<ul style="list-style-type: none"> <li>- Bottom up fundamental process that seeks companies where duration of growth is greater than market implies. Seeks earnings growth above 10% over a three-year period; emphasizes firms with strong market positions, reputations, and good management, particularly those with strong free cash flow, balance sheets, and improving margins and returns on invested capital.</li> <li>- Sector weights typically range from 0.5x to 3.0x relative to Russell 1000 Growth. Individual position sizes are +/- 4% relative to Russell 1000 Growth; Tamaddon views risk in absolute terms in addition to how the portfolio compares to the benchmark, ensuring top ideas do not drive uncompensated risk for the whole portfolio.</li> <li>- 60-75 stock portfolio with turnover ranging from 30-45%.</li> </ul>	<ul style="list-style-type: none"> <li>- Change at the organization and leadership level will continue to be monitored.</li> <li>- Depth and stability of TRP centralized research analyst platform source of competitive advantage.</li> <li>- Portfolio tends to emphasize Technology, Comm Services, and Consumer Discretionary sectors (comprising almost 75% of AUM).</li> </ul>

## Manager Summary Matrix

	Organization/Team	Strategy/Portfolio	Summary Opinion
<b>William Blair &amp; Company LLC</b>  Large Cap Growth	<ul style="list-style-type: none"> <li>- William Blair was founded in 1935 and remains headquartered in Chicago, IL; firm is 100% employee owned and broad based amongst investment professionals at the firm.</li> <li>- President Brent Gledhill was appointed CEO to succeed John Ettelson, who became chairman of the firm, in January 2022.</li> <li>- Large Cap Growth strategy is co-managed by James Golan and David Ricci, who have overseen the strategy since 2005 and 2011, respectively; only strategy that they manage at the firm.</li> <li>- Portfolio management team is supported by seasoned equity research analysts that employ a sector specific, multi-cap approach to fundamental analysis.</li> </ul>	<ul style="list-style-type: none"> <li>- Seeks to invest in structurally advantaged growth companies at valuations that reflect an under appreciation by the market - "structurally advantaged" = companies with strong management teams and growth prospects as well as solid financials.</li> <li>- Companies in the portfolio fall into two buckets: traditional quality growth and fallen quality growth. Traditional quality growth = securities trading at prices that do not reflect a longer duration of growth; fallen quality growth = experiencing a temporary event rendering it out of favor with investors.</li> <li>- Constructed with a sector and market cap neutral approach to mitigate benchmark risk but actively trade as needed.</li> </ul>	<ul style="list-style-type: none"> <li>- Strength of the William Blair research platform is reflected in the investment team's ability to identify successful portfolio companies early in their growth cycles to trading more nimbly around valuations.</li> <li>- Team utilizes a robust financial modeling framework that incorporates multiple valuation methodologies; team's additional research via channel checking and other primary sources to ensure fundamental strength is thorough and notable.</li> <li>- Performance in-line with the benchmark over longer-term periods with stock selection as primary driver of excess returns; strategy will typically benefit from market environments that reward quality and growth.</li> </ul>

## Manager Summary Matrix

	Organization/Team	Strategy/Portfolio	Summary Opinion
<b>Winslow Capital Management, LLC</b>  Large Cap Growth	<ul style="list-style-type: none"> <li>- Established in 1992 by Clark Winslow in Minnesota; became a wholly owned subsidiary of Nuveen (now merged with TIAA) Investments at the end of 2008.</li> <li>- Strategy is managed by a multi-portfolio manager team led by Justin Kelly, lead PM on the strategy since 1999; Kelly remains focused on this flagship large cap growth offering.</li> <li>- Kelly oversees the portfolio with co-portfolio managers Patrick Burton and Steve Hamill; however, Kelly has final decision making authority. The PM team collaborates on stock selection and position sizing decisions. Peter Dlugosch is also listed as a PM but does not have decision making authority; Dlugosch focuses on risk management in addition to idea generation.</li> <li>- The portfolio management team is supported by 7 analysts who each cover a sector.</li> </ul>	<ul style="list-style-type: none"> <li>- Employs a bottom-up, fundamental approach to stock selection.</li> <li>- Aims to invest in growth companies that exhibit high quality characteristics such as high returns on invested capital, dominant market share, and competitive advantages and a runway for growth but that are underestimated by the market.</li> <li>- Portfolio is split between three categories of growth: consistent, dynamic, and cyclical. This ensures diversification of business drivers and cycles.</li> <li>- Concentrated with 40-60 holdings and has low annual turnover.</li> </ul>	<ul style="list-style-type: none"> <li>- Stable firm that remains reputable for its research and portfolio construction approaches relative to other large cap growth peers.</li> <li>- Investment team and process continuity are notable as the product benefits from consistency of execution.</li> <li>- Bucket approach to growth investing allows for diversification and capital allocation in various economic environments.</li> <li>- Strategy consistently plots large and growth, rendering it a an appropriate large cap growth option.</li> <li>- Strategy has produced a long-term competitive risk adjusted performance pattern.</li> </ul>

## Proposed Vehicle Information

	Product / Vehicle AUM (\$mm)	Minimum Account Size (\$mm)	Proposed Fee on \$403M (%)	Comments
Federated CIT (Founders Class)	549 / Unfunded	100	0.24 (all-in)	- Separate account (Vehicle AUM: 527MM) also available at 0.17% (mgt fee).
Jennison 3(c)11	70,886 / 850	5	0.38 (mgt)   0.38 (all in)	- Separate account (Vehicle AUM: 26,609MM) also available at 0.29% (mgt fee).
JPM Commingled (Class A)	84,475 / 4,383	100	0.39 (mgt)   0.40 (all in)	- Separate account (Vehicle AUM: 17,443MM) also available at 0.40% (mgt fee).
T. Rowe CIT (Class D)	57,990 / 5,951	200	0.40 (all in)	- Separate account (Vehicle AUM: 26,086MM) also available at 0.33% (mgt fee).
William Blair CIT (GAV; Class 1)	6,840 / 621	5	0.28 (all in)	- Separate account (Vehicle AUM: 4,681MM) also available at 0.28% (mgt fee).
Winslow CIT (Class C)	24,014 / 3,246	0	0.35 (all in)	- Separate account (Vehicle AUM: 1,592MM) also available at 0.35% (mgt fee).



## Candidate Firm Information



## Candidate Firm Summary

	Federated Hermes, Inc.	Jennison Associates LLC	J.P. Morgan Asset Management	T. Rowe Price Associates, Inc.	William Blair & Company LLC	Winslow Capital Management, LLC
Headquarters	Pittsburgh, PA	New York, NY	New York, NY	Baltimore, MD	Chicago, IL	Minneapolis, MN
Ownership / Parent	Publicly Owned / Federated Hermes, Inc.	Publicly Owned / Prudential Financial, Inc.	Publicly Owned / JPMorgan Chase & Co.	Publicly Owned / T. Rowe Price Group, Inc.	Employee Owned /	Subsidiary / Nuveen, LLC
Minority / Women / Disabled - Owned	No	No	No	No	No	No
Total Firm Assets (\$mm)	697,073	186,436	2,747,779	1,349,700	64,308	25,452
Have any open regulatory exams/investigations been escalated to enforcement?	No	No	No	No	No	No
Date of Last SEC Exam	09/30/2018	09/18/2020	06/05/2017	09/01/2020	12/17/2018	03/01/2023
GIPS Compliant	Yes	Yes	Yes	Yes	Yes	Yes
E&O Insurance	Yes	Yes	Yes	Yes	Yes	Yes
Disaster Recovery Plan in Place	Yes	Yes	Yes	Yes	Yes	Yes

## Total Firm Assets Under Management

### Total Firm Assets by Type (\$mm) as of June 30, 2023

	Corporate	Public(Govt)	Sub-Advised	Other	Total Org Assets
Federated Hermes, Inc.	14,310	141,376	40,678	500,709	697,073
Jennison Associates LLC	38,999	6,577	126,667	14,194	186,436
J.P. Morgan Asset Management	409,288	72,157	153,980	2,112,354	2,747,779
T. Rowe Price Associates, Inc.	82,220	49,205	184,822	1,033,453	1,349,700
William Blair & Company LLC	12,834	19,401	9,993	22,080	64,308
Winslow Capital Management, LLC	389	650	18,728	5,685	25,452



## Candidate Product Information

## Candidate Product Summary

	Federated Hermes, Inc.	Jennison Associates LLC	J.P. Morgan Asset Management	T. Rowe Price Associates, Inc.	William Blair & Company LLC	Winslow Capital Management, LLC
Product Name	Federated Hermes MDT Large Cap Growth Institutional	Large Cap Growth Equity	JPM US Large Cap Growth	US Large-Cap Growth Equity Strategy	Large Cap Growth	Large Cap Growth
Product Benchmark	Russell:1000 Growth	Russell:1000 Growth	Russell:1000 Growth	Russell:1000 Growth	Russell:1000 Growth	Russell:1000 Growth
Proposed Vehicle	CIT	3(c)11	Commingled	CIT	CIT	CIT
Product / Vehicle Inception	1987 / Unfunded	1970 / 2000	1992 / 2012	2001 / 2019	1993 / 2020	1992 / 2010
Total Product / Vehicle Assets (\$mm)	549 / Unfunded	70,886 / 850	84,475 / 4,383	57,990 / 5,951	6,840 / 621	24,014 / 3,246
Number of Holdings	99	53	69	52	33	43
Issue Diversification	12	11	9	7	8	9
Annual Turnover	150%	51%	36%	19%	34%	84%
Combined Z-Score*	0.78 (59th)	1.21 (4th)	0.97 (22nd)	0.93 (26th)	0.88 (35th)	1.08 (10th)
Weighted Median Market Cap (\$b)*	243.54 (43rd)	425.07 (14th)	363.45 (27th)	450.09 (7th)	205.62 (57th)	362.53 (27th)
Non-US Exposure	0.00%	11.51%	4.44%	2.67%	6.03%	2.48%

\*Ranking vs Callan Large Cap Growth in parenthesis

## Product Level Investment Professionals

	Product Level Resources				Gained (5 Yr)		Lost (5 Yr)	
	Portfolio Managers	Central Research Analysts	Dedicated Fundamental Analysts	Quantitative Analysts	Portfolio Managers	Dedicated Fundamental Analysts	Portfolio Managers	Dedicated Fundamental Analysts
Federated	5		5		2 (40%)	3 (60%)	1 (20%)	3 (60%)
Jennison	4		12		0 (0%)	6 (50%)	1 (17%)	4 (33%)
JPM	5	3			0 (0%)	1 (0%)	0 (0%)	0 (0%)
T. Rowe	2	202			0 (0%)	0	2 (100%)	0
William Blair	2	13			0 (0%)	0 (0%)	0 (0%)	0 (0%)
Winslow	4	7			0 (0%)	0 (0%)	0 (0%)	0 (0%)

## Key Investment Professionals

### Federated

Key Professionals	Started with Product	Joined Firm	Investment Experience
Frederick Konopka - PM	2004	1997	1997
Daniel Mahr - PM	2004	2002	2002
John Paul Lewicke - PM	2007	2007	2007
Shuo (Damien) Zhang - PM	2009	2009	2009
Tony Ng - PM	2011	2011	2011

### T. Rowe

Key Professionals	Started with Product	Joined Firm	Investment Experience
Taymour Tamaddon - PM	2016	2003	2003
Jon Friar - PM	2023	2011	2007

### Jennison

Key Professionals	Started with Product	Joined Firm	Investment Experience
Kathleen McCarragher - PM	1998	1998	1982
Michael Del Balso - PM	1999	1972	1968
Blair Boyer - PM	2003	1993	1983
Natasha Kuhlkin - PM	2014	2004	1995

### William Blair

Key Professionals	Started with Product	Joined Firm	Investment Experience
Jim Golan - PM	2005	2000	1988
David Ricci - PM	2011	1994	1994

### JPM

Key Professionals	Started with Product	Joined Firm	Investment Experience
Giridhar Devulpally - PM	2004	2003	1992
Holly Fleiss - PM	2020	2012	2004
Larry Lee - PM	2020	2006	1993
Joseph Wilson - PM	2020	2014	2005
Robert Maloney - PM	2022	2013	2000

### Winslow

Key Professionals	Started with Product	Joined Firm	Investment Experience
Justin Kelly - PM	1999	1999	1993
Patrick Burton - PM	2010	2010	1984
Peter Dlugosch - PM	2022	2013	2001
Steven Hamill - PM	2023	2006	1993

## Product Assets Under Management

### Product Assets by Vehicle (\$mm) as of June 30, 2023

	Separate Account	Commingled	MF Institutional	MF Retail	Total
Federated	23		527		549
Jennison	28,177	1,371	41,338		70,886
JPM	17,443	4,383		62,649	84,475
T. Rowe	26,086	14,014	34	17,856	57,990
William Blair	4,681	621	1,390	149	6,840
Winslow	6,231	3,315	14,468		24,014

## Product Asset Turnover

### Product Asset Turnover (\$mm) as of June 30, 2023

	Total Product Assets	Largest Account	Total Accounts	5-Year Net Asset Growth*	2022 Assets	2021 Assets	2020 Assets	2019 Assets	2018 Assets
Federated	549	527	33	249	267	248	206	202	111
Jennison	70,886	25,130	119	-35,747	53,984	92,970	87,402	62,969	53,974
JPM	84,475	2,726	97	37,846	52,088	56,316	42,306	22,616	16,566
T. Rowe	57,990	17,856	86	-19,433	47,784	82,885	79,905	49,649	39,032
William Blair	6,840	794	52	2,981	5,075	5,045	2,414	1,469	978
Winslow	24,014	12,979	67	-11,487	19,568	29,544	26,458	21,726	18,024

\* Net Asset Growth measures net asset flows by removing the performance impact on reported asset growth, thereby isolating growth due to net asset flows into or out of the product. This calculation is based upon each product's beginning and ending assets as well as the representative product return.



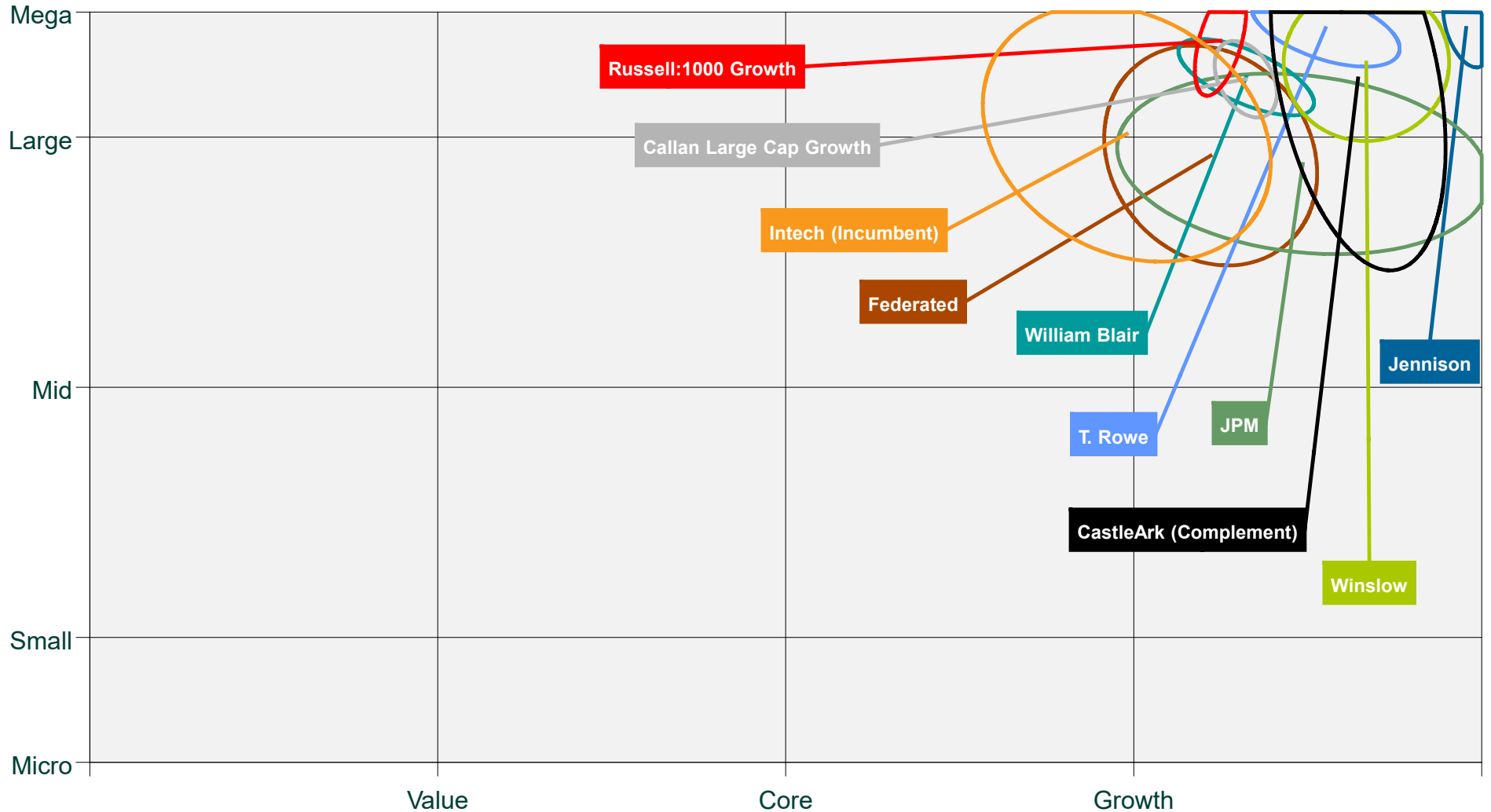


## Candidate Portfolio Characteristics

## Style Map

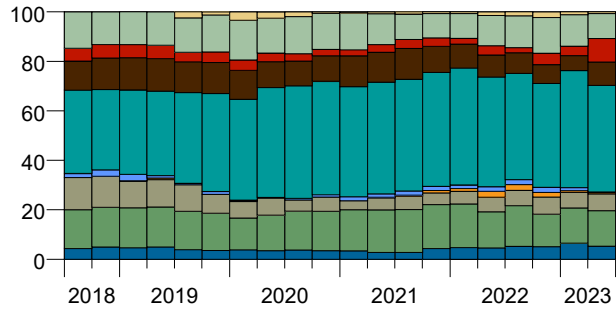
This page analyzes the historical investment style of a portfolio utilizing a detailed holdings-based style analysis to determine average actual exposures to various market capitalization and style segments. The market is segmented quarterly by capitalization and style. The capitalization segments are dictated by capitalization decile breakpoints. The style segments are determined using the "Combined Z score", based on the eight fundamental factors used in the MSCI stock style scoring system. The style map illustrates the average historical market capitalization and style score of the portfolio.

### Style Map for Five Years Ended June 30, 2023

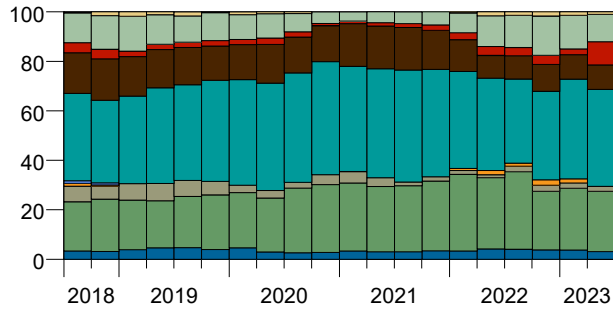


## Sector Allocation

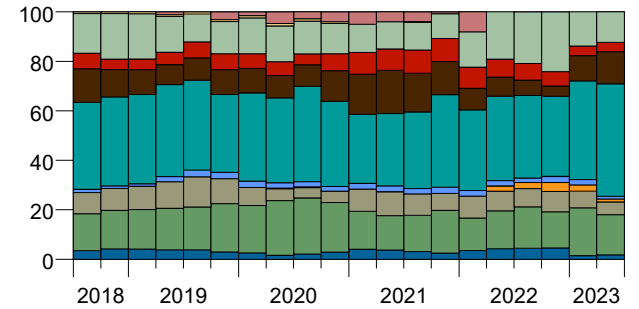
Federated



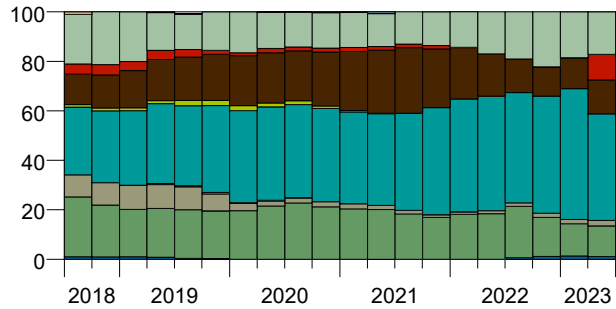
Jennison



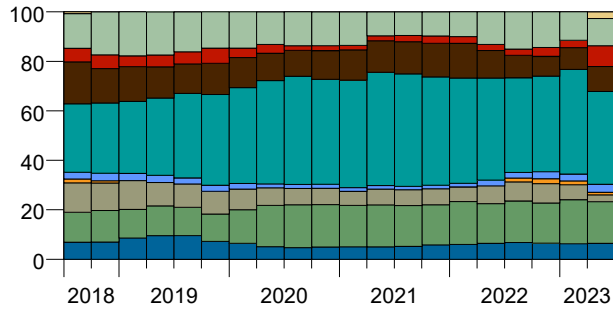
JPM



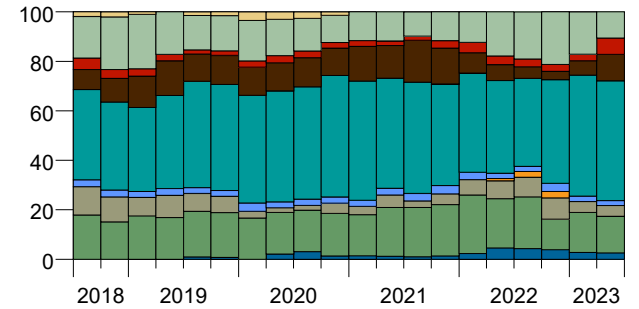
T. Rowe



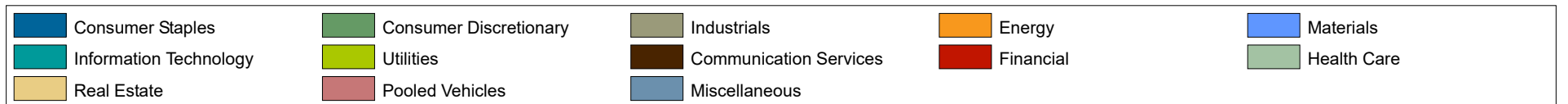
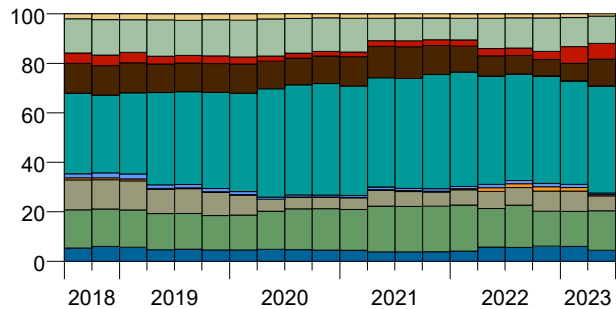
William Blair



Winslow

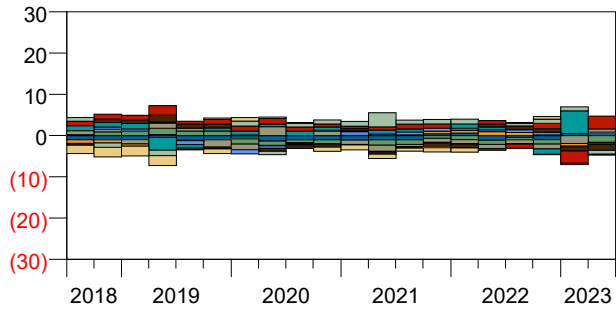


Index: Russell 1000 Growth Index

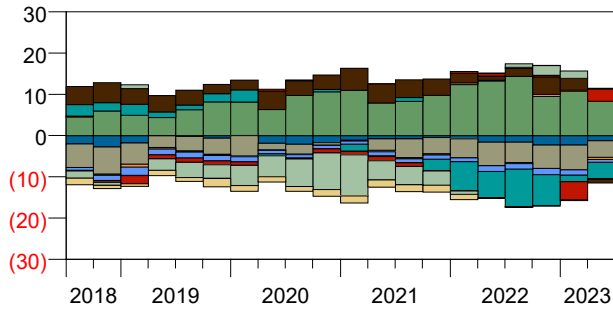


## Sector Allocation Relative to Russell:1000 Growth

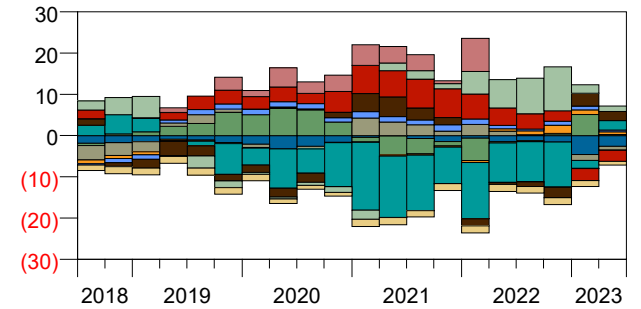
Federated



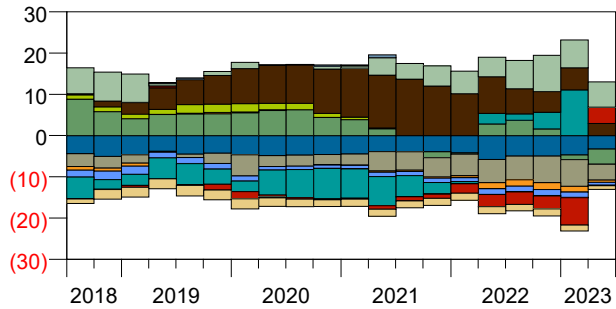
Jennison



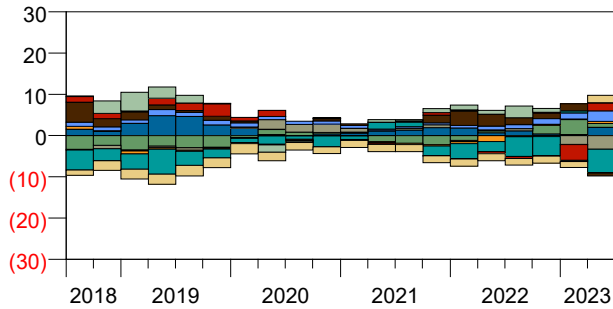
JPM



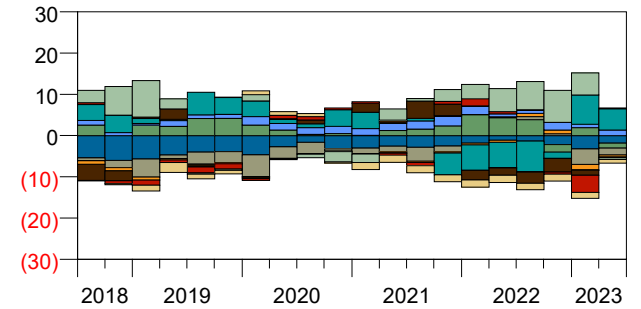
T. Rowe



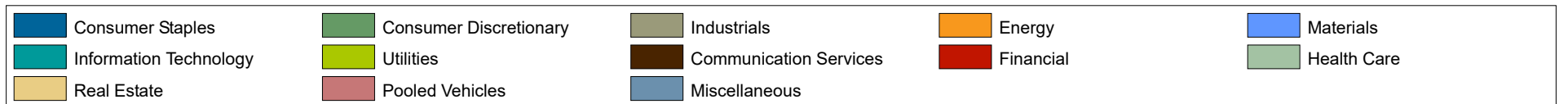
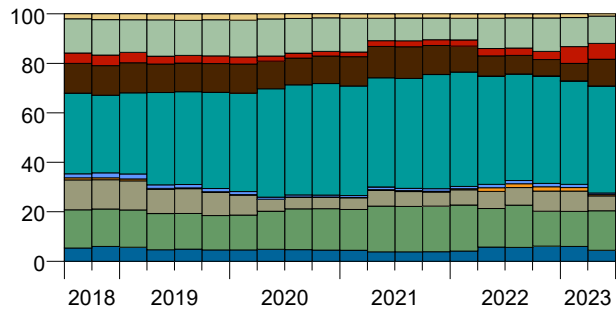
William Blair



Winslow



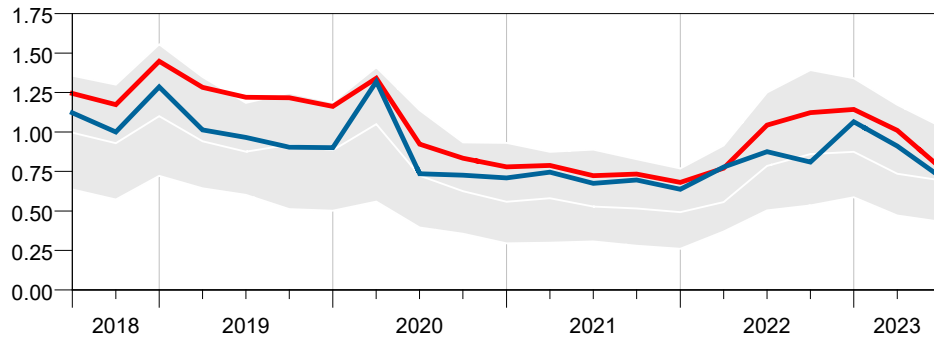
Index: Russell 1000 Growth Index



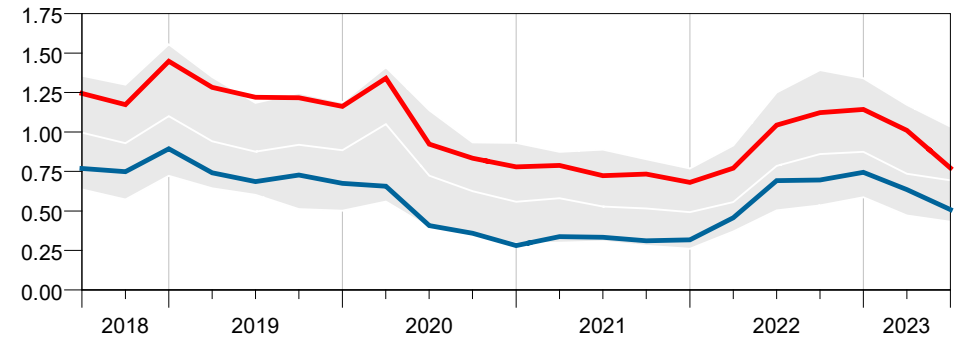
## Dividend Yield

The charts below illustrate Dividend Yield for different managers over time. As a backdrop, the range (from 10th to 90th percentile) is shown for the Callan Large Cap Growth group. The Russell 1000 Growth Index index is shown in red for comparison.

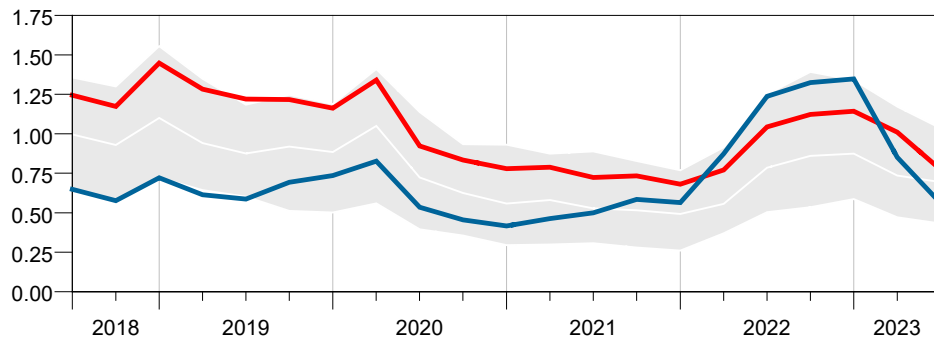
### Federated



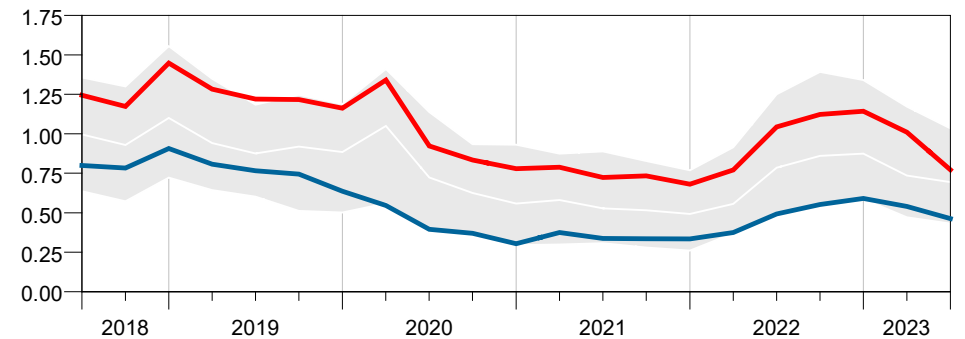
### Jennison



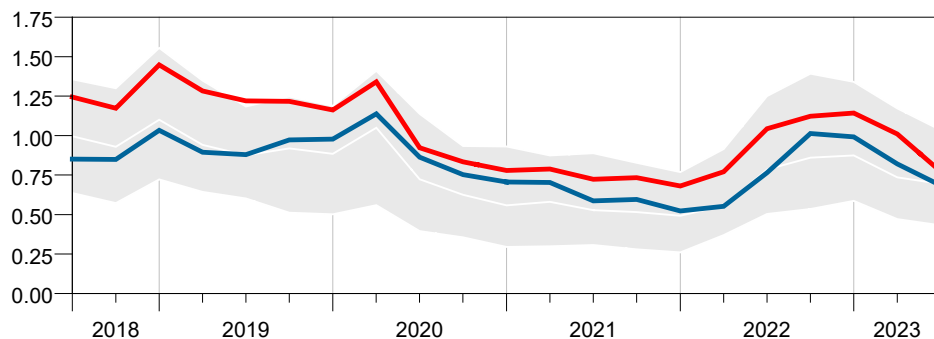
### JPM



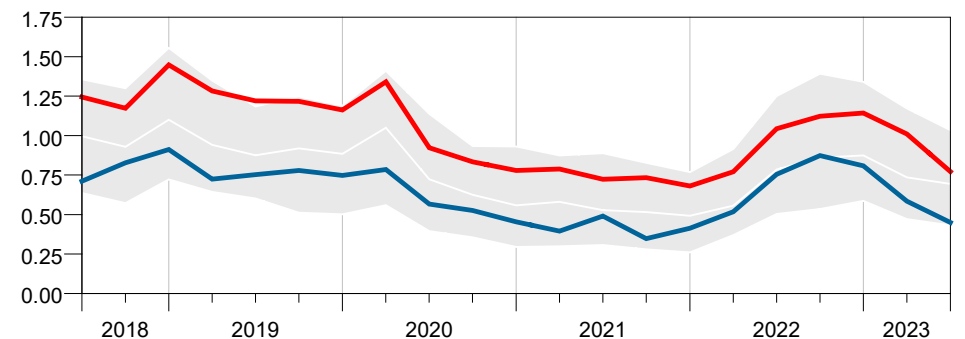
### T. Rowe



### William Blair



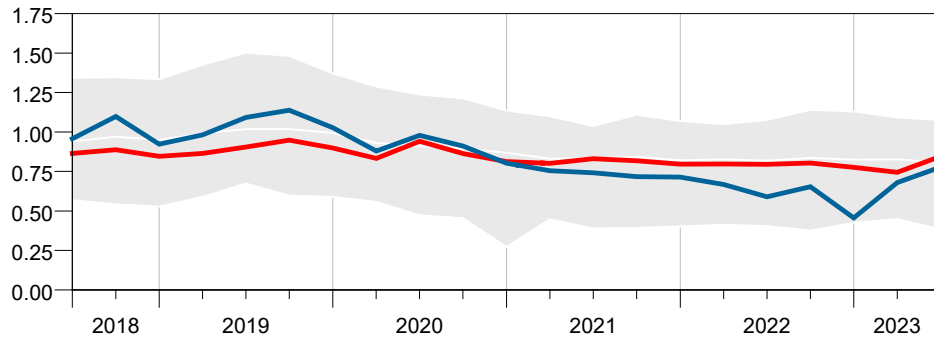
### Winslow



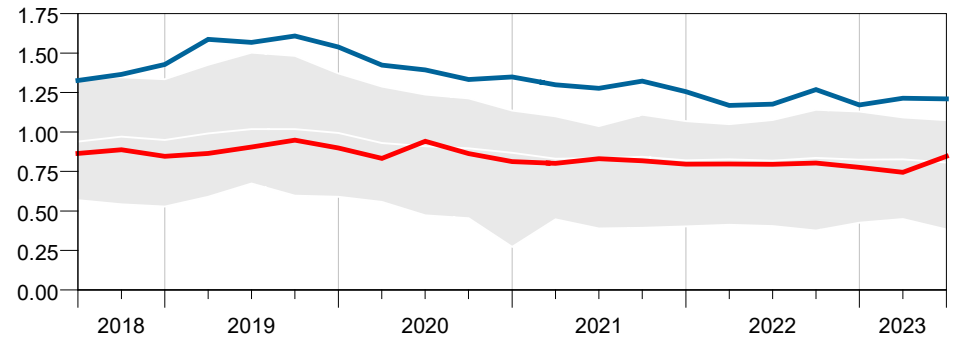
## Combined Z Score

The charts below illustrate Combined Z Score for different managers over time. As a backdrop, the range (from 10th to 90th percentile) is shown for the Callan Large Cap Growth group. The Russell 1000 Growth Index index is shown in red for comparison.

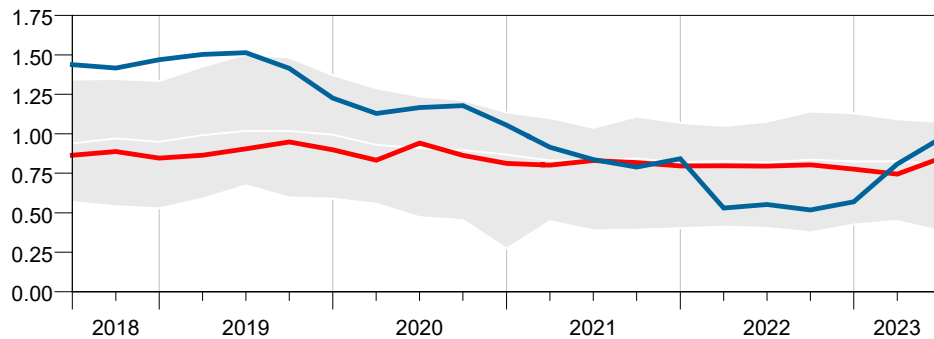
### Federated



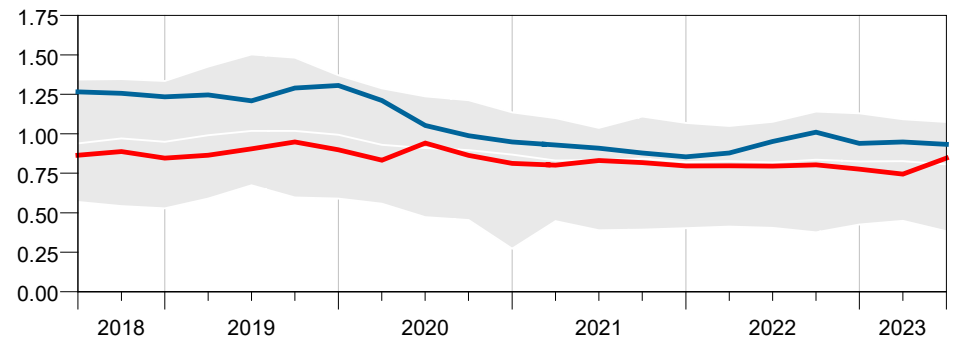
### Jennison



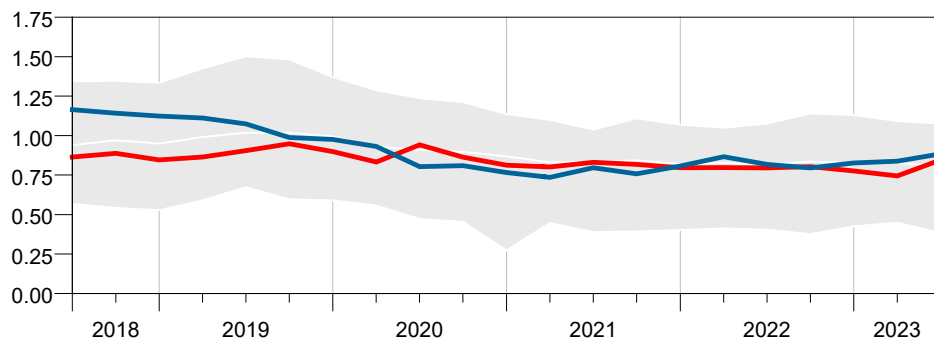
### JPM



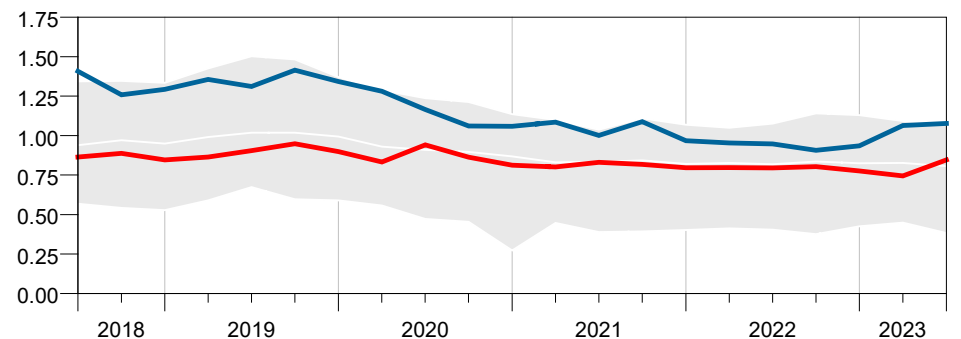
### T. Rowe



### William Blair



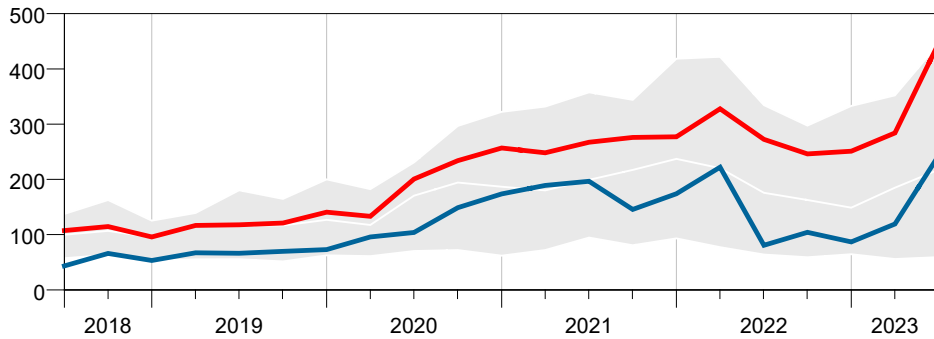
### Winslow



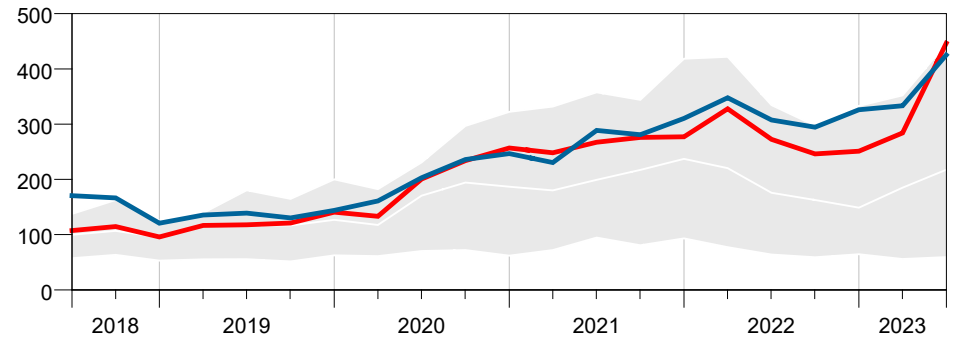
## Weighted Median Market Capitalization

The charts below illustrate Weighted Median Market Capitalization for different managers over time. As a backdrop, the range (from 10th to 90th percentile) is shown for the Callan Large Cap Growth group. The Russell 1000 Growth Index index is shown in red for comparison.

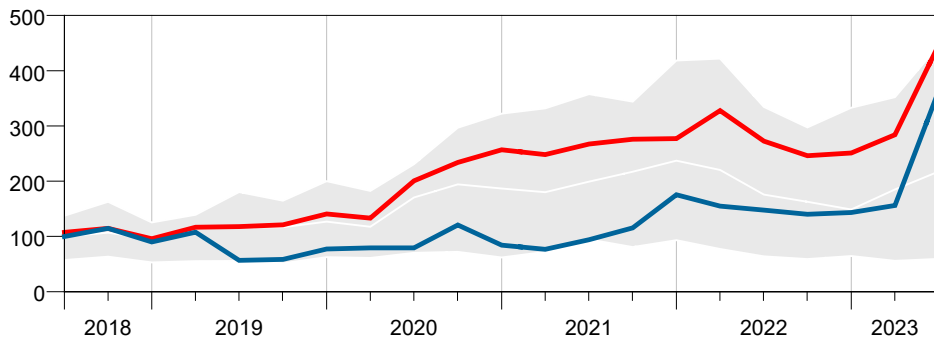
**Federated**



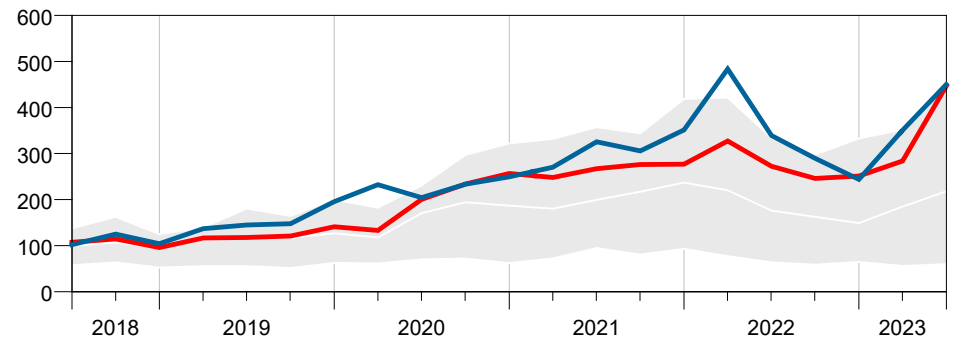
**Jennison**



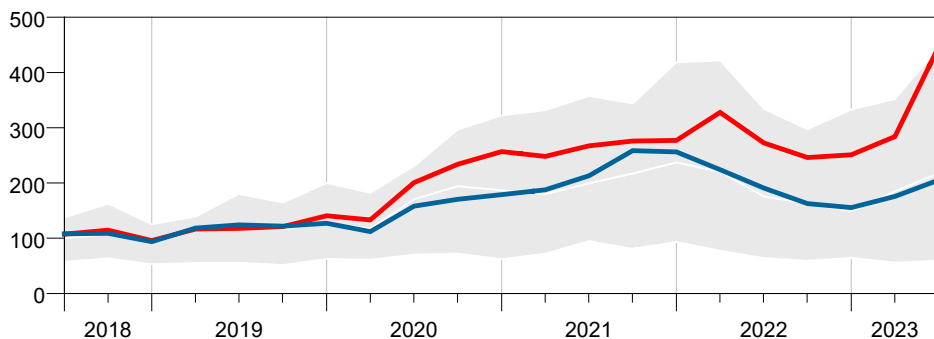
**JPM**



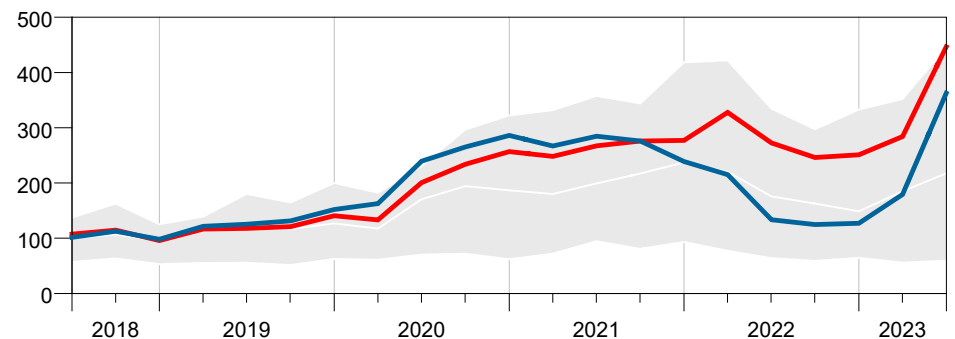
**T. Rowe**



**William Blair**



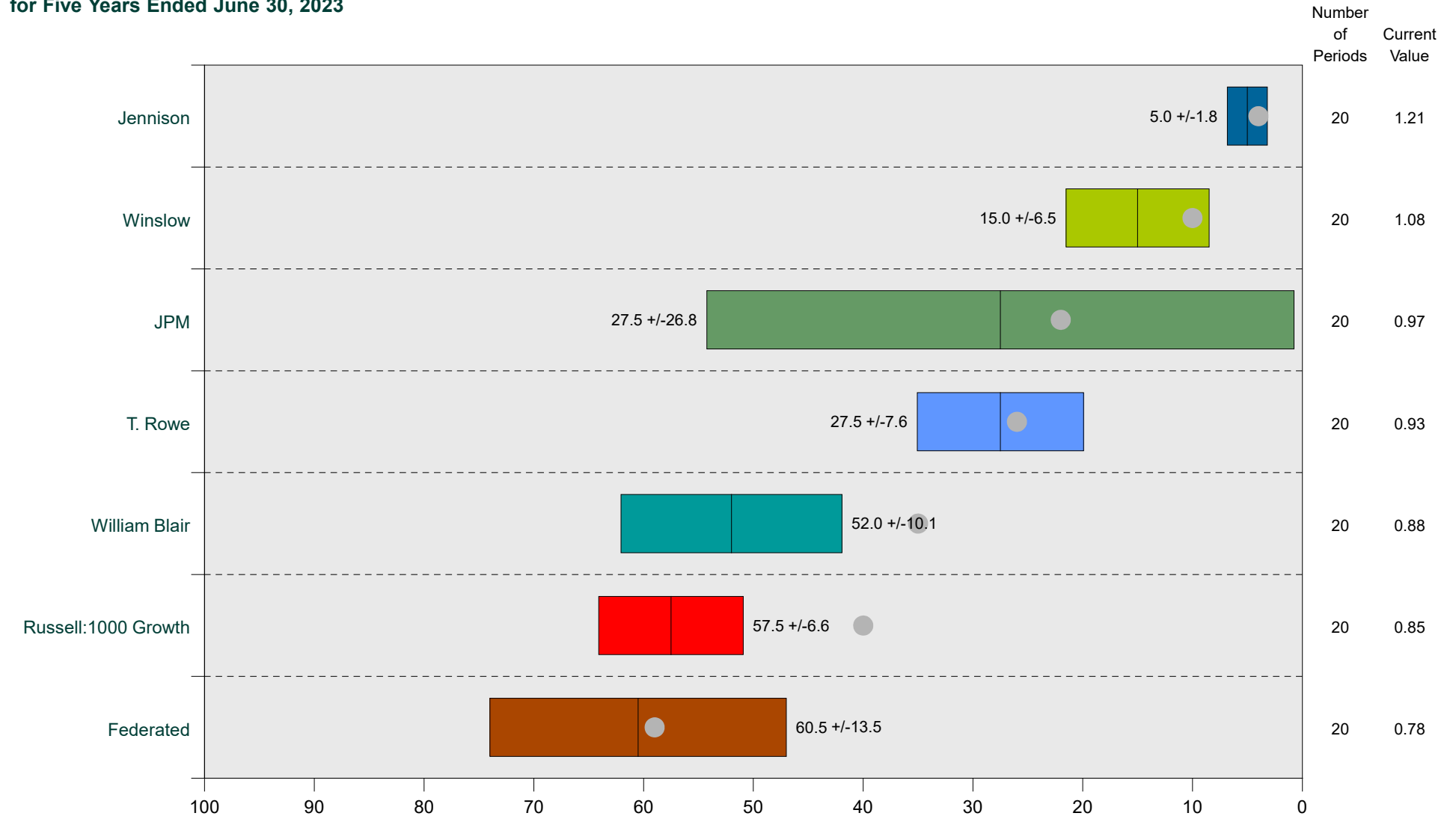
**Winslow**



## Historical Rankings - Combined Z Score

This page compares multiple portfolios to each other by analyzing both the historical median ranking for a given metric versus a relevant peer group, and the consistency and range (standard deviation) of that ranking over time. The midpoint of each sideways bar represents the median ranking of a given portfolio over time, and the width of the bar represents the consistency and range of that ranking (+/- 1 standard deviation). The slash-separated numbers show the median and standard deviation, respectively, of the portfolios' ranking. The current ranking of each portfolio is demarcated by a dot, while the corresponding current value of the metric is displayed on the far right.

### Combined Z Score Against Callan Large Cap Growth for Five Years Ended June 30, 2023

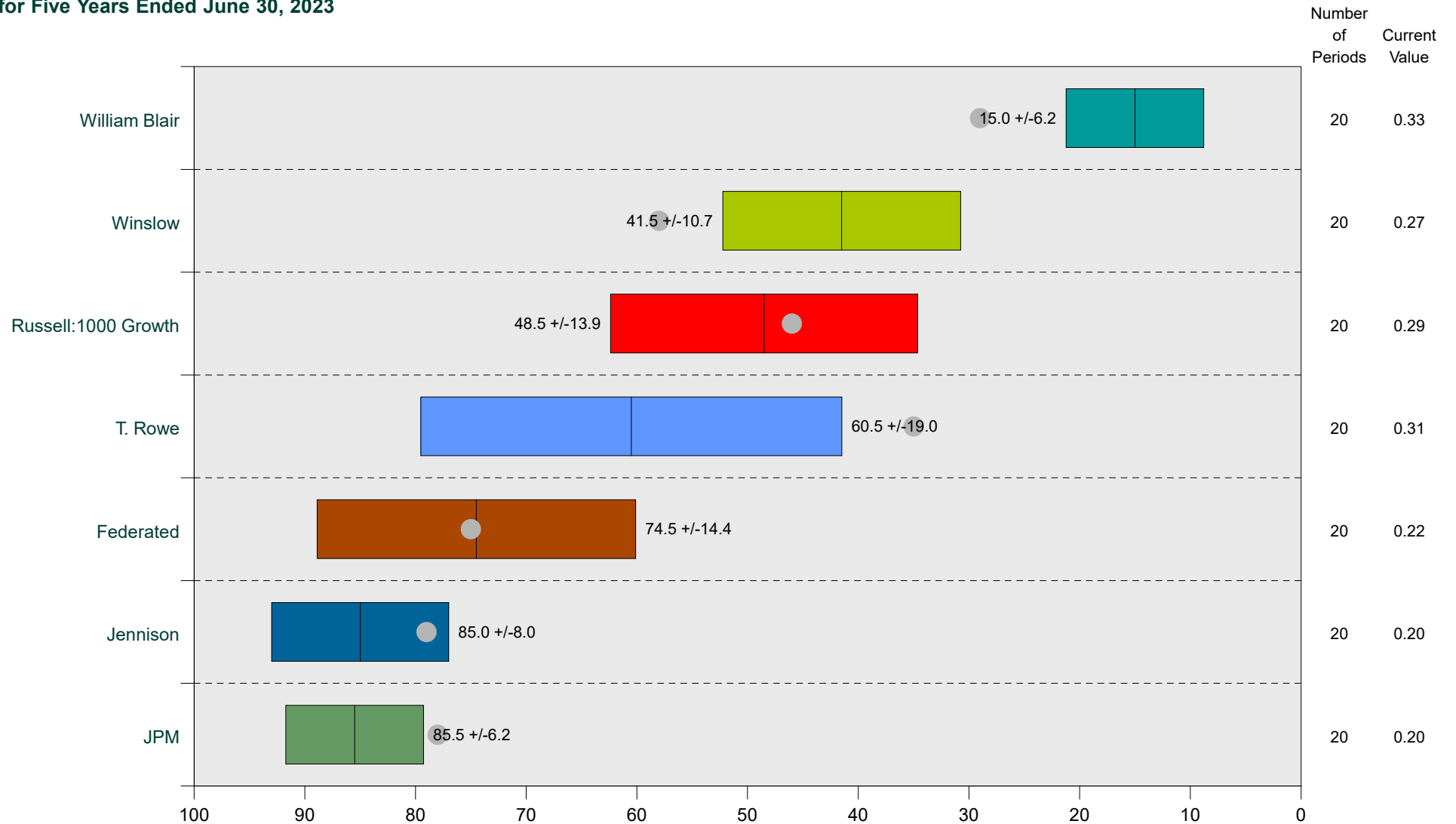




## Historical Rankings - Stability Score

This page compares multiple portfolios to each other by analyzing both the historical median ranking for a given metric versus a relevant peer group, and the consistency and range (standard deviation) of that ranking over time. The midpoint of each sideways bar represents the median ranking of a given portfolio over time, and the width of the bar represents the consistency and range of that ranking (+/- 1 standard deviation). The slash-separated numbers show the median and standard deviation, respectively, of the portfolios' ranking. The current ranking of each portfolio is demarcated by a dot, while the corresponding current value of the metric is displayed on the far right.

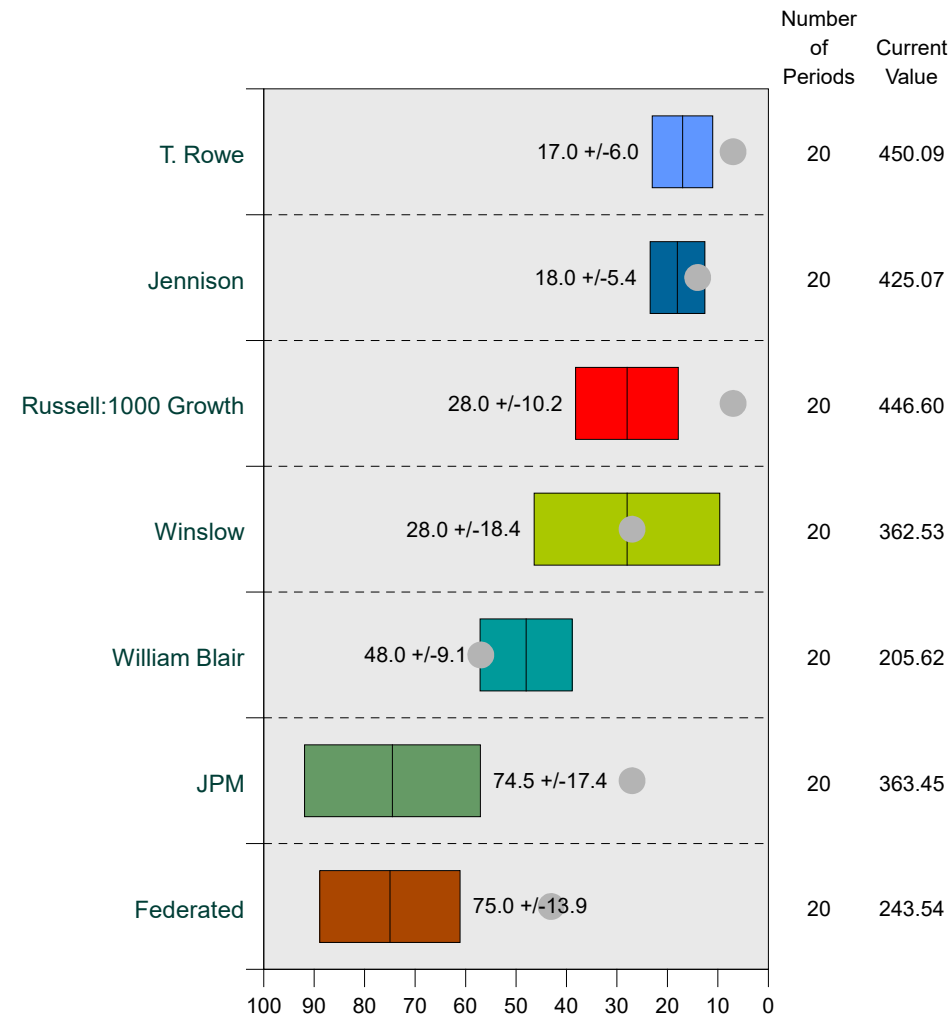
### Stability Score Against Callan Large Cap Growth for Five Years Ended June 30, 2023



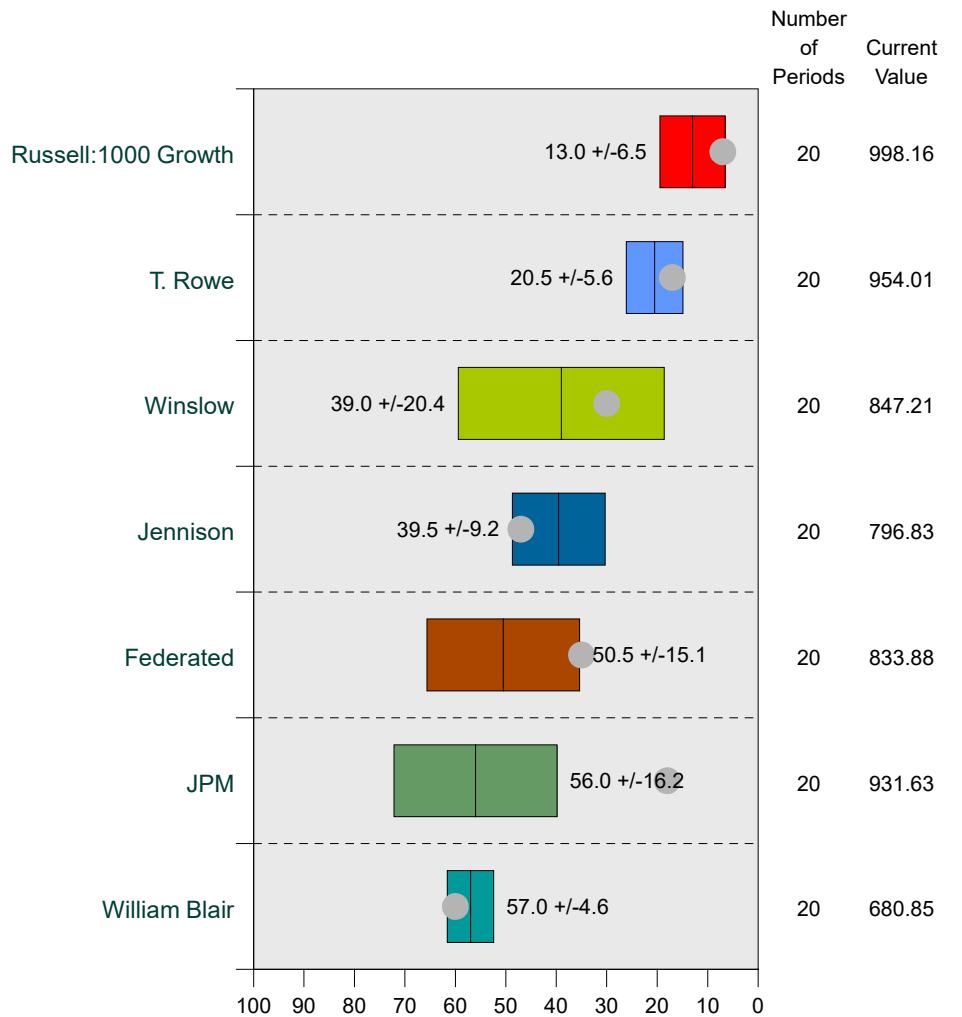
### Historical Rankings - Weighted Median & Average Market Cap.

This page compares multiple portfolios to each other by analyzing both the historical median ranking for a given metric versus a relevant peer group, and the consistency and range (standard deviation) of that ranking over time. The midpoint of each sideways bar represents the median ranking of a given portfolio over time, and the width of the bar represents the consistency and range of that ranking (+/- 1 standard deviation). The slash-separated numbers show the median and standard deviation, respectively, of the portfolios' ranking. The current ranking of each portfolio is demarcated by a dot, while the corresponding current value of the metric is displayed on the far right.

**Weighted Median Market Cap Against Callan Large Cap Growth for Five Years Ended June 30, 2023**



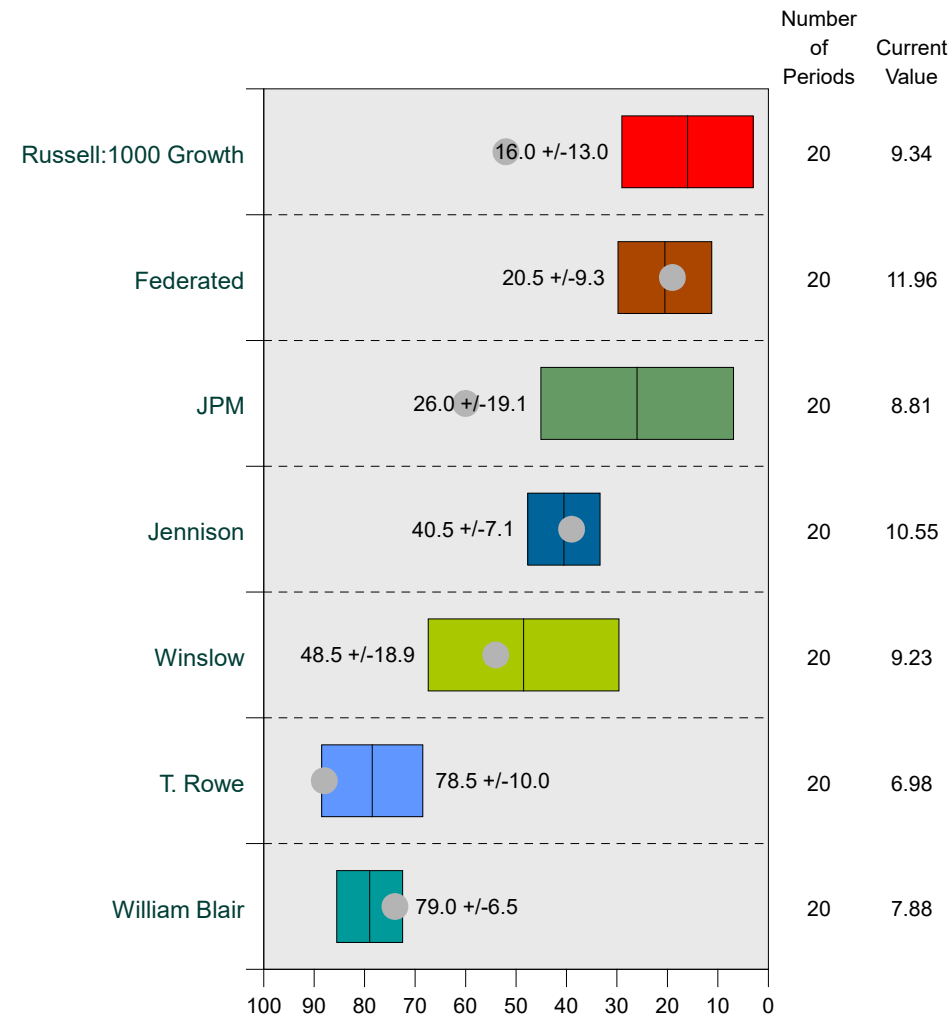
**Weighted Average Market Cap Against Callan Large Cap Growth for Five Years Ended June 30, 2023**



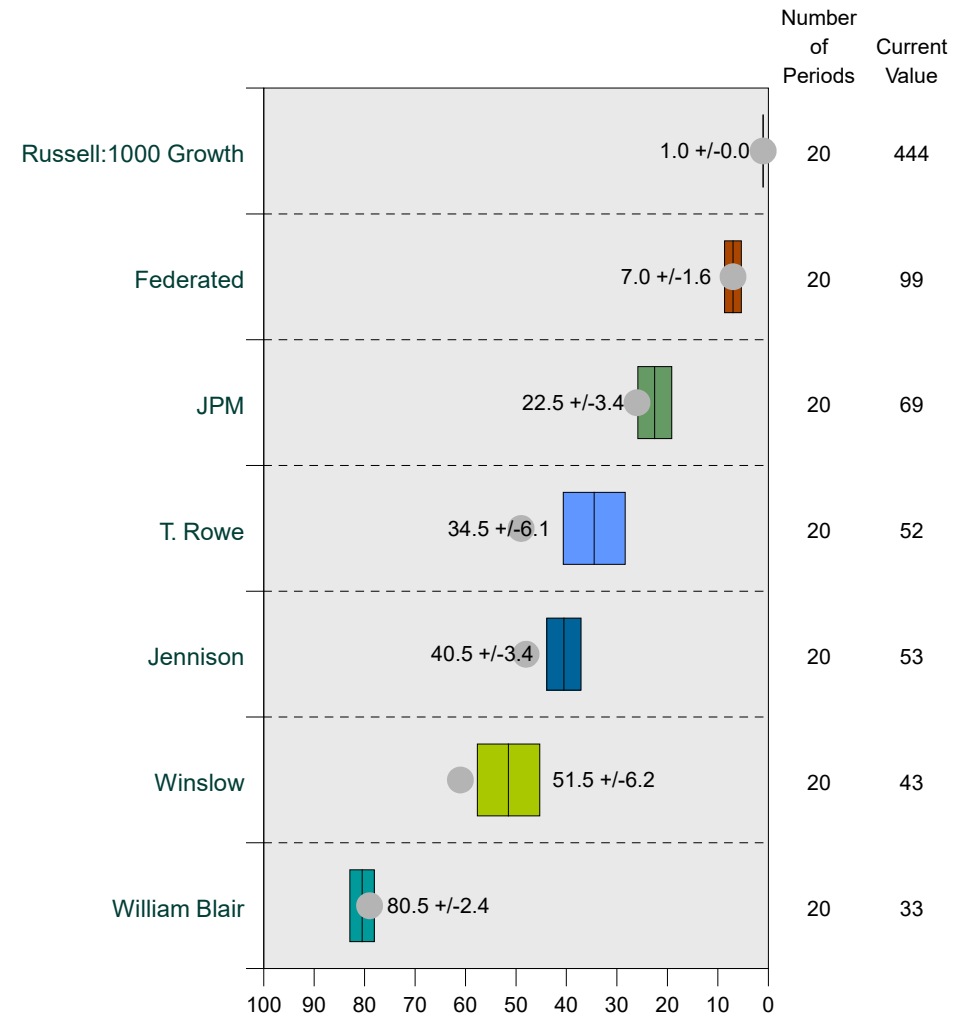
## Historical Rankings - Issue Div. & Number of Holdings

This page compares multiple portfolios to each other by analyzing both the historical median ranking for a given metric versus a relevant peer group, and the consistency and range (standard deviation) of that ranking over time. The midpoint of each sideways bar represents the median ranking of a given portfolio over time, and the width of the bar represents the consistency and range of that ranking (+/- 1 standard deviation). The slash-separated numbers show the median and standard deviation, respectively, of the portfolios' ranking. The current ranking of each portfolio is demarcated by a dot, while the corresponding current value of the metric is displayed on the far right.

**Issue Diversification Against Callan Large Cap Growth for Five Years Ended June 30, 2023**



**Number of Holdings Against Callan Large Cap Growth for Five Years Ended June 30, 2023**





# Candidate Performance

## Returns and Peer Group Rankings - Trailing Periods

### Returns for Periods Ended June 30, 2023

Group: Callan Large Cap Growth (Percentile Rankings in Parentheses)

	Last Quarter	Last Year	Last 3 Years	Last 5 Years	Last 7 Years	Last 10 Years
Federated	11.48 (59)	30.05 (14)	16.34 (2)	16.81 (1)	19.11 (2)	16.19 (10)
Jennison	15.83 (5)	32.99 (5)	9.30 (70)	13.26 (42)	17.26 (10)	16.07 (12)
JPM	13.15 (33)	26.59 (37)	12.98 (29)	16.77 (2)	20.18 (1)	17.59 (1)
T. Rowe	14.67 (11)	27.73 (29)	9.96 (63)	12.31 (66)	17.36 (9)	16.11 (11)
William Blair	12.16 (54)	24.80 (53)	11.14 (53)	14.31 (24)	17.00 (14)	16.48 (6)
Winslow	13.22 (32)	28.37 (25)	10.46 (57)	13.27 (41)	16.55 (18)	15.21 (35)
Intech (Incumbent)	9.43 (85)	13.01 (99)	7.88 (81)	10.59 (87)	12.81 (91)	12.68 (92)
CastleArk (Complement)	10.82 (73)	23.67 (62)	14.14 (12)	13.51 (34)	16.51 (20)	14.72 (50)
<b>Callan Large Cap Growth*</b>	<b>12.29</b>	<b>25.13</b>	<b>11.31</b>	<b>12.98</b>	<b>15.44</b>	<b>14.72</b>
<b>Russell:1000 Growth</b>	<b>12.81 (40)</b>	<b>27.11 (32)</b>	<b>13.73 (15)</b>	<b>15.14 (13)</b>	<b>16.91 (15)</b>	<b>15.74 (19)</b>

\*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

## Returns and Peer Group Rankings - Calendar Years

## Returns for Periods Ended June 30, 2023

## Group: Callan Large Cap Growth (Percentile Rankings in Parentheses)

	2 Qtrs. 2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Federated	26.92 (47)	(24.10) (19)	31.31 (8)	39.27 (32)	33.58 (64)	3.03 (28)	26.88 (77)	7.86 (7)	(2.59) (99)	13.90 (21)
Jennison	37.16 (3)	(37.66) (88)	16.72 (84)	55.96 (7)	33.81 (59)	(0.17) (59)	37.38 (4)	(0.12) (81)	11.68 (8)	10.60 (68)
JPM	23.73 (66)	(24.89) (24)	19.30 (78)	57.09 (6)	39.97 (8)	0.98 (48)	38.95 (1)	(1.11) (84)	8.55 (26)	11.87 (45)
T. Rowe	31.33 (20)	(34.22) (78)	22.24 (63)	40.23 (26)	29.31 (88)	4.90 (10)	38.51 (3)	3.43 (49)	10.70 (10)	9.28 (86)
William Blair	25.58 (60)	(32.06) (68)	29.09 (19)	37.20 (43)	37.51 (26)	6.08 (7)	32.34 (26)	2.88 (63)	8.23 (28)	15.62 (9)
Winslow	26.06 (58)	(30.65) (55)	25.51 (41)	38.29 (36)	34.66 (47)	4.42 (12)	33.49 (21)	(1.61) (89)	7.01 (40)	11.29 (61)
Intech (Incumbent)	18.60 (83)	(33.07) (73)	29.58 (16)	29.50 (80)	34.70 (45)	(3.67) (84)	30.29 (41)	5.97 (21)	4.58 (68)	10.32 (71)
CastleArk (Complement)	25.01 (62)	(27.21) (33)	30.26 (12)	40.65 (25)	30.21 (86)	(3.43) (82)	32.34 (26)	8.38 (4)	4.26 (71)	6.42 (97)
<b>Callan Large Cap Growth*</b>	<b>26.80</b>	<b>(30.09)</b>	<b>24.28</b>	<b>35.54</b>	<b>34.49</b>	<b>0.60</b>	<b>28.62</b>	<b>3.41</b>	<b>6.33</b>	<b>11.76</b>
<b>Russell:1000 Growth</b>	<b>29.02 (35)</b>	<b>(29.14) (43)</b>	<b>27.60 (26)</b>	<b>38.49 (35)</b>	<b>36.39 (33)</b>	<b>(1.51) (71)</b>	<b>30.21 (43)</b>	<b>7.08 (8)</b>	<b>5.67 (60)</b>	<b>13.05 (27)</b>

\*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

## Returns and Peer Group Rankings - Rolling Three-Year Periods

### Returns for Rolling Three-Year Periods Ended June 30, 2023

Group: Callan Large Cap Growth (Percentile Rankings in Parentheses)

	Last 3 Yrs.	3 Yrs. Ending 6/30/22	3 Yrs. Ending 6/30/21	3 Yrs. Ending 6/30/20	3 Yrs. Ending 6/30/19
Federated	16.34 (2)	13.40 (8)	24.95 (40)	21.10 (24)	21.49 (17)
Jennison	9.30 (70)	8.83 (59)	27.23 (14)	22.91 (11)	21.16 (19)
JPM	12.98 (29)	14.35 (2)	28.93 (6)	24.98 (6)	24.15 (4)
T. Rowe	9.96 (63)	8.15 (70)	25.19 (34)	20.39 (28)	23.81 (6)
William Blair	11.14 (53)	10.10 (43)	26.67 (18)	23.42 (9)	21.70 (16)
Winslow	10.46 (57)	8.83 (60)	24.37 (47)	21.10 (23)	20.88 (25)
Intech (Incumbent)	7.88 (81)	8.50 (65)	21.61 (81)	15.78 (78)	17.21 (65)
CastleArk (Complement)	14.14 (12)	13.77 (4)	22.39 (76)	17.86 (55)	16.96 (67)
<b>Callan Large Cap Growth*</b>	<b>11.31</b>	<b>9.39</b>	<b>24.15</b>	<b>18.27</b>	<b>18.42</b>
<b>Russell:1000 Growth</b>	<b>13.73 (15)</b>	<b>12.58 (12)</b>	<b>25.14 (36)</b>	<b>18.99 (43)</b>	<b>18.07 (57)</b>

\*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

## Returns and Peer Group Rankings - Rising/Declining Periods

## Returns for Rising/Declining Periods for Ten Years Ended June 30, 2023

Group: Callan Large Cap Growth (Percentile Rankings in Parentheses)

	Declining Period 1/1/22 to 6/30/23	Rising Period 4/1/20 to 12/31/21	Declining Period 1/1/20 to 3/31/20	Rising Period 1/1/19 to 12/31/19	Declining Period 10/1/18 to 12/31/18	Rising Period 7/1/13 to 9/30/18
Federated	(2.46) (6)	54.08 (6)	(14.18) (55)	33.58 (64)	(16.63) (78)	17.05 (57)
Jennison	(9.91) (71)	51.07 (15)	(11.57) (18)	33.81 (59)	(16.29) (71)	19.47 (12)
JPM	(4.77) (18)	53.52 (9)	(11.49) (15)	39.97 (8)	(18.59) (93)	19.49 (10)
T. Rowe	(9.30) (68)	47.97 (38)	(13.65) (47)	29.31 (88)	(12.75) (20)	20.54 (4)
William Blair	(10.05) (73)	49.83 (20)	(12.71) (32)	37.51 (26)	(12.39) (16)	19.29 (13)
Winslow	(8.57) (63)	47.80 (41)	(12.39) (27)	34.66 (47)	(15.79) (57)	18.10 (28)
Intech (Incumbent)	(14.27) (90)	47.55 (43)	(15.05) (71)	34.70 (45)	(14.76) (46)	15.78 (80)
CastleArk (Complement)	(6.09) (32)	54.08 (5)	(14.02) (49)	30.21 (86)	(19.07) (94)	16.67 (65)
<b>Callan Large Cap Growth*</b>	<b>(7.06)</b>	<b>46.95</b>	<b>(14.04)</b>	<b>34.49</b>	<b>(15.31)</b>	<b>17.30</b>
<b>Russell:1000 Growth</b>	<b>(5.80) (28)</b>	<b>51.01 (15)</b>	<b>(14.10) (54)</b>	<b>36.39 (33)</b>	<b>(15.89) (60)</b>	<b>17.47 (45)</b>

\*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.



## Statistics and Peer Group Rankings - Up & Down Market Capture

The table below illustrates Up Market Capture and Down Market Capture for ten years versus the Callan Large Cap Growth group. A manager with an up-market capture greater than 100 has outperformed the index during the up market and a manager with a down-market capture less than 100 has outperformed the index during the down market. The Down Market Capture rankings are inverted.

### Up Market Capture and Down Market Capture Relative to the Russell:1000 Growth for Ten Years Ended June 30, 2023

Group: Callan Large Cap Growth (Percentile Rankings in Parentheses)

	Up Market Capture (%)	Down Market Capture (%)
Federated	104.09 (18)	99.78 (61)
Jennison	111.47 (5)	106.05 (20)
JPM	114.88 (4)	96.93 (80)
T. Rowe	104.47 (16)	100.65 (55)
William Blair	106.75 (9)	99.58 (65)
Winslow	101.36 (24)	105.08 (26)
Intech (Incumbent)	74.76 (89)	101.23 (51)
CastleArk (Complement)	96.53 (43)	105.07 (27)
<b>Callan Large Cap Growth*</b>	<b>94.66</b>	<b>101.48</b>

\*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

## Excess Correlation Table

This excess correlation table shows the correlation of one portfolio's excess return to another portfolio's excess return. Excess return is the return minus a benchmark. For instance, Excess Correlation could measure the correlation of Manager A's return in excess of a benchmark with Manager B's return in excess of the same benchmark. Excess Correlation is used to indicate whether different managers outperform a market index at the same time.

### Benchmark: Russell 1000 Growth Index for Five Years Ended June 30, 2023

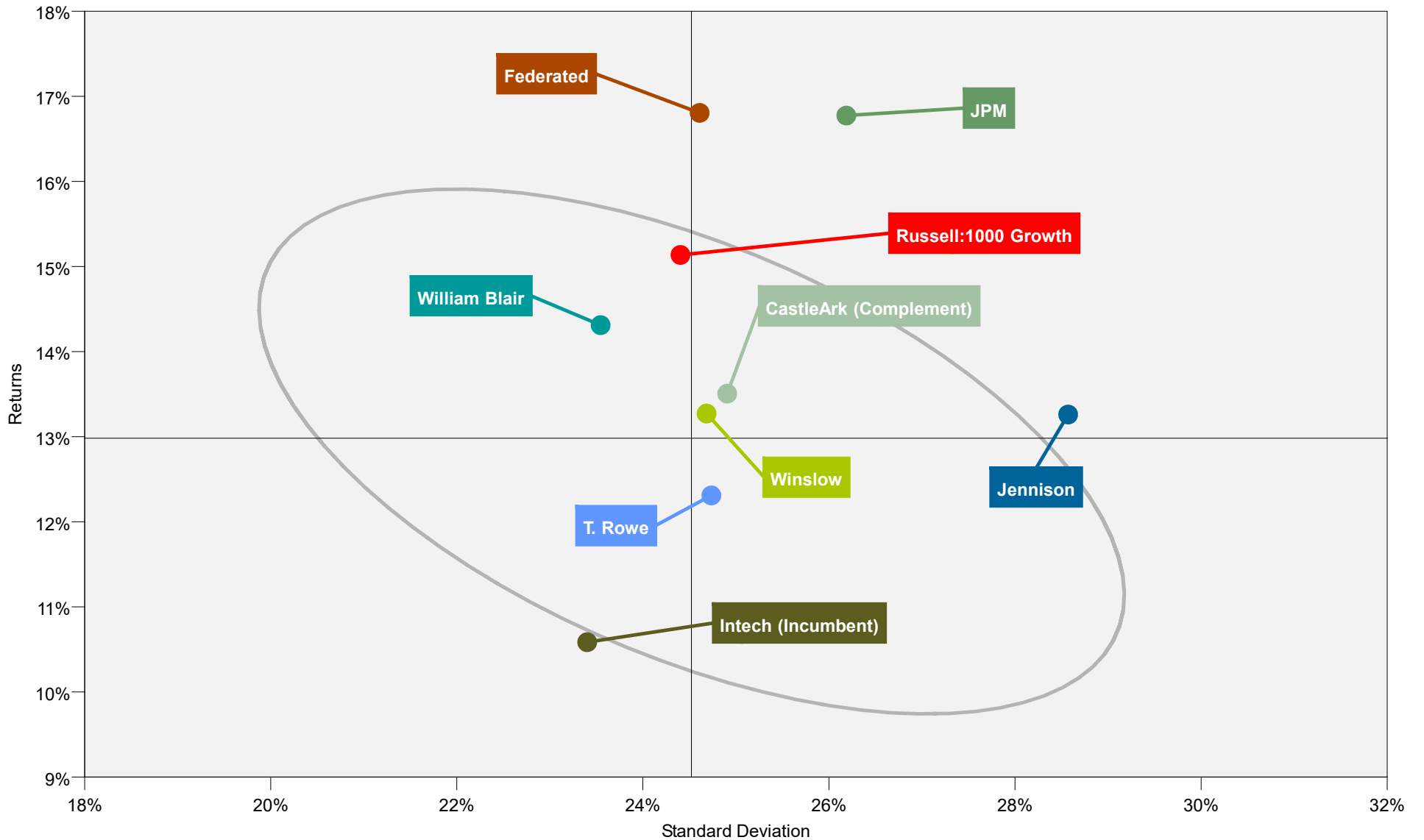
Federated	<b>1.00</b>							
Jennison	(0.23)	<b>1.00</b>						
JPM	0.40	0.37	<b>1.00</b>					
T. Rowe	(0.26)	0.59	0.12	<b>1.00</b>				
William Blair	0.10	(0.19)	(0.03)	0.33	<b>1.00</b>			
Winslow	0.29	0.16	0.42	0.28	0.54	<b>1.00</b>		
Intech (Incumbent)	0.29	(0.53)	(0.02)	(0.26)	0.47	(0.02)	<b>1.00</b>	
CastleArk (Complement)	0.42	(0.23)	0.33	(0.20)	(0.01)	0.15	(0.13)	<b>1.00</b>
	Federated	Jennison	JPM	T. Rowe	William Blair	Winslow	Intech (Incumbent)	CastleArk (Complement)

Manager candidate performance shown is gross-of-fees unless otherwise noted.

## Risk/Reward Structure

Risk/Reward for Five Years Ended June 30, 2023

Group: Callan Large Cap Growth (Ellipse with Median at Central Axis)



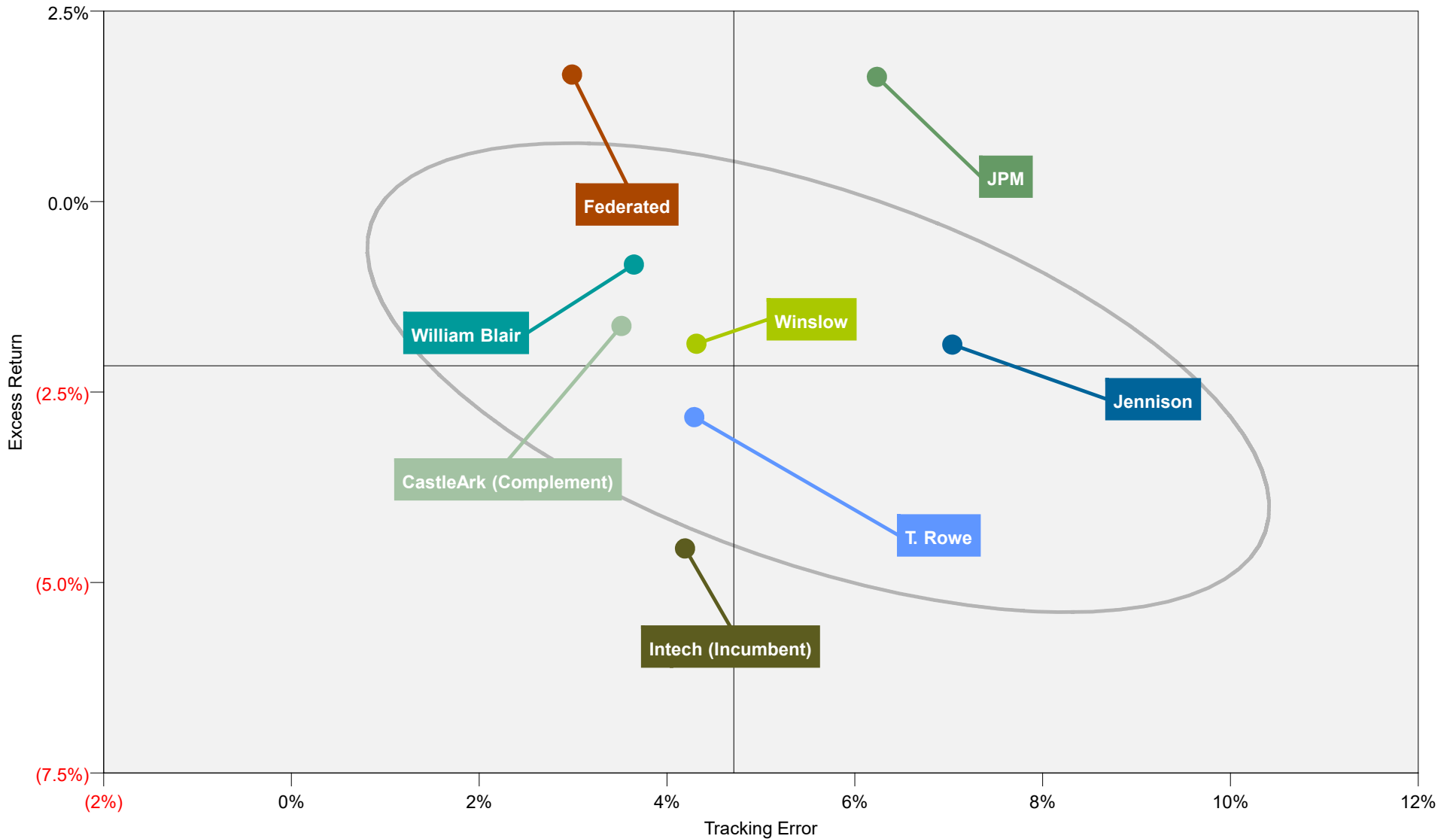
Manager candidate performance shown is gross-of-fees unless otherwise noted.

## Excess Return vs. Tracking Error

Excess Return vs Tracking Error for Five Years Ended June 30, 2023

Benchmark: Russell 1000 Growth Index

Group: Callan Large Cap Growth (Ellipse with Median at Central Axis)



Manager candidate performance shown is gross-of-fees unless otherwise noted.

## Risk Statistics

### Return-Based Risk Statistics Relative to Russell:1000 Growth for Five Years Ended June 30, 2023

Group: Callan Large Cap Growth (Percentile Ranking in Parentheses)

	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Alpha	Beta	Correlation
Federated	24.61 (47)	1.81 (95)	0.62 (10)	0.48 (4)	1.48 (8)	1.00 (43)	0.99 (19)
Jennison	28.57 (6)	5.16 (31)	0.41 (74)	(0.46) (58)	(2.89) (75)	1.14 (6)	0.98 (63)
JPM	26.19 (16)	3.50 (62)	0.58 (18)	0.17 (17)	1.07 (13)	1.04 (17)	0.97 (68)
T. Rowe	24.74 (40)	3.81 (56)	0.43 (69)	(0.55) (67)	(2.43) (70)	1.00 (46)	0.98 (43)
William Blair	23.55 (62)	2.62 (74)	0.54 (26)	(0.05) (29)	(0.19) (28)	0.95 (63)	0.99 (33)
Winslow	24.68 (42)	3.26 (66)	0.47 (51)	(0.34) (42)	(1.52) (51)	0.99 (47)	0.98 (44)
Intech (Incumbent)	23.40 (66)	4.41 (41)	0.39 (81)	(0.85) (94)	(3.47) (82)	0.95 (66)	0.99 (41)
CastleArk (Complement)	24.91 (37)	2.75 (70)	0.48 (47)	(0.43) (50)	(1.55) (51)	1.01 (33)	0.99 (31)
<b>Callan Large Cap Growth*</b>	<b>24.52</b>	<b>3.94</b>	<b>0.48</b>	<b>(0.42)</b>	<b>(1.51)</b>	<b>0.99</b>	<b>0.98</b>
<b>Russell:1000 Growth</b>	<b>24.40 (53)</b>	<b>0.00 (100)</b>	<b>0.56 (24)</b>	<b>0.00 (26)</b>	<b>0.00 (26)</b>	<b>1.00 (45)</b>	<b>1.00 (1)</b>

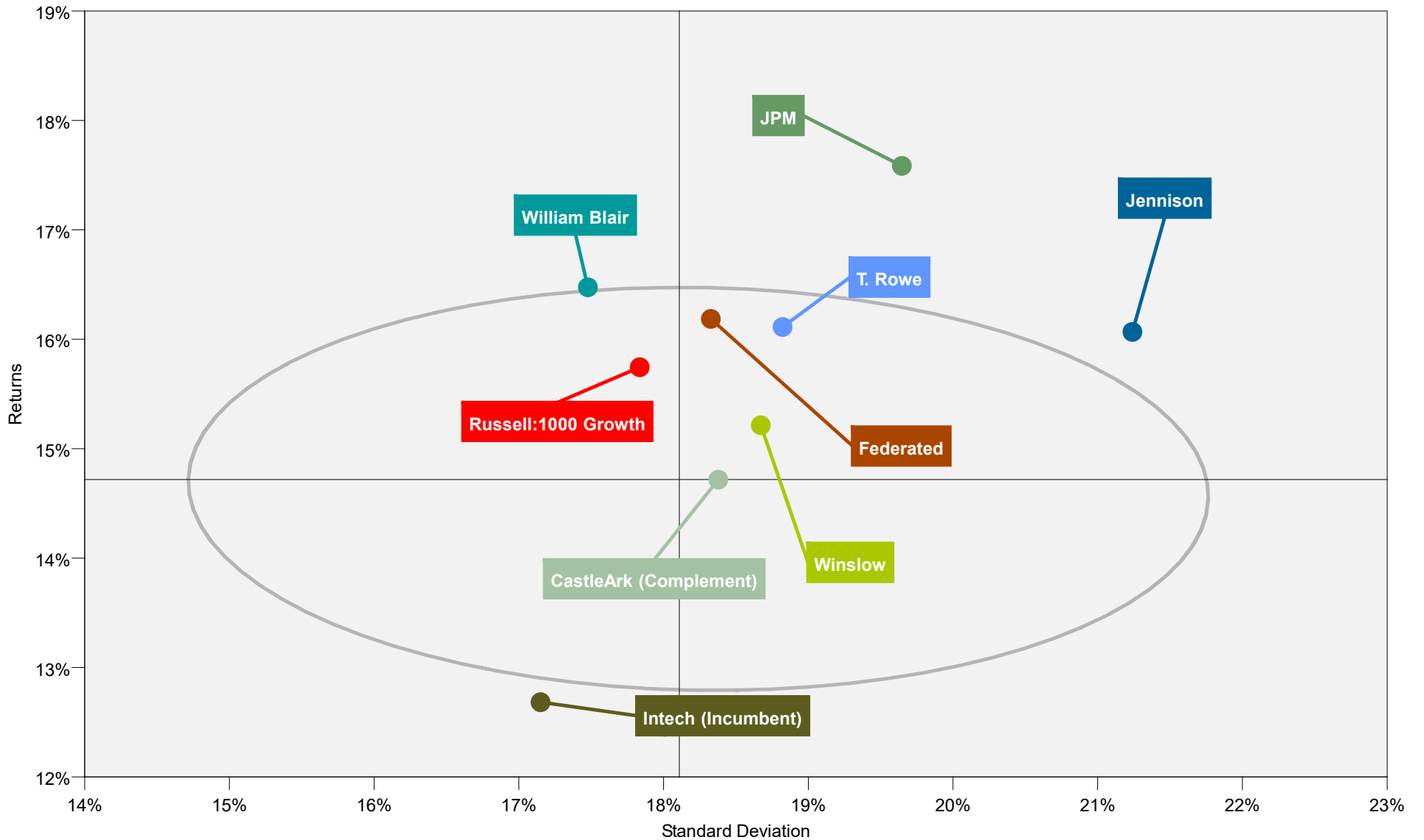
\*Results reflect group median.

Manager candidate performance shown is gross-of-fees unless otherwise noted.

## Risk/Reward Structure

Risk/Reward for Ten Years Ended June 30, 2023

Group: Callan Large Cap Growth (Ellipse with Median at Central Axis)



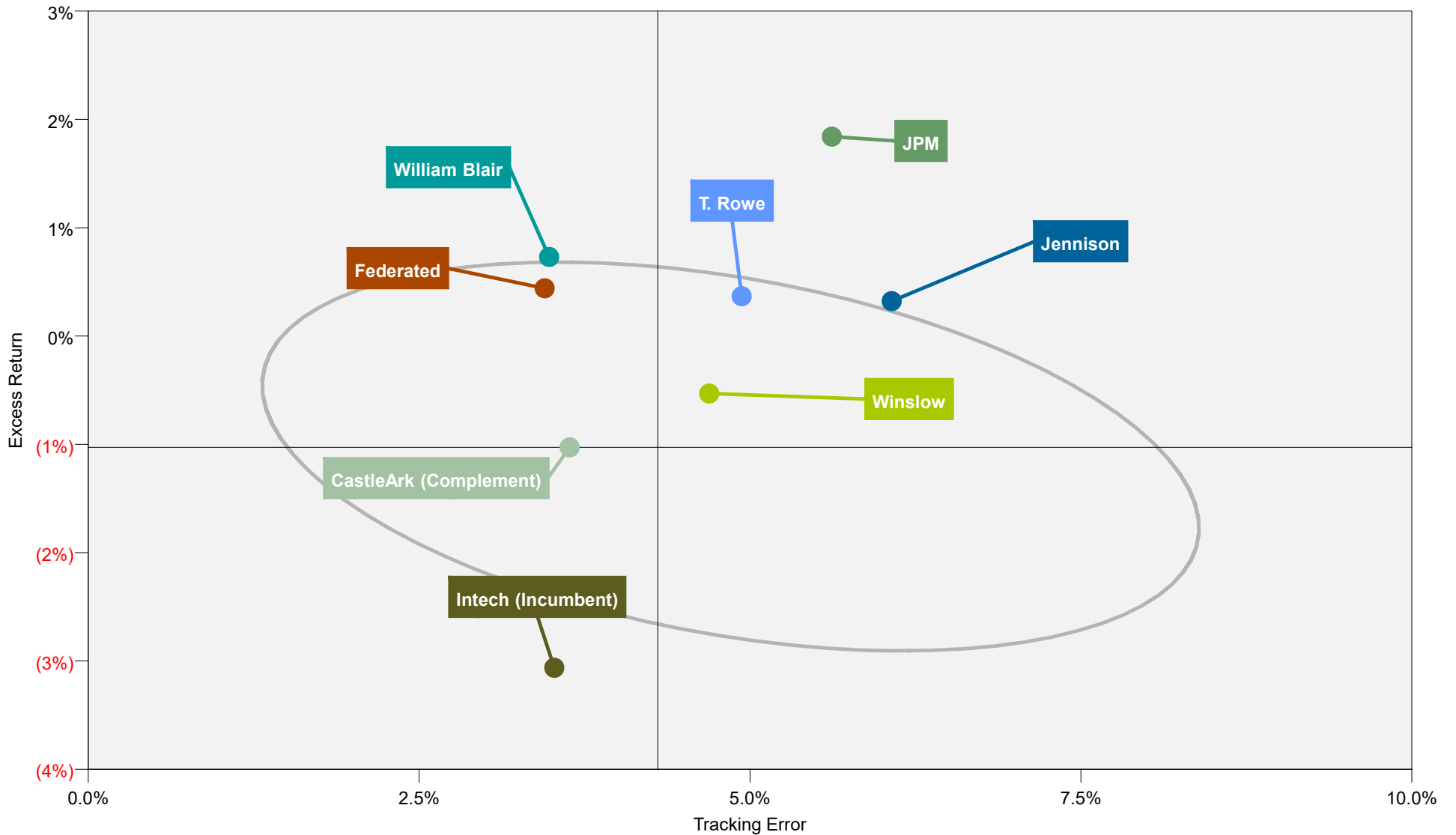
Manager candidate performance shown is gross-of-fees unless otherwise noted.

## Excess Return vs. Tracking Error

Excess Return vs Tracking Error for Ten Years Ended June 30, 2023

Benchmark: Russell 1000 Growth Index

Group: Callan Large Cap Growth (Ellipse with Median at Central Axis)



Manager candidate performance shown is gross-of-fees unless otherwise noted.

## Risk Statistics

### Return-Based Risk Statistics Relative to Russell:1000 Growth for Ten Years Ended June 30, 2023

Group: Callan Large Cap Growth (Percentile Rankings in Parentheses)

	Standard Deviation	Downside Risk	Sharpe Ratio	Information Ratio	Alpha	Beta	Correlation
Federated	18.33 (43)	2.36 (73)	0.83 (23)	0.09 (24)	0.32 (24)	1.01 (44)	0.98 (31)
Jennison	21.24 (6)	4.30 (30)	0.71 (75)	(0.25) (61)	(1.40) (74)	1.15 (6)	0.97 (57)
JPM	19.65 (15)	3.45 (51)	0.84 (19)	0.18 (19)	1.02 (15)	1.06 (18)	0.96 (69)
T. Rowe	18.82 (29)	3.56 (43)	0.80 (32)	0.04 (29)	0.22 (28)	1.02 (35)	0.97 (61)
William Blair	17.48 (61)	2.18 (81)	0.89 (10)	0.35 (8)	1.22 (11)	0.96 (61)	0.98 (32)
Winslow	18.67 (34)	3.48 (46)	0.76 (53)	(0.11) (46)	(0.51) (51)	1.01 (38)	0.97 (56)
Intech (Incumbent)	17.15 (72)	3.53 (44)	0.68 (83)	(0.59) (96)	(2.01) (85)	0.95 (69)	0.98 (33)
CastleArk (Complement)	18.38 (41)	2.71 (67)	0.75 (62)	(0.27) (64)	(1.00) (65)	1.01 (40)	0.98 (36)
<b>Callan Large Cap Growth*</b>	<b>18.11</b>	<b>3.46</b>	<b>0.76</b>	<b>(0.17)</b>	<b>(0.50)</b>	<b>1.00</b>	<b>0.97</b>
<b>Russell:1000 Growth</b>	<b>17.84 (56)</b>	<b>0.00 (100)</b>	<b>0.83 (24)</b>	<b>0.00 (36)</b>	<b>0.00 (36)</b>	<b>1.00 (49)</b>	<b>1.00 (1)</b>

\*Results reflect group median.

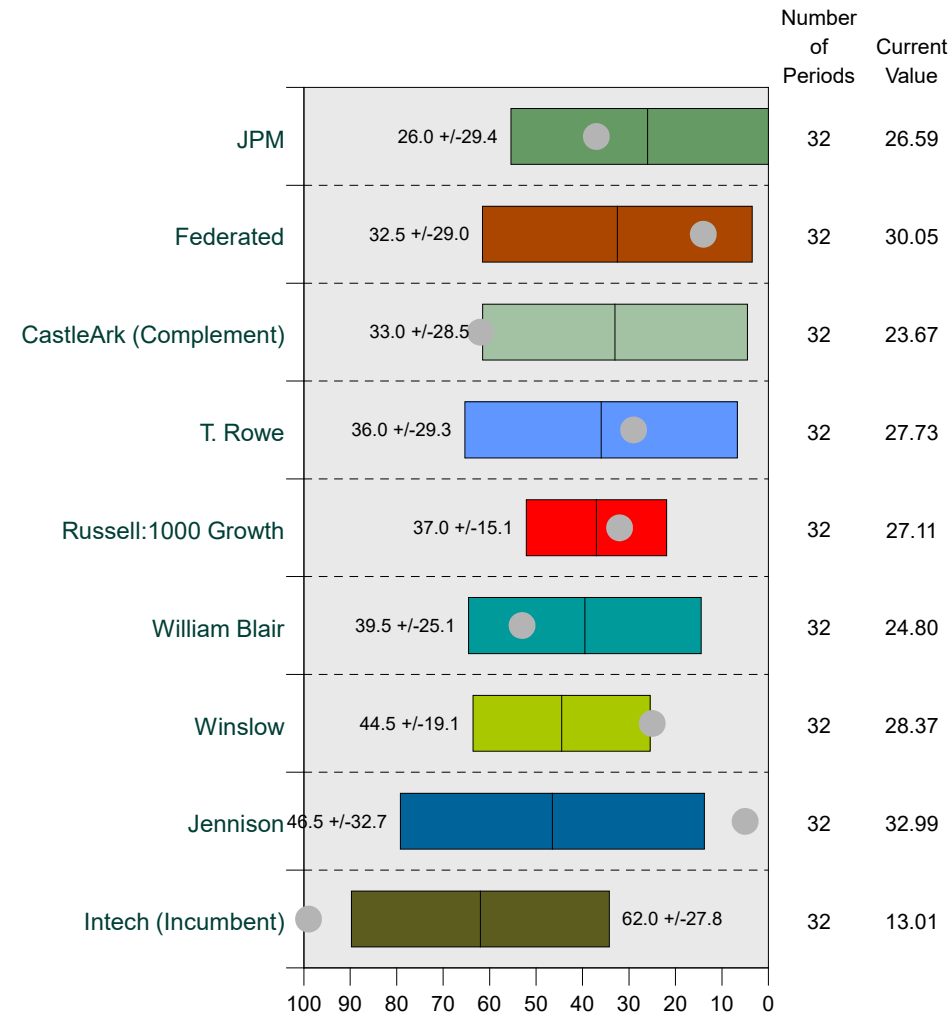
Manager candidate performance shown is gross-of-fees unless otherwise noted.



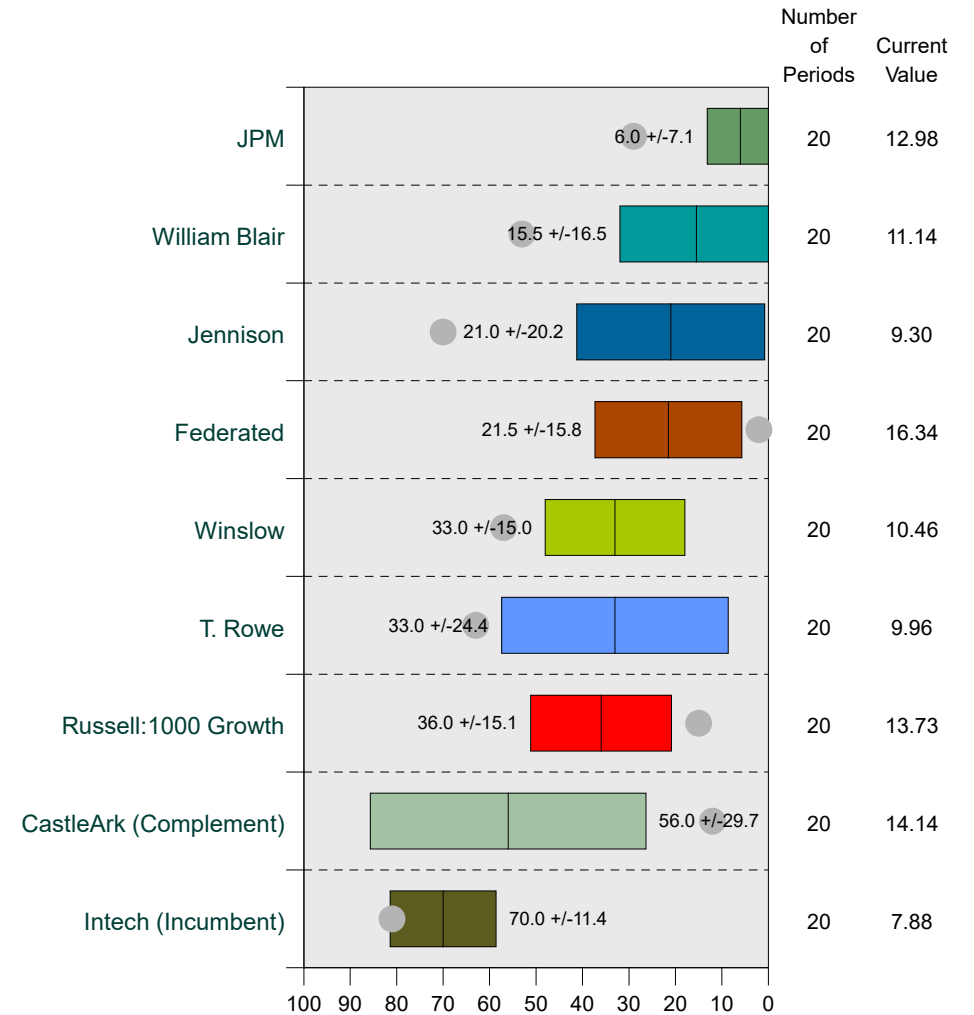
## Historical Rankings - Returns

This page compares multiple portfolios to each other by analyzing both the historical median ranking for a given metric versus a relevant peer group, and the consistency and range (standard deviation) of that ranking over time. The midpoint of each sideways bar represents the median ranking of a given portfolio over time, and the width of the bar represents the consistency and range of that ranking (+/- 1 standard deviation). The slash-separated numbers show the median and standard deviation, respectively, of the portfolios' ranking. The current ranking of each portfolio is demarcated by a dot, while the corresponding current value of the metric is displayed on the far right.

**Rolling One-Year Returns Against Callan Large Cap Growth for Eight Years Ended June 30, 2023**



**Rolling Three-Year Returns Against Callan Large Cap Growth for Five Years Ended June 30, 2023**

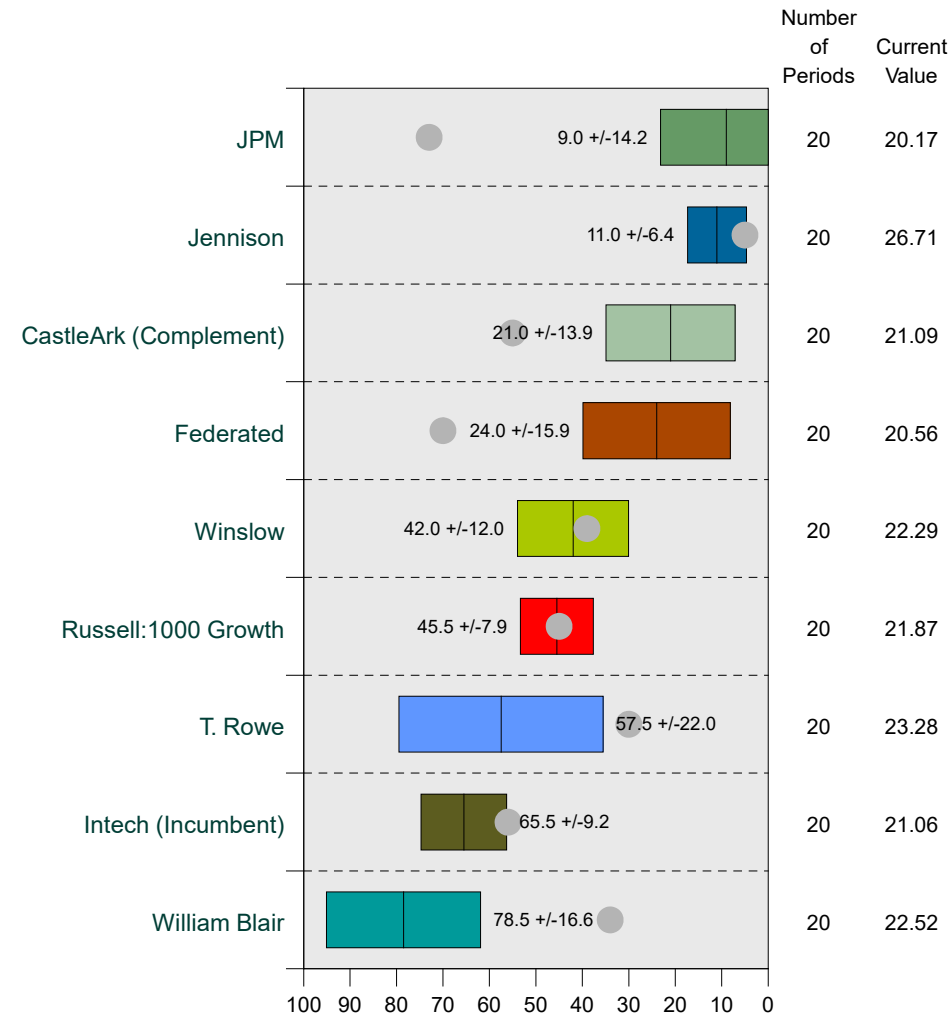


Manager candidate performance shown is gross-of-fees unless otherwise noted.

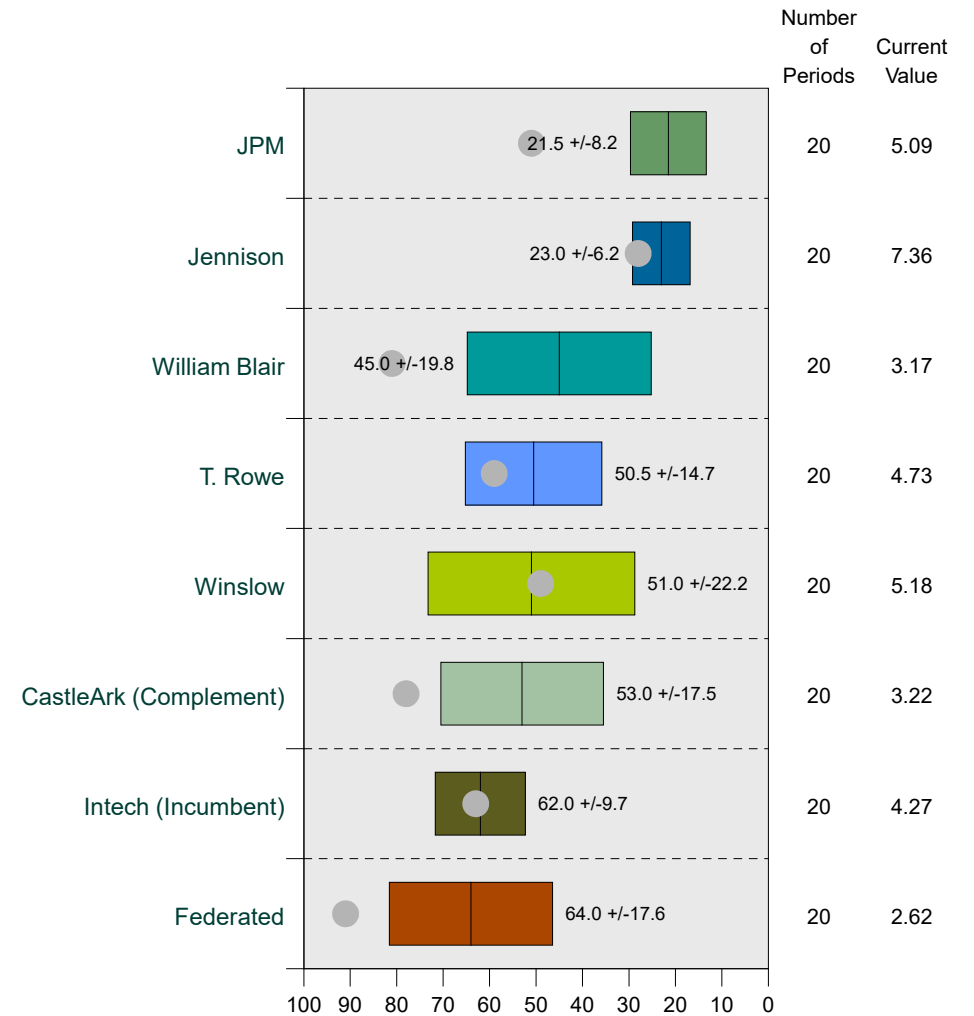
## Historical Rankings - Standard Deviation & Tracking Error

This page compares multiple portfolios to each other by analyzing both the historical median ranking for a given metric versus a relevant peer group, and the consistency and range (standard deviation) of that ranking over time. The midpoint of each sideways bar represents the median ranking of a given portfolio over time, and the width of the bar represents the consistency and range of that ranking (+/- 1 standard deviation). The slash-separated numbers show the median and standard deviation, respectively, of the portfolios' ranking. The current ranking of each portfolio is demarcated by a dot, while the corresponding current value of the metric is displayed on the far right.

**Rolling Three-Year Standard Deviation Against Callan Large Cap Growth for Five Years Ended June 30, 2023**



**Rolling Three-Year Tracking Error Against Callan Large Cap Growth for Five Years Ended June 30, 2023**

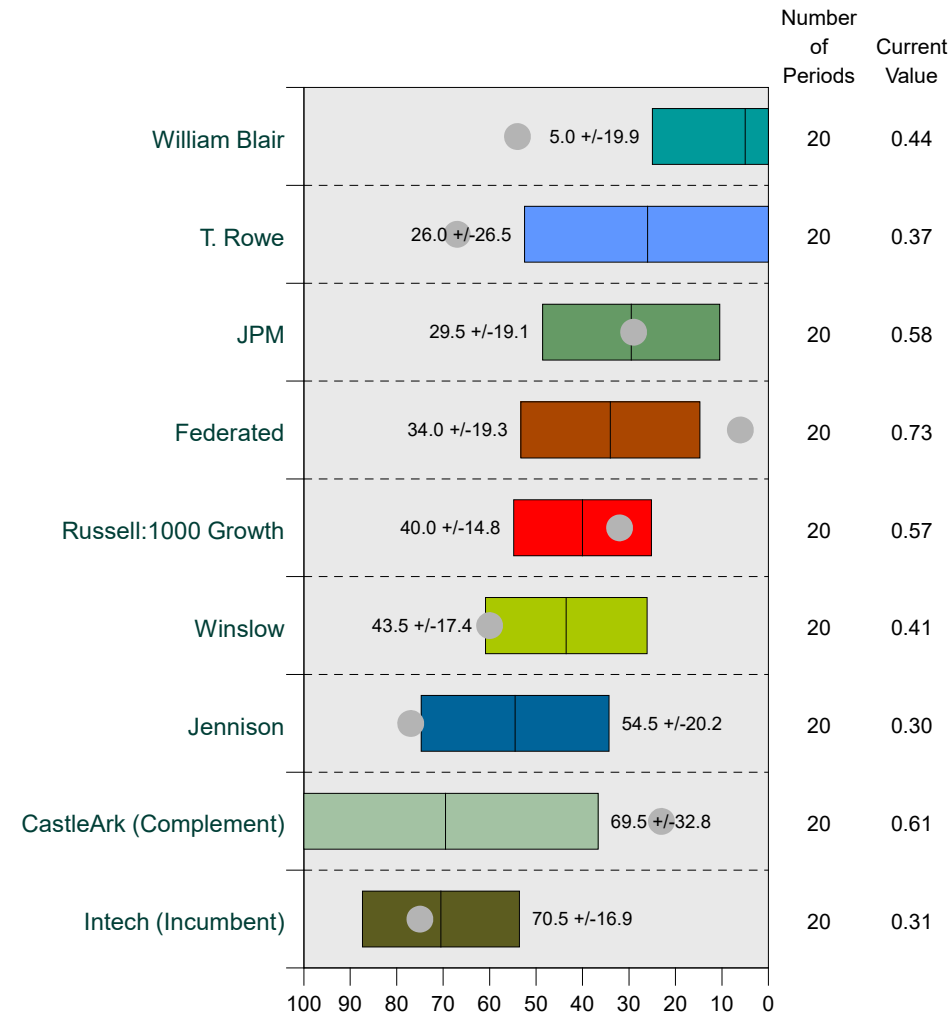


Manager candidate performance shown is gross-of-fees unless otherwise noted.

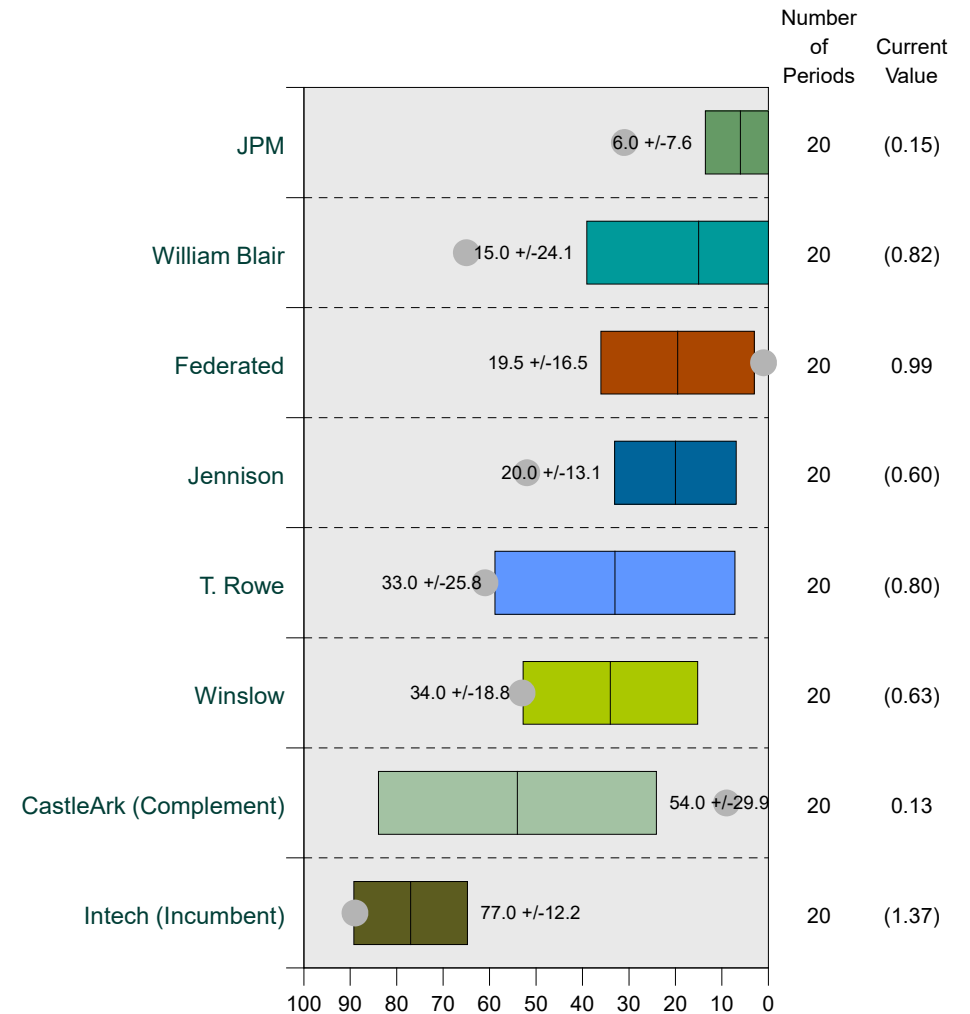
## Historical Rankings - Sharpe Ratio & Excess Return Ratio

This page compares multiple portfolios to each other by analyzing both the historical median ranking for a given metric versus a relevant peer group, and the consistency and range (standard deviation) of that ranking over time. The midpoint of each sideways bar represents the median ranking of a given portfolio over time, and the width of the bar represents the consistency and range of that ranking (+/- 1 standard deviation). The slash-separated numbers show the median and standard deviation, respectively, of the portfolios' ranking. The current ranking of each portfolio is demarcated by a dot, while the corresponding current value of the metric is displayed on the far right.

**Rolling Three-Year Sharpe Ratio Against Callan Large Cap Growth for Five Years Ended June 30, 2023**



**Rolling Three-Year Excess Return Ratio Against Callan Large Cap Growth for Five Years Ended June 30, 2023**



Manager candidate performance shown is gross-of-fees unless otherwise noted.



## Appendix

## Firm Overview: Federated Hermes, Inc.

Federated Hermes, founded in 1955, was first registered as an investment advisor with the SEC in 1958 when it began managing money for retail mutual funds. In 1971, Federated Investment Counseling (FIC) was formed and registered with the SEC in the same year. Federated has had several acquisitions over the years including the Kaufmann Fund, Alliance Capital Management's cash management business, MDT Advisers, certain assets of Rochdale Investment Management LLC, Clover Capital Management Inc., and certain assets of David W. Tice & Associates LLC. In July 2018, Federated acquired a majority stake of Hermes Fund Managers Limited (Hermes). In February 2020, Federated Investors, Inc. changed its name to Federated Hermes, Inc. and changed its New York Stock Exchange ticker symbol to "FHI".

Firm	Contact
Federated Hermes, Inc. 1001 Liberty Avenue Pittsburgh, PA 15222-3779	John Stanley 412-288-1900 john.stanley@federatedhermes.com

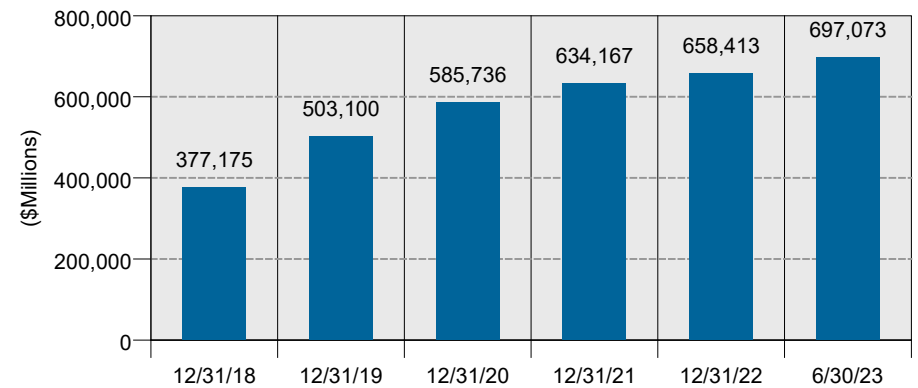
Ownership	Founded	Portfolio Managers	Analysts
Publicly Owned	1955	136	151

### Total Firm Asset Breakdown

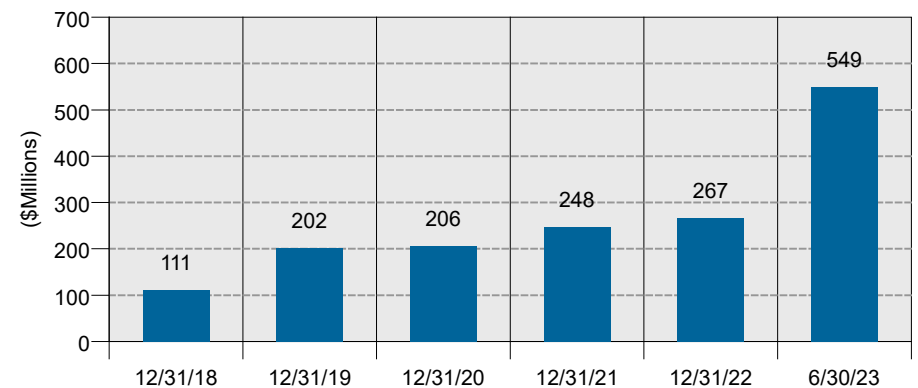
Domestic	\$(mm)	Client Type	\$(mm)
Equity	31,121	Corporate	14,310
Fixed Income	91,802	Public(Govt)	141,376
Balanced	2,810	Union/Multi-Employer	219
Alternatives	764	Superannuation	1,746
Other	517,065	Foundation/Endowment	860
<b>Total</b>	<b>643,562</b>	Health Care	236
		Insurance	2,285
<b>Global</b>	<b>\$(mm)</b>	High Net Worth	13
Equity	29,933	Wrap Account	8,214
Fixed Income	8,254	Sub-Advised	40,678
Balanced	275	Sovereign Wealth Funds	4,060
Alternatives	8,674	Other	483,075
Other	6,375	<b>Total Org Assets</b>	<b>697,073</b>
<b>Total</b>	<b>53,511</b>	<b>Total Defined Contribution</b>	<b>55,426</b>

Client Type AUM Total does not include DC assets.

### Total Firm Asset Growth (\$mm) as of June 30, 2023

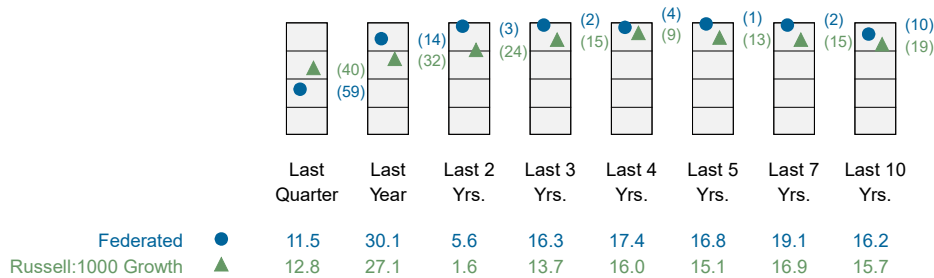


### Total Product Asset Growth (\$mm) as of June 30, 2023

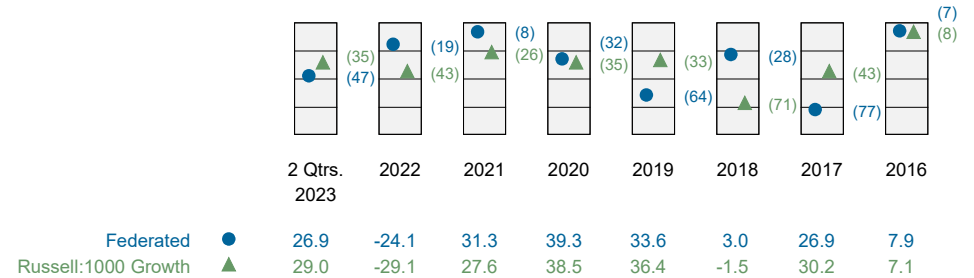


## Product Overview: Federated

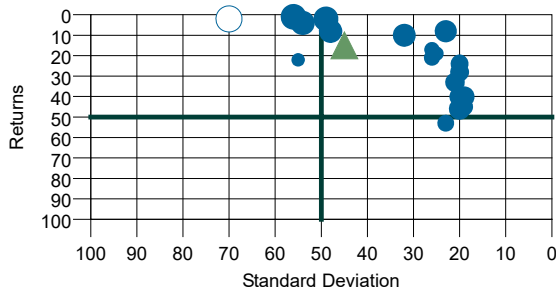
### Returns vs. Callan Large Cap Growth



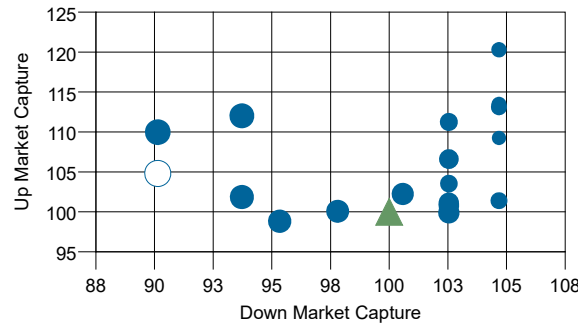
### Calendar Year Returns



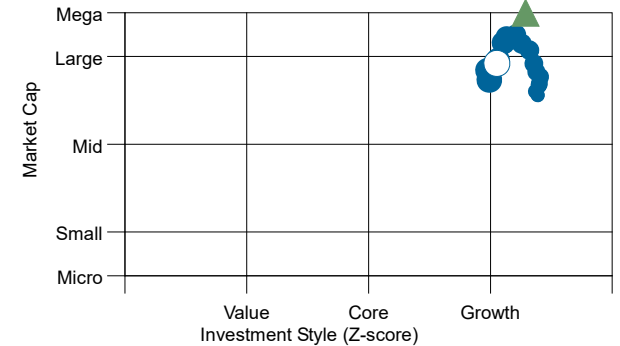
### Return and Risk Rankings vs. Callan Large Cap Growth Group Rolling 3 Year for 5 Years



### Upside/Downside Capture Rolling 3 Year for 5 Years



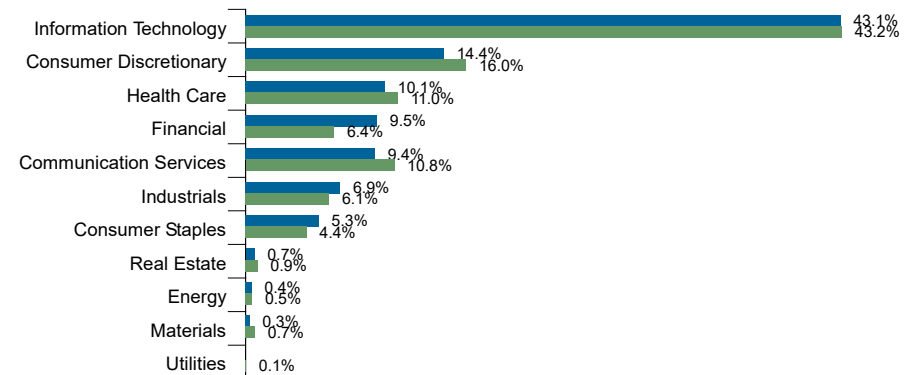
### Holdings Based Style Map Rolling 1 Year



### Portfolio Characteristics

	Federated	Russell:1000 Growth	Callan Large Cap Growth
Number of Holdings	99	444	50
Issue Diversification	12.0	9.3	9.8
Growth Z Score	0.3	0.3	0.3
Value Z Score	-0.5	-0.5	-0.5
Combined Z Score	0.8	0.8	0.8
Wtd. Median Market Cap.	243.5	446.6	217.7
Forecasted P/E (exc neg)	25.1	26.9	26.8
Price/Book Value	9.2	10.6	7.5
Forecasted Gr. in Earnings	14.8	13.0	13.8
Return on Equity	27.6	28.6	24.4
Dividend Yield	0.7	0.8	0.7

### Equity Sector Exposure vs Russell:1000 Growth



Performance shown is gross-of-fees unless otherwise noted.

## Firm Overview: Jennison Associates LLC

Jennison Associates LLC (Jennison) was founded in July 1969 as a SEC-registered investment advisor. In 1975, the firm acquired Boston-based, fixed income manager Carter, Doyle & Co. from Standard & Poor's Corp. In 1985, Jennison became a wholly owned subsidiary of the Prudential Insurance Company of America. In 2000, Prudential combined its public active equity asset management capabilities into Jennison and organized a new wholly-owned subsidiary, Prudential Asset Management Holding Company ("PAMHC"). Prudential then contributed its ownership in Jennison initially to PAMHC, and then later in 2000, to another asset management subsidiary, The Prudential Investment Corporation. In December 2001, Prudential Financial Inc. completed its IPO and, as part of the demutualization, Jennison became an indirect subsidiary of Prudential Financial Inc. Jennison added a global/international equity capability in 2011 and an emerging markets equity capability in 2014.

### Firm

Jennison Associates LLC  
466 Lexington Avenue  
New York, NY 10017

### Contact

Charlotte Walsh  
(212) 833-0754  
cwalsh@jennison.com

### Ownership

Publicly Owned

### Founded

1969

### Portfolio Managers

28

### Analysts

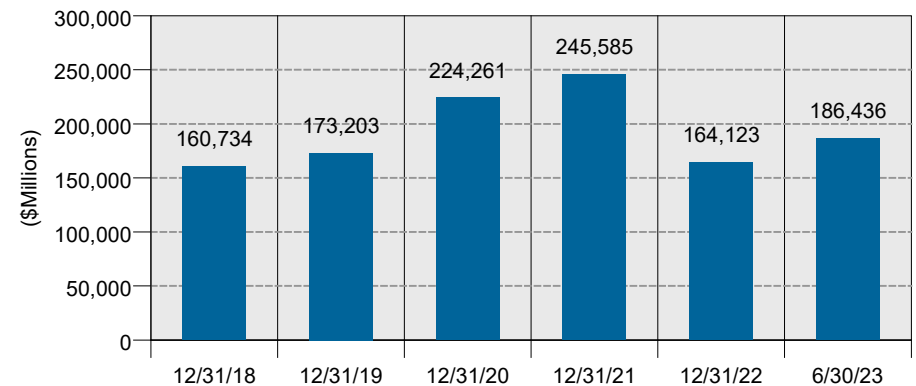
33

### Total Firm Asset Breakdown

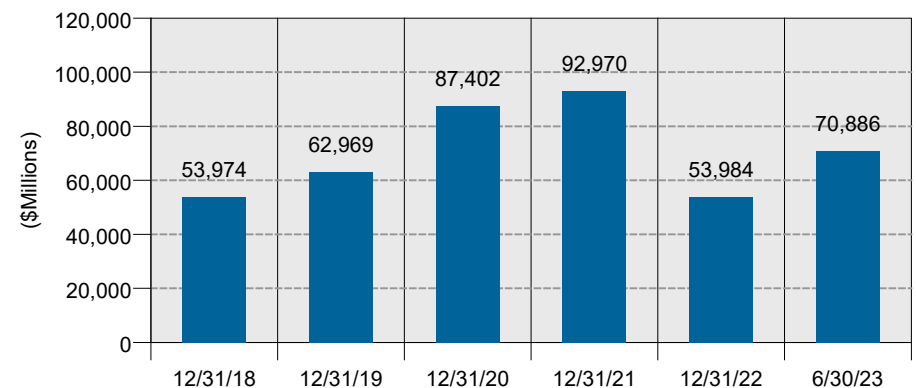
	\$(mm)	Client Type	\$(mm)
<b>Domestic</b>			
Equity	114,531	Corporate	38,999
Fixed Income	48,503	Public(Govt)	6,577
Balanced	603	Union/Multi-Employer	1,022
<b>Total</b>	<b>163,636</b>	Superannuation	1,245
		Foundation/Endowment	1,248
<b>Global</b>	<b>\$(mm)</b>	Health Care	1,108
Equity	22,594	Insurance	290
Alternatives	205	High Net Worth	9
<b>Total</b>	<b>22,800</b>	Wrap Account	1,985
		Sub-Advised	126,667
		Sovereign Wealth Funds	2,419
		<b>Total Org Assets</b>	<b>186,436</b>
		<b>Total Defined Contribution</b>	<b>23,659</b>

Client Type AUM Total does not include DC assets.

### Total Firm Asset Growth (\$mm) as of June 30, 2023

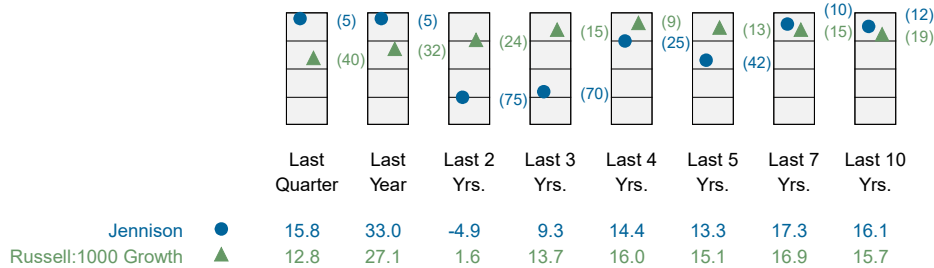


### Total Product Asset Growth (\$mm) as of June 30, 2023

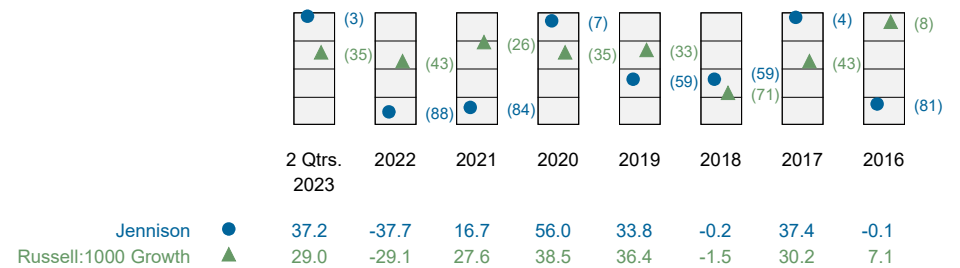


# Product Overview: Jennison

## Returns vs. Callan Large Cap Growth

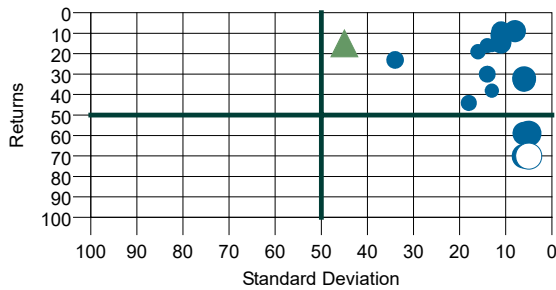


## Calendar Year Returns



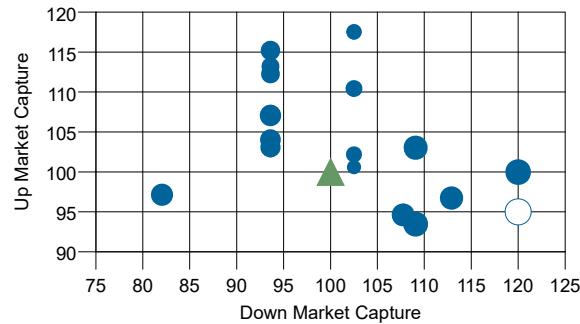
## Return and Risk Rankings vs. Callan Large Cap Growth Group

### Rolling 3 Year for 5 Years



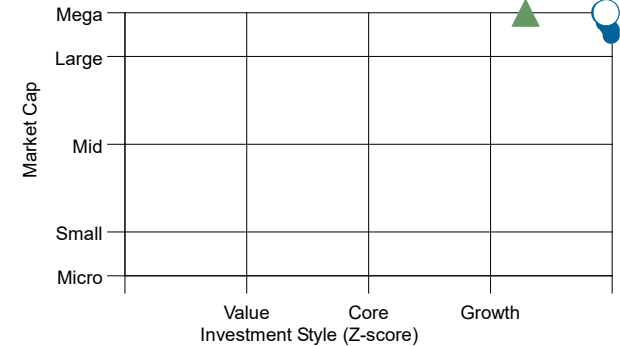
## Upside/Downside Capture

### Rolling 3 Year for 5 Years



## Holdings Based Style Map

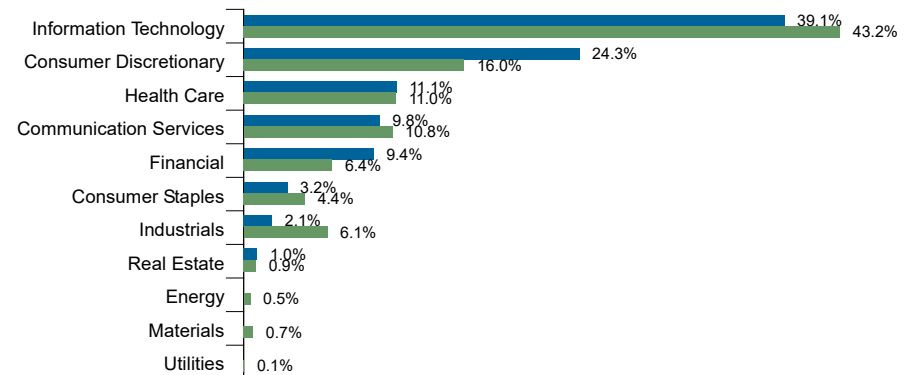
### Rolling 1 Year



## Portfolio Characteristics

	Jennison	Russell:1000 Growth	Callan Large Cap Growth
Number of Holdings	53	444	50
Issue Diversification	10.5	9.3	9.8
Growth Z Score	0.5	0.3	0.3
Value Z Score	-0.7	-0.5	-0.5
Combined Z Score	1.2	0.8	0.8
Wtd. Median Market Cap.	425.1	446.6	217.7
Forecasted P/E (exc neg)	31.2	26.9	26.8
Price/Book Value	8.0	10.6	7.5
Forecasted Gr. in Earnings	15.6	13.0	13.8
Return on Equity	25.6	28.6	24.4
Dividend Yield	0.5	0.8	0.7

## Equity Sector Exposure vs Russell:1000 Growth



Performance shown is gross-of-fees unless otherwise noted.



## Firm Overview: J.P. Morgan Asset Management

J.P. Morgan Asset Management ("JPMAM") was incorporated in Delaware in February 1984 and began operations in July 1984. The company evolved from the Trust and Investment Division of Morgan Guaranty Trust Company, which acquired its first tax-exempt account in 1913 and its first pension fund account in 1940. JPMAM was a wholly owned subsidiary of J.P. Morgan & Co. Incorporated, a bank holding company founded in 1861 and which also owns Morgan Guaranty Trust Company, J.P. Morgan Securities Inc. and J.P. Morgan Futures Inc. In January 2001, Chase Manhattan and J.P. Morgan merged and renamed the firm J.P. Morgan Chase & Co., a publicly traded corporation that is listed on the New York Stock Exchange (Ticker: JPM). On July 1, 2004, JPMorgan Chase & Co. and Bank One Corporation merged. The combined company retained the name of J.P. Morgan Chase & Co. In May 2008, J.P. Morgan Chase acquired Bear Stearns.

Firm	Contact
J.P. Morgan Asset Management 277 Park Avenue 8th Floor New York, NY 10172	Richard Forslund (415) 315-5147 richard.r.forslund@jpmorgan.com

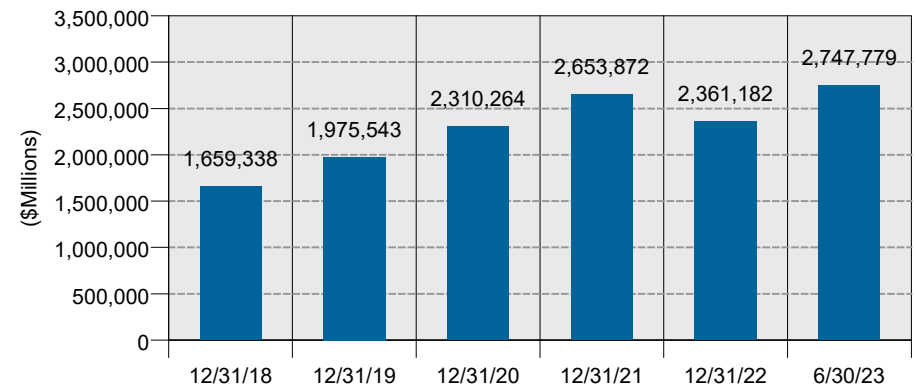
Ownership	Founded	Portfolio Managers	Analysts
Publicly Owned	1863	648	373

### Total Firm Asset Breakdown

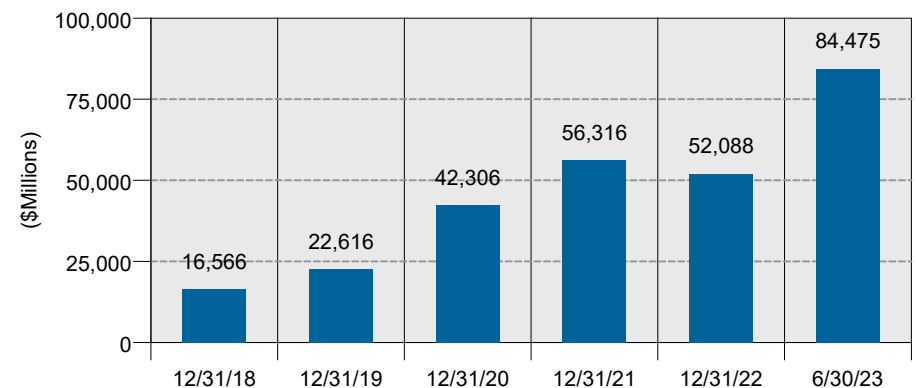
Domestic	\$(mm)	Client Type	\$(mm)
Equity	484,193	Corporate	409,288
Fixed Income	1,138,913	Public(Govt)	72,157
Balanced	190,357	Union/Multi-Employer	15,280
Alternatives	103,827	Foundation/Endowment	11,575
<b>Total</b>	<b>1,917,289</b>	Insurance	228,322
		High Net Worth	274,135
<b>Global</b>	<b>\$(mm)</b>	Wrap Account	184,567
Equity	251,759	Sub-Advised	153,980
Fixed Income	405,877	Superationals	84,523
Balanced	67,850	Other	1,313,952
Alternatives	105,004	<b>Total Org Assets</b>	<b>2,747,779</b>
<b>Total</b>	<b>830,490</b>	<b>Total Defined Contribution</b>	<b>148,619</b>

Client Type AUM Total does not include DC assets.

### Total Firm Asset Growth (\$mm) as of June 30, 2023

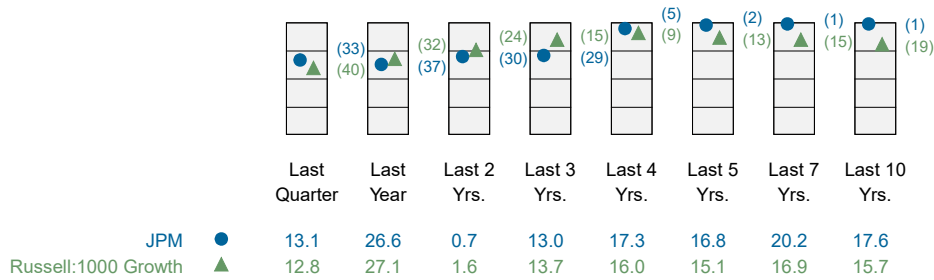


### Total Product Asset Growth (\$mm) as of June 30, 2023

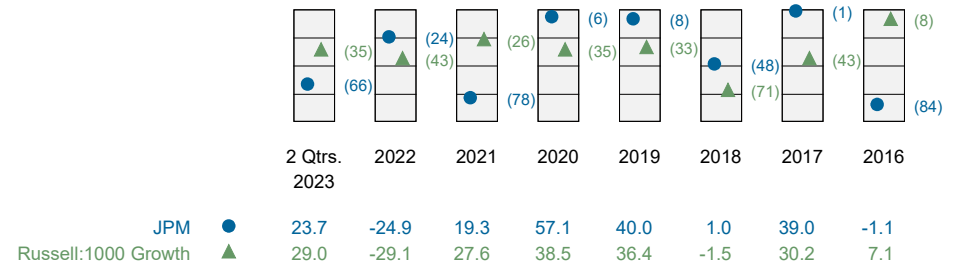


## Product Overview: JPM

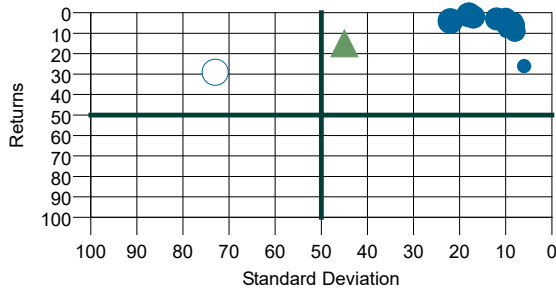
### Returns vs. Callan Large Cap Growth



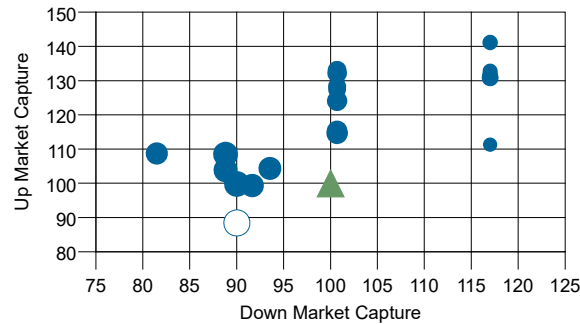
### Calendar Year Returns



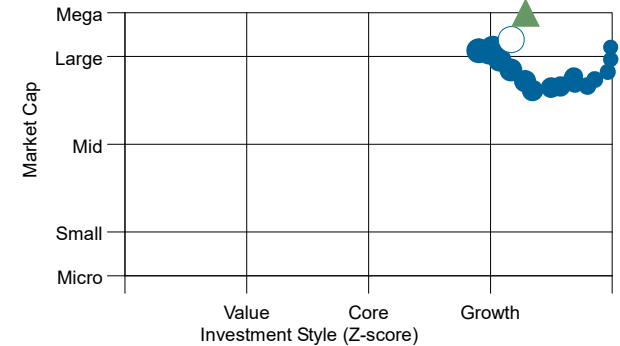
### Return and Risk Rankings vs. Callan Large Cap Growth Group Rolling 3 Year for 5 Years



### Upside/Downside Capture Rolling 3 Year for 5 Years



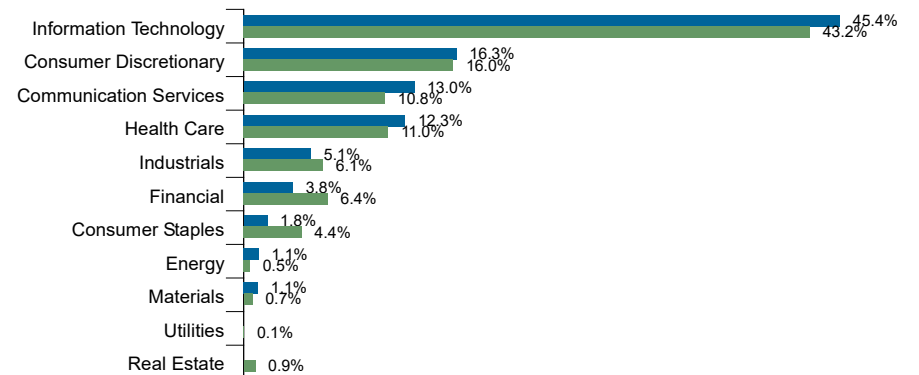
### Holdings Based Style Map Rolling 1 Year



### Portfolio Characteristics

	JPM	Russell:1000 Growth	Callan Large Cap Growth
Number of Holdings	69	444	50
Issue Diversification	8.8	9.3	9.8
Growth Z Score	0.4	0.3	0.3
Value Z Score	-0.6	-0.5	-0.5
Combined Z Score	1.0	0.8	0.8
Wtd. Median Market Cap.	363.5	446.6	217.7
Forecasted P/E (exc neg)	27.8	26.9	26.8
Price/Book Value	9.1	10.6	7.5
Forecasted Gr. in Earnings	14.6	13.0	13.8
Return on Equity	22.1	28.6	24.4
Dividend Yield	0.6	0.8	0.7

### Equity Sector Exposure vs Russell:1000 Growth



Performance shown is gross-of-fees unless otherwise noted.

## Firm Overview: T. Rowe Price Associates, Inc.

T. Rowe Price Associates, Inc. ("T. Rowe Price") was established in 1937 by Thomas Rowe Price, Jr. In April 1986, T. Rowe Price became a publicly traded corporation. In December 2000, T. Rowe Price reorganized its operations into a holding company structure and became a subsidiary of T. Rowe Price Group, Inc., a Maryland corporation. The firm offers a multi-asset product line with a broad array of investment options across asset classes and investment styles.

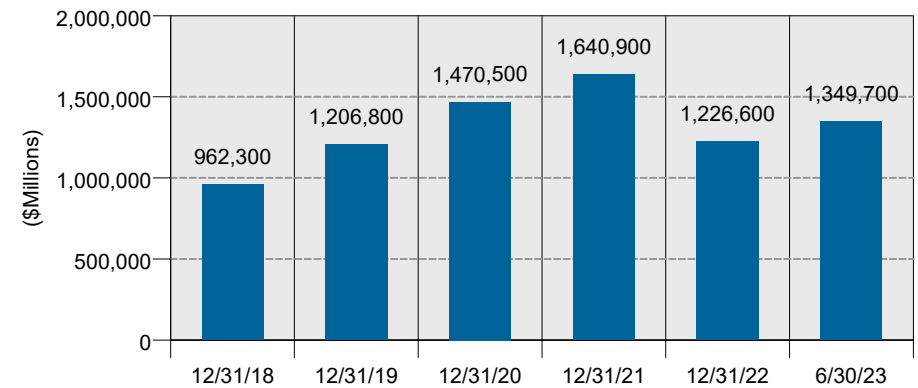
Firm	Contact
T. Rowe Price Associates, Inc. 100 East Pratt Street Baltimore, MD 21202	Andrew Gospodarek (415) 772-1105 andrew.gospodarek@troweprice.com

Ownership	Founded	Portfolio Managers	Analysts
Publicly Owned	1937	166	382

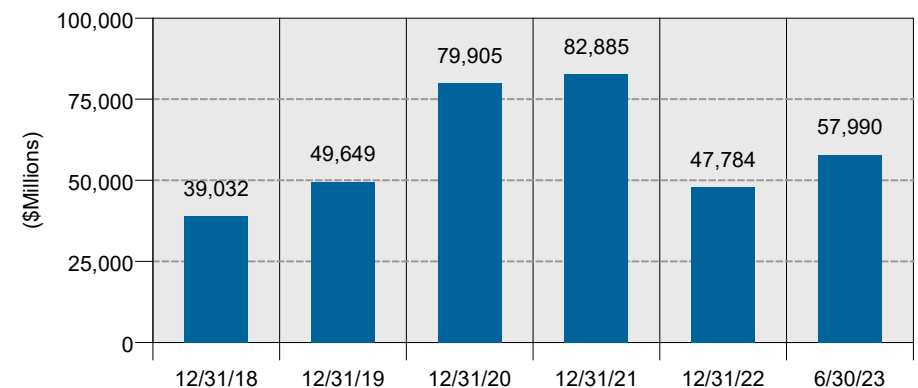
### Total Firm Asset Breakdown

Domestic	\$(mm)	Client Type	\$(mm)
Equity	631,467	Corporate	82,220
Fixed Income	140,958	Public(Govt)	49,205
Balanced	444,697	Union/Multi-Employer	954
<b>Total</b>	<b>1,217,122</b>	Foundation/Endowment	6,997
		Health Care	1,620
<b>Global</b>	<b>\$(mm)</b>	Insurance	16,214
Equity	96,991	High Net Worth	5,604
Fixed Income	25,745	Sub-Advised	184,822
Balanced	9,842	Other	1,002,064
<b>Total</b>	<b>132,578</b>	<b>Total Org Assets</b>	<b>1,349,700</b>
		<b>Total Defined Contribution</b>	<b>56,027</b>

### Total Firm Asset Growth (\$mm) as of June 30, 2023



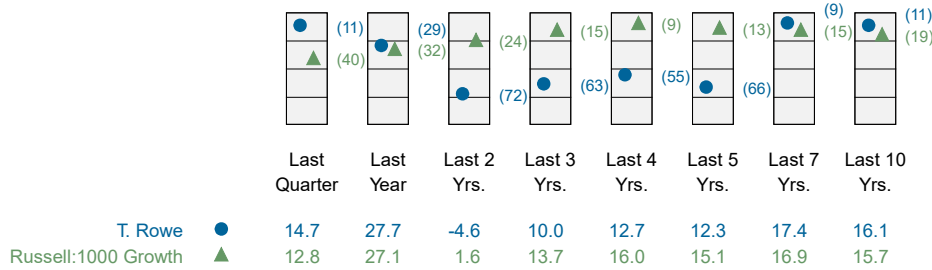
### Total Product Asset Growth (\$mm) as of June 30, 2023



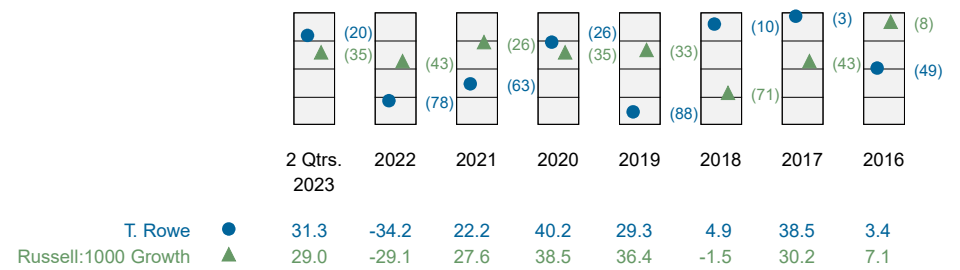
Client Type AUM Total does not include DC assets.

# Product Overview: T. Rowe

## Returns vs. Callan Large Cap Growth

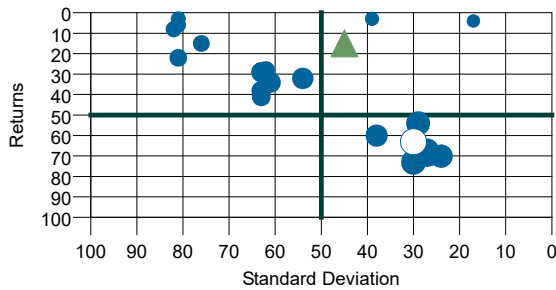


## Calendar Year Returns



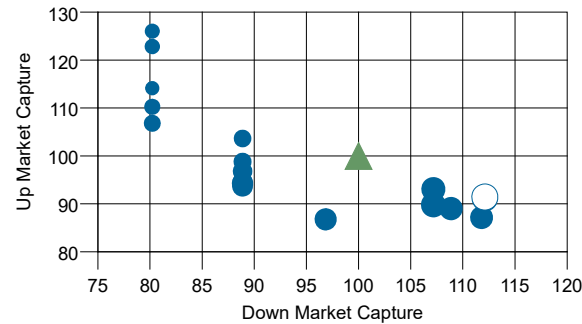
## Return and Risk Rankings vs. Callan Large Cap Growth Group

### Rolling 3 Year for 5 Years



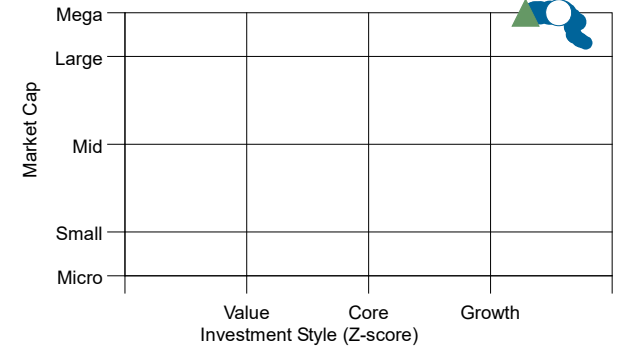
## Upside/Downside Capture

### Rolling 3 Year for 5 Years



## Holdings Based Style Map

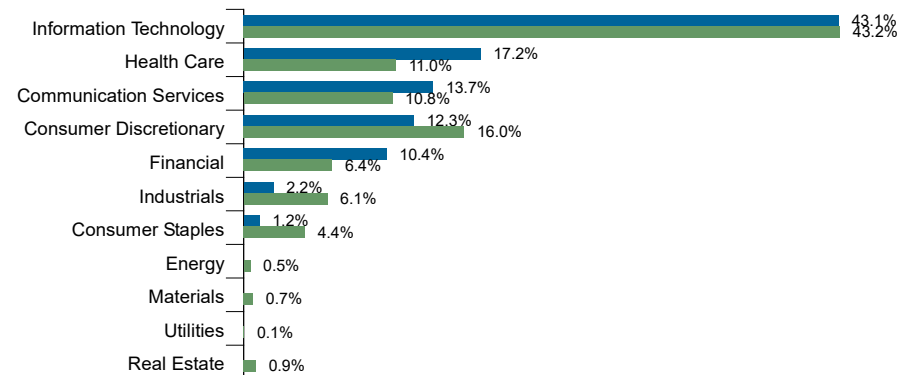
### Rolling 1 Year



## Portfolio Characteristics

	T. Rowe	Russell:1000 Growth	Callan Large Cap Growth
Number of Holdings	52	444	50
Issue Diversification	7.0	9.3	9.8
Growth Z Score	0.4	0.3	0.3
Value Z Score	-0.5	-0.5	-0.5
Combined Z Score	0.9	0.8	0.8
Wtd. Median Market Cap.	450.1	446.6	217.7
Forecasted P/E (exc neg)	27.4	26.9	26.8
Price/Book Value	6.8	10.6	7.5
Forecasted Gr. in Earnings	14.8	13.0	13.8
Return on Equity	20.9	28.6	24.4
Dividend Yield	0.5	0.8	0.7

## Equity Sector Exposure vs Russell:1000 Growth



Performance shown is gross-of-fees unless otherwise noted.

## Firm Overview: William Blair & Company LLC

William Blair was founded in 1935 by William McCormick Blair and was registered under the Investment Advisors Act of 1940 in 1947. The entity housing the institutional investment management business is William Blair Investment Management, LLC which was registered as an investment adviser under the Act in 2014. The firm is 100% active employee owned. William Blair is headquartered in Chicago and now has offices around the world.

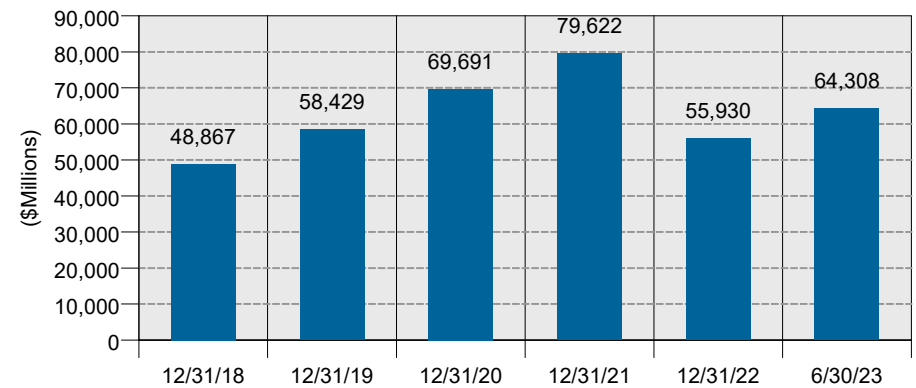
Firm	Contact
William Blair & Company LLC The William Blair Building 150 North Riverside Plaza Chicago, IL 60606	Wally Fikri (312) 364-8089 wfikri@williamblair.com

Ownership	Founded	Portfolio Managers	Analysts
Employee Owned	1935	30	40

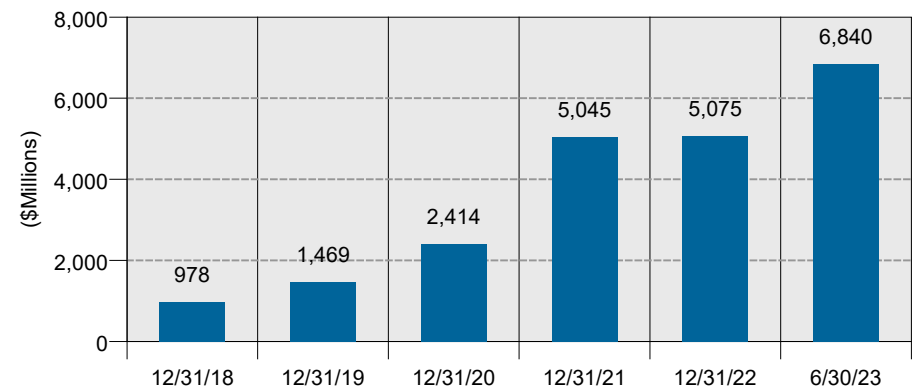
### Total Firm Asset Breakdown

Domestic	\$(mm)	Client Type	\$(mm)
Equity	25,699	Corporate	12,834
<b>Total</b>	<b>25,699</b>	Public(Govt)	19,401
		Union/Multi-Employer	3,050
Global	\$(mm)	Foundation/Endowment	6,105
Equity	38,359	High Net Worth	40
Fixed Income	249	Wrap Account	302
<b>Total</b>	<b>38,608</b>	Sub-Advised	9,993
		Other	12,584
		<b>Total Org Assets</b>	<b>64,308</b>

### Total Firm Asset Growth (\$mm) as of June 30, 2023



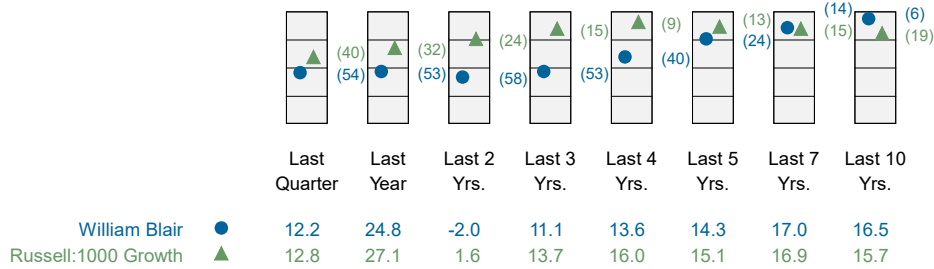
### Total Product Asset Growth (\$mm) as of June 30, 2023



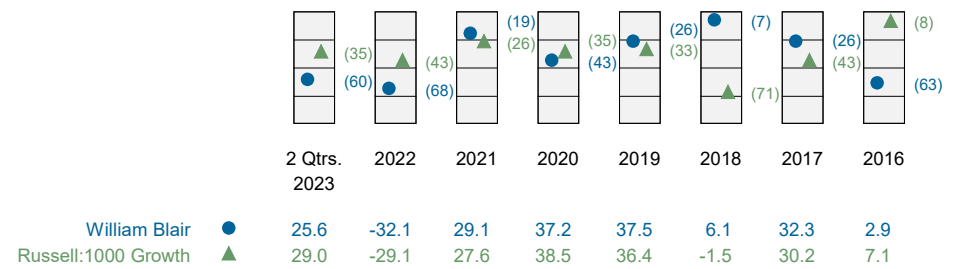
Client Type AUM Total does not include DC assets.

# Product Overview: William Blair

## Returns vs. Callan Large Cap Growth

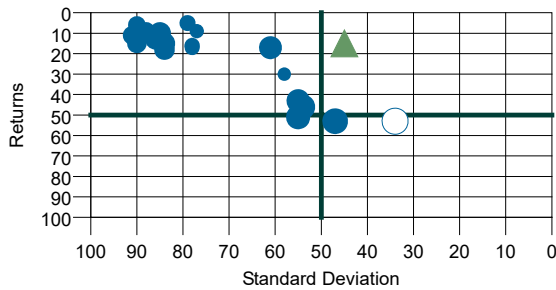


## Calendar Year Returns



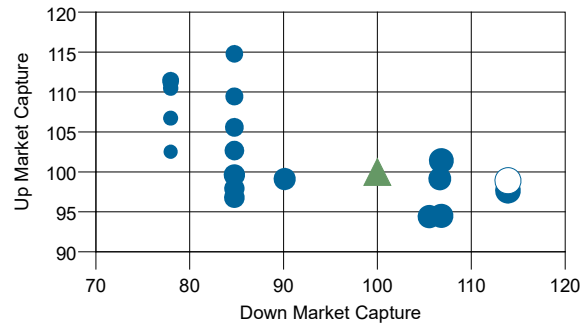
## Return and Risk Rankings vs. Callan Large Cap Growth Group

### Rolling 3 Year for 5 Years



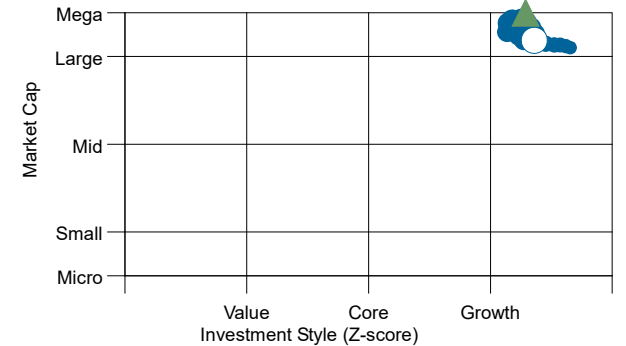
## Upside/Downside Capture

### Rolling 3 Year for 5 Years



## Holdings Based Style Map

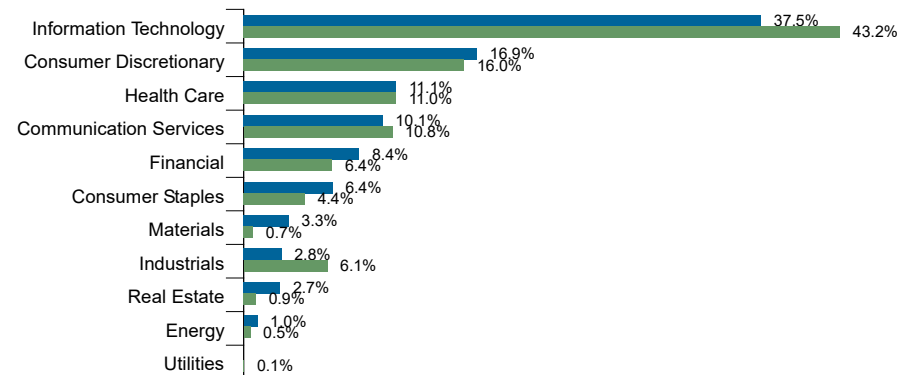
### Rolling 1 Year



## Portfolio Characteristics

	William Blair	Russell:1000 Growth	Callan Large Cap Growth
Number of Holdings	33	444	50
Issue Diversification	7.9	9.3	9.8
Growth Z Score	0.3	0.3	0.3
Value Z Score	-0.5	-0.5	-0.5
Combined Z Score	0.9	0.8	0.8
Wtd. Median Market Cap.	205.6	446.6	217.7
Forecasted P/E (exc neg)	28.8	26.9	26.8
Price/Book Value	7.6	10.6	7.5
Forecasted Gr. in Earnings	15.0	13.0	13.8
Return on Equity	23.3	28.6	24.4
Dividend Yield	0.7	0.8	0.7

## Equity Sector Exposure vs Russell:1000 Growth



Performance shown is gross-of-fees unless otherwise noted.

## Firm Overview: Winslow Capital Management, LLC

Winslow Capital Management (WCM) commenced operations on June 12, 1992. Final SEC registration was completed June 25, 1992. On November 20, 2008, WCM reached an agreement to become a wholly owned subsidiary of Nuveen Investments. The transaction closed December 26, 2008.

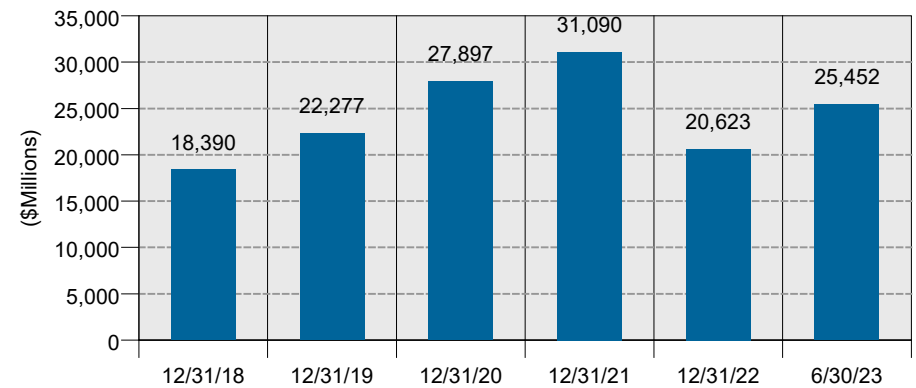
Firm	Contact
Winslow Capital Management, LLC 4400 IDS Center 80 South Eighth Street Minneapolis, MN 55402	Megan Anderson 612-376-9100 manderson@wincap.com

Ownership	Founded	Portfolio Managers	Analysts
Subsidiary	1992	6	5

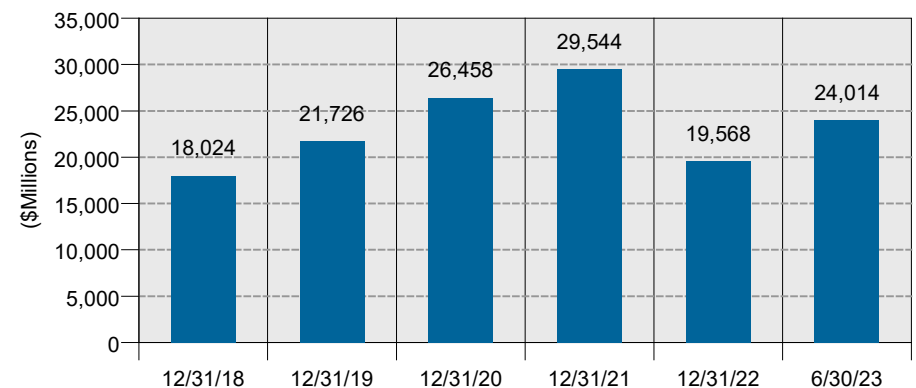
### Total Firm Asset Breakdown

Domestic	\$(mm)	Client Type	\$(mm)
Equity	24,958	Corporate	389
Alternatives	494	Public(Govt)	650
<b>Total</b>	<b>25,452</b>	Union/Multi-Employer	75
		Foundation/Endowment	71
<b>Global</b>	<b>\$(mm)</b>	Health Care	342
		Insurance	64
		Wrap Account	4,639
		Sub-Advised	18,728
		Other	494
		<b>Total Org Assets</b>	<b>25,452</b>
		<b>Total Defined Contribution</b>	<b>508</b>

### Total Firm Asset Growth (\$mm) as of June 30, 2023



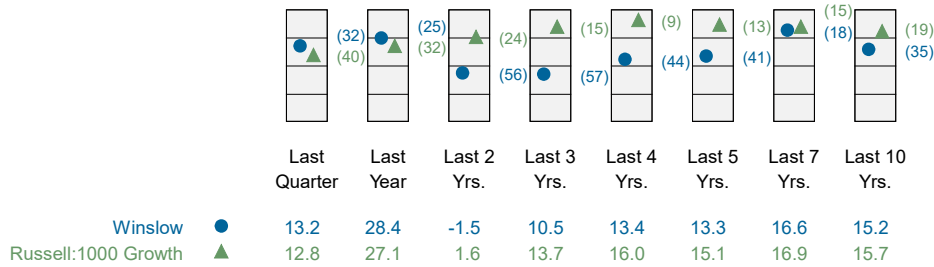
### Total Product Asset Growth (\$mm) as of June 30, 2023



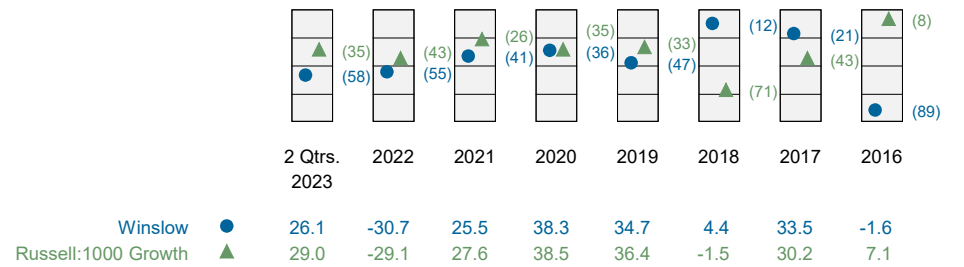
Client Type AUM Total does not include DC assets.

# Product Overview: Winslow

## Returns vs. Callan Large Cap Growth

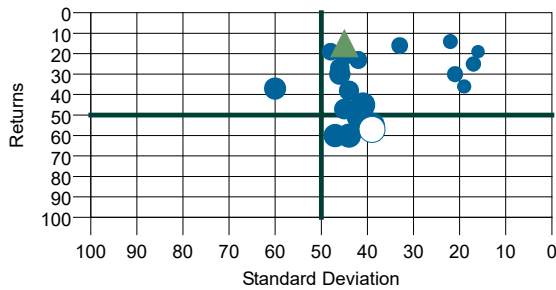


## Calendar Year Returns



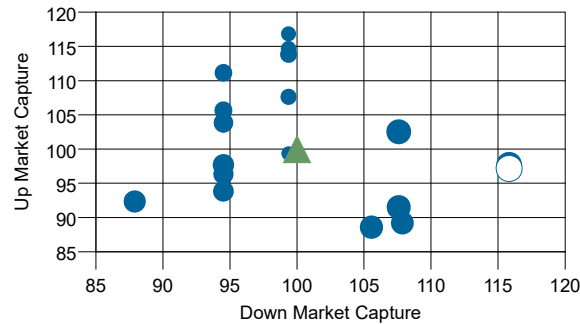
## Return and Risk Rankings vs. Callan Large Cap Growth Group

### Rolling 3 Year for 5 Years



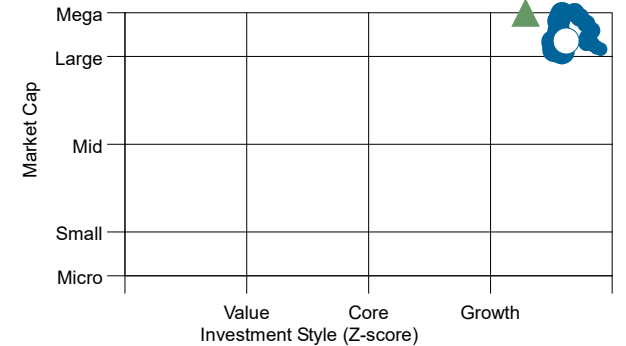
## Upside/Downside Capture

### Rolling 3 Year for 5 Years



## Holdings Based Style Map

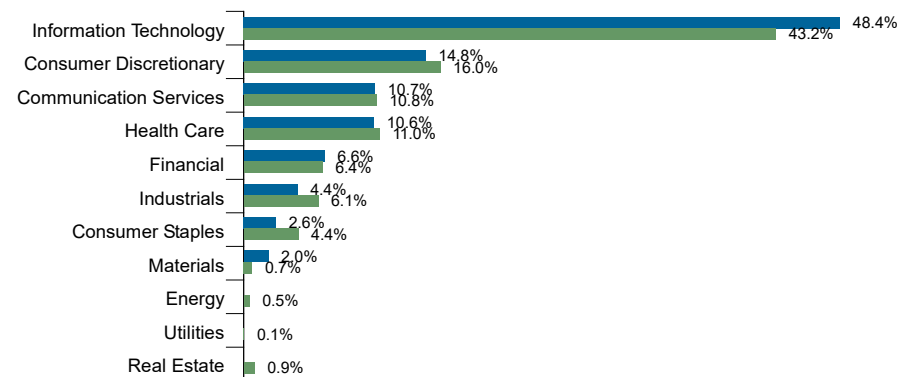
### Rolling 1 Year



## Portfolio Characteristics

	Winslow	Russell:1000 Growth	Callan Large Cap Growth
Number of Holdings	43	444	50
Issue Diversification	9.2	9.3	9.8
Growth Z Score	0.4	0.3	0.3
Value Z Score	-0.6	-0.5	-0.5
Combined Z Score	1.1	0.8	0.8
Wtd. Median Market Cap.	362.5	446.6	217.7
Forecasted P/E (exc neg)	31.1	26.9	26.8
Price/Book Value	9.5	10.6	7.5
Forecasted Gr. in Earnings	14.3	13.0	13.8
Return on Equity	23.3	28.6	24.4
Dividend Yield	0.5	0.8	0.7

## Equity Sector Exposure vs Russell:1000 Growth



Performance shown is gross-of-fees unless otherwise noted.



## Definitions

**Alpha** measures a portfolio's return in excess of the market return adjusted for risk. It is a measure of the manager's contribution to performance with reference to security selection. A positive alpha indicates that a portfolio was positively rewarded for the residual risk which was taken for that level of market exposure.

**Beta** measures the sensitivity of rates of portfolio returns to movements in the market index. A portfolio's beta measures the expected change in return per 1% change in the return on the market. If a beta of a portfolio is 1.5, a 1 percent increase in the return on the market will result, on average, in a 1.5 percent increase in the return on the portfolio. The converse would also be true.

**Combined Z Score** is the difference between the MSCI Growth Z Score and the MSCI Value Z Score (Growth - Value). A significant positive Combined Z Score implies significant "growthiness" in the stock or portfolio. A Combined Z Score close to 0.00 (positive or negative) implies "core-like" style characteristics, and a significantly negative Combined Z Score implies more "valueyness" in the stock or portfolio.

**Correlation** measures the degree to which two variables are associated. Correlation is a commonly used tool for constructing a well-diversified portfolio. Traditionally, equities and fixed-income asset returns have not moved closely together. The asset returns are not strongly correlated. A balanced fund with equities and fixed-income assets represents a diversified portfolio that attempts to take advantage of the low Correlation between the two asset classes. The value for Correlation ranges from +1.0 to -1.0. A positive Correlation means that the two variables move, to a degree, in the same manner or direction, and a negative Correlation means that the variables move, to a degree, in the opposite manner or direction. A Correlation of +1.0 (-1.0) means the two variables move in exactly the same (opposite) direction.

**Coupon Rate** is the market value weighted average coupon of all securities in the portfolio. The total coupon payments per year are divided by the total portfolio par value.

**Dividend Yield** reflects the total amount of dividends paid out for a stock over the proceeding twelve months divided by the closing price of a share of the common stock.

**Downside Risk** differentiates between "good risk" (upside volatility) and "bad risk" (downside volatility). Whereas standard deviation captures both upside and downside volatility, downside risk measures only the volatility of returns below the target. Returns above the target are assigned a deviation of zero. Both the frequency and magnitude of underperformance affect the amount of downside risk.

**Effective Yield** is the actual total annualized return that would be realized if all securities in the portfolio were held to their expected maturities. Effective yield is calculated as the internal rate of return, using the current market value and all expected future interest and principal cash flows.

**Effective Duration** is one measure of the portfolio's exposure to interest rate risk. Generally, the higher a portfolio's duration, the more that its value will change in response to interest rate changes. The option adjusted duration for each security in the portfolio is calculated using models which determine the expected stream of cash-flows for the security based on various interest rate scenarios.

## Definitions (continued)

**Excess Correlation** is the correlation of a portfolio's excess return to another portfolio's excess return. Excess return is the portfolio return minus the benchmark return. For instance Excess Correlation could measure the correlation of Manager A's return in excess of a benchmark with Manager B's return in excess of the same benchmark. Excess Correlation is used to indicate whether different managers outperform a market index at the same time.

**Excess Return** is the portfolio return minus the benchmark return.

**Excess Return Ratio** is a measure of risk adjusted relative return. This ratio captures the amount of active management performance (value added relative to an index) per unit of active management risk (tracking error against the index.) It is calculated by dividing the manager's annualized cumulative excess return relative to the index by the standard deviation of the individual quarterly excess returns. The Excess Return Ratio can be interpreted as the manager's active risk/reward tradeoff for diverging from the index when the index is mandated to be the "riskless" market position.

**Forecasted Growth in Earnings** is a measure of a company's expected long-term success in generating future year-over-year earnings growth. This growth rate is a market value weighted average of the consensus (mean) analysts' long-term earnings growth rate forecast for each company in the portfolio. The definition of long-term varies by analyst but is limited to a 3-8 year range. This value is expressed as the expected average annual growth of earnings in percent.

**Forecasted P/E** is a forward-looking valuation measure of a company's common stock. It encapsulates the amount of earnings estimated for next year per dollar of current share price. This value is calculated by dividing the present stock price of each company in the portfolio by the consensus (mean) analysts' earnings forecasts for the next year. These earnings estimates are for recurring, non-extraordinary earnings per primary common share. The individual P/E stock ratios are then weighted by their respective portfolio market values in order to calculate a weighted average representative of the portfolio as a whole.

**Growth Z Score** is a holdings-based measure of the "growthiness" of an individual stock or portfolio of stocks based on fundamental financial ratio analysis. The MSCI Growth Z Score is an aggregate score based on the growth score of five separate financial fundamentals: Long Term Forward Earnings Growth, Short Term Forward Earnings Growth, Current Internal Growth (ROE \* (1-payout ratio)), Long Term Historical Earnings Growth, and Long Term Historical Sales Growth.

**Information Ratio** measures the manager's market risk-adjusted excess return per unit of residual risk relative to a benchmark. It is computed by dividing alpha by the residual risk over a given time period. Assuming all other factors being equal, managers with lower residual risk achieve higher values in the information ratio. Managers with higher information ratios will add value relative to the benchmark more reliably and consistently.

**Issue Diversification** is the number of stocks (largest holdings) making up half of the market value of the total portfolio.

**Market Capitalization (Weighted Median / Weighted Average)** - Market capitalization is the market value of a company's outstanding shares. This figure is found by taking the stock price and multiplying it by the total number of shares outstanding. The weighted median market cap is the point at which half of the market value of the portfolio is invested in stocks with a greater market cap, and consequently the other half is invested in stocks with a lower market cap. Weighted average market cap for a portfolio is defined as the sum of each of the security's weight in the portfolio multiplied by its intrinsic market capitalization.

## Definitions (continued)

**Price to Earnings Ratio (P/E)** is a measure of value for a company. It is equal to the price of a share of common stock divided by the earnings per share for a twelve-month period.

**Price to Book Value (P/B)** is a measure of value for a company. It is equal to the market value of all the shares of common stock divided by the book value of the company. The book value is the sum of capital surplus, common stock, and retained earnings.

**Quality Rating** is a way to measure the credit quality as determined by the individual security ratings. The ratings for each security are compiled into a composite rating for the whole portfolio. Quality symbols range from AAA (highest investment quality and lowest credit risk) to D (lowest investment quality and highest credit risk).

**R-Squared (R<sup>2</sup>)** is a statistical measure that indicates the extent to which the variability of a security or portfolio's returns is explained by the variability of the market. The value will be between 0 and 1. The higher the number, the greater the extent to which portfolio returns are related to market return.

**Residual Risk** is the unsystematic, firm-specific, or diversifiable risk of a security or portfolio that can be reduced by including assets that do not have similar unique risk. It is the portion of the total risk of a security or portfolio that is unique to the security or portfolio itself and is not related to the overall market.

**Return on Equity (ROE)** is a measure of a company's profitability, specifically relating profits to the equity investment employed to achieve the profits. Return on Equity focuses on the returns accruing to the residual owners of a company, the equity holders. It is equal to income divided by total common equity. Income is after all expenses, including income taxes and minority interest, but before provision for dividends, extraordinary items, and discontinued operations. Common equity includes common stock outstanding, capital surplus, and retained earnings.

**Rising/Declining Periods** is determined by evaluating the cumulative relative sub-asset class index performance to that of the broader asset class index. For example, in determining the Growth Style cycle, the S&P 500 Growth Index (sub-asset class) performance is compared to that of the S&P 500 Index (broader asset class). The analysis determines if a significant "cycle reversal" has occurred over a period. If the magnitude of the cumulative relative return is greater than one standard deviation when the number of periods is four or more quarters-or two standard deviations for periods less than 4 quarters-a significant reversal has occurred. The process is repeated until all the different combinations of recent periods are evaluated, and a break point is determined.

**Sharpe Ratio** is a measure of risk-adjusted return. It is calculated by subtracting the "risk-free" return (usually 3 Month Treasury Bill) from the portfolio return and dividing the resulting "excess return" by the portfolio's risk level (standard deviation). The result is a measure of return gained per unit of risk taken.

**Stability Score** is calculated as the difference between the Defensive and Dynamic scores and can range from -1 to +1. A stability score of +1 indicates a Low Risk and High Quality portfolio (or stock), whereas, a stability score of -1 indicates a High Risk and Low Quality portfolio (or stock). The underlying variables that drive the stability scores are Total Return Volatility, Debt/Equity Ratio, Earnings Volatility and Return on Assets and together encompass both observed price risk and current balance sheet risk.

## Definitions (continued)

**Standard Deviation** is a statistical measure of portfolio risk. It reflects the average deviation of the observations from their sample mean. Standard deviation is used as an estimate of risk since it measures how wide the range of returns typically is. The wider the typical range of returns, the higher the standard deviation of returns, and the higher the portfolio risk. If returns are normally distributed (i.e., has a bell shaped curve distribution) then approximately 2/3 of the returns would occur within plus or minus one standard deviation from the sample mean.

**Style Map (Holdings Based)** - Morgan Stanley Capital International (MSCI) has developed security-level style scores which are based on multiple fundamental ratios that classify stocks as "value" or "growth." On a relative basis we can match these to a manager's portfolio holdings to get a score for the portfolio that is more reliable and current than traditional returns-based regression analysis. Using the combined Z score and weighted median market cap, the holdings based style map allows for viewing manager style in a two dimensional space.

**Tracking Error** is a statistical measure of a portfolio's risk relative to an index. It reflects the standard deviation of a portfolio's individual quarterly or monthly returns from the index's returns. Typically, the lower the Tracking Error, the more "index-like" the portfolio.

**Up Market (Down Market) Capture** is a measure of relative performance in up-markets (down-markets). It is determined by the index which has an Up Capture (Down Capture) ratio of 100% when the index is performing positively (negatively). If a manager captures more than 100% of the rising (declining) market it is said to be "offensive" ("defensive").

**Value Z Score** is a holdings-based measure of the "valueyness" of an individual stock or portfolio of stocks based on fundamental financial ratio analysis. The MSCI Value Z Score is an aggregate score based on the value scores of three separate financial fundamentals: Price/Book, Price/Forward Earnings, and Dividend Yield.

**Weighted Average Life** is the weighted average time remaining until the principal is paid off for all securities in a portfolio.

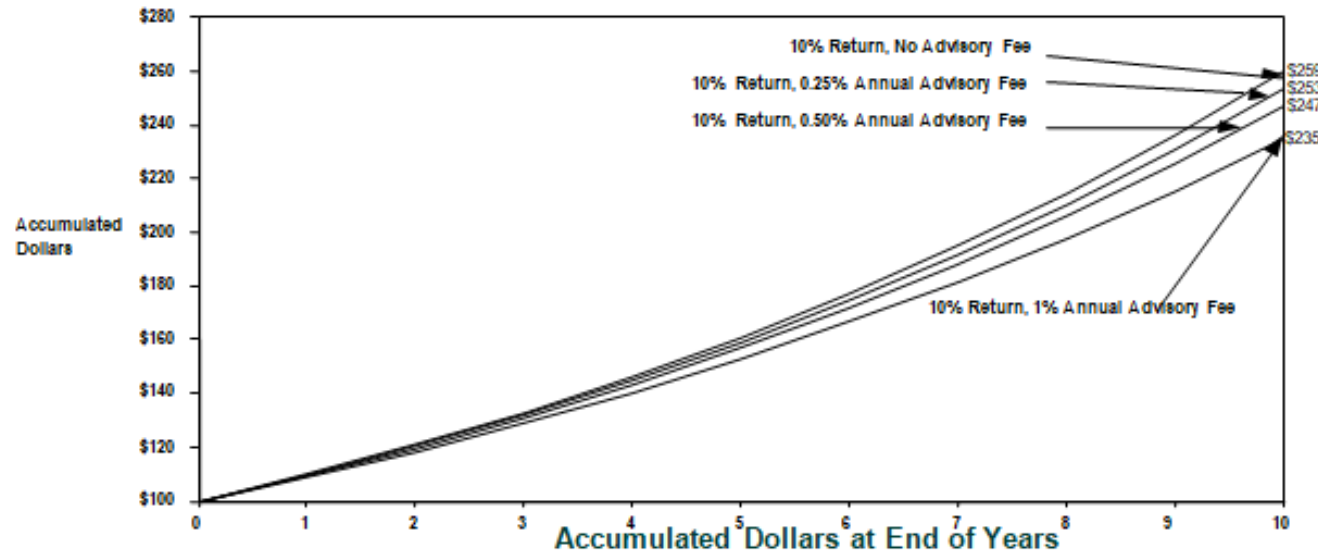
## Advisory Fee Disclosure Statement

The preceding report has been prepared for the exclusive use of the Arkansas Public Employees' Retirement System. Unless otherwise noted, performance returns contained in this report do not reflect the deduction of investment advisory fees. The returns in this report will be reduced by the advisory fees and any other expenses incurred in the management of an investment account. The investment advisory fees applicable to the advisors listed in this report are described in Part II of each advisor's form ADV.

The following graphical and tabular example illustrates the cumulative effect of investment advisory fees on a \$100 investment growing at 10% over ten years. Fees are assumed to be paid monthly.

In addition to asset-based investment advisory fees, some strategies may include performance-based fees ("carry") that may further lower the returns realized by investors. These performance-based fees can be substantial, are most prevalent in "Alternative" strategies like hedge funds and many types of private markets, but can occur elsewhere. The effects of performance-based fees are dependent on investment outcomes and are not included in the example below.

### The Cumulative Effect of Advisory Fees



	1	2	3	4	5	6	7	8	9	10
No Fee	110.0	121.0	133.1	146.4	161.1	177.2	194.9	214.4	235.8	259.4
25 Basis Points	109.7	120.4	132.1	145.0	159.1	174.5	191.5	210.1	230.6	253.0
50 Basis Points	109.5	119.8	131.1	143.5	157.1	172.0	188.2	206.0	225.5	246.8
100 Basis Points	108.9	118.6	129.2	140.7	153.3	166.9	181.8	198.0	215.6	234.9

10% Annual Return Compounded Monthly, Annual Fees Paid Monthly.

## Callan Client Disclosure

The table below indicates whether one or more of the candidates listed in this report is, itself, a client of Callan as of the date of the most recent quarter end. These clients pay Callan for educational, software, database and/or reporting products and services; refer to our Form ADV 2A for additional information. Given the complex corporate and organizational ownership structures of investment management firms and/or trust/custody or securities lending firms, the parent and affiliate firm relationships are not listed here if they don't separately contract with Callan.

The client list below may include parent companies who allow their affiliates to use some of the services included in their client contract (eg, educational services including published research and attendance at conferences and workshops). Because Callan's investment manager client list changes periodically, the information below may not reflect changes since the most recent quarter end. Fund sponsor clients are welcome to request a complete list of Callan's investment manager clients at any time.

As a matter of policy, Callan follows strict procedures so that investment manager client relationships do not affect the outcome or process by which Callan's searches or evaluations are conducted.

<b>Firm</b>	<b>Is an Investment Manager Client of Callan*</b>	<b>Is not an Investment Manager Client of Callan</b>
Federated Hermes, Inc.	X	
Jennison Associates LLC	X	
J.P. Morgan Asset Management	X	
T. Rowe Price Associates, Inc.	X	
William Blair & Company LLC	X	
Winslow Capital Management, LLC		X

\*Based upon Callan manager clients as of the most recent quarter end.

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Any decision you make on the basis of this document is the sole responsibility of the client, as the intended recipient, and it is incumbent upon you to make an independent determination of the suitability and consequences of such a decision.

Callan undertakes no obligation to update the information contained herein except as specifically requested by the client.

Past performance is no guarantee of future results.

## Memorandum

**To:** Arkansas Public Employees Ret System Board of Trustees (“APERS”)  
**From:** John Jackson, Callan LLC; Brianne Weymouth, Callan LLC  
**Date:** October 24, 2023  
**Subject:** US. Large Cap Growth Equity Search Summary

### OVERVIEW

Callan's investment manager searches are conducted through a disciplined, repeatable process. Below you will find a summary of process for the APERS U.S. Large Cap Growth Equity Search:

#### ***I. Identify Client and Manager Candidate Considerations***

At the onset of each search, Callan meets with the client to review and document any specific characteristics sought in an investment manager. This includes factors such as the manager's strategy and approach, organizational structure, minimum/maximum assets under management, performance criteria relative to an appropriate index and peer group, and risk tolerance. These factors serve as the basis for developing the appropriate quantitative and qualitative screening criteria.

#### ***II. Conduct Quantitative Screening***

After beginning with the broad universe of candidates (e.g., 327 strategies in this search), we narrow the field using client-specified screening criteria to screen our proprietary database. Screens examine numerous quantitative factors including performance, volatility, correlation with the existing structure, and assets under management. We screen performance across multiple time periods, market cycles, and statistical analyses to identify consistency of returns and avoid performance bias.

#### ***III. Perform Qualitative Screening***

Qualitative screening focuses the field even further. Qualitative screens examine manager type, organizational history, depth and experience of investment personnel, investment process and style, client servicing capability and resource allocation. We generate qualitative assessments based on manager research conducted by our dedicated asset class specialists and generalist consultants through regular in-house meetings, conference calls, and on-site manager due diligence.

#### ***IV. Oversight Committee Review of Preliminary Recommendations***

Our Manager Search Committee - an oversight body that is comprised of 10 senior consultants - reviews each search to thoroughly examine candidates and ensure Callan has met the client's specified criteria. Collectively, the Manager Search Committee vets the candidates and identifies semi-finalist candidates to present to the client. Six (6) semi-finalist candidate firms were selected for this search. All candidates were suitable for this assignment.



## ***V. Review Semi-finalist Candidates***

A manager evaluation document comparing the six (6) semi-finalist candidates was prepared by Callan for the APERS (see attached). Callan reviewed the report with APERS' staff to highlight important considerations in conducting the search, compare the manager candidates, and assist in the identification of finalist candidates. The following three candidates were identified for advancement:

- J.P. Morgan Asset Management
- T. Rowe Price Associates, Inc.
- William Blair & Company LLC

Key distinguishing features were:

- Greatest stability in organizational and team structure
- Degree of diversification benefit compared to existing growth manager (i.e. lower correlation)
- Most successful long-term performance
- Strongest risk/return characteristics

## ***VI. Interview Finalists***

APERS Staff interviewed the finalists and selected William Blair's Large Cap Growth Strategy as the product to be recommended to the Board of Trustees.

TO: Arkansas Public Employees Retirement System Board of Trustees  
FROM: Carlos Borromeo, Chief Investment Officer  
DATE: October 24, 2023  
SUBJECT: Domestic Large Cap Growth ("LCG") Investment Manager search

As reported to the Board by the APERS Investment Committee, the Board terminated INTECH as one of the Board's Large Cap Growth ("LCG") Investment Managers. INTECH was a quantitative (quant") manager meaning there was zero human element involved in their stock selection. The stock selection process was all computer/machine ("black box") model-driven.

The Board requested that the Board's General Investment Consultant, Callan, and the system's CIO start the process for a search to replace INTECH.

LCG is a very crowded space. There were numerous qualified investment managers. The Callan process started with 327 different LCG strategies, and 175 different investment managers. Callan conducted the quantitative screening, as well as qualitative screening. Callan's oversight committee vetted the candidates and presented a list of six firms.

The Investment Subcommittee met on August 15, 2023. Trustee Basset motioned that staff interview three of the six firms and make a recommendation for hire to the full Board at the September meeting. Mr. Brady seconded the motion. The motion passed.

Executive Director Fecher and I interviewed three firms. I also did an internal due diligence process. It is pertinent that the new investment manager fit well with the existing APERS domestic equity stable of managers. The three firms interviewed were William Blair ("Blair"), JP Morgan ("JPM"), and T. Rowe Price ("TRP").

Information and data that was relevant included:

- Diversification vs APERS existing LCG investment manager across different time horizons,
- Comparison of how the managers invested and managed different market risks during the most recent inflationary environment (inflation), the different market and economic cycles (cyclicality), and the most recent interest hike environment (duration).
- Exposure to "momentum" stocks which means picking stocks that have been doing well and expecting those stocks to continue doing well. Example: the Super 6 or Magnificent 7 stocks.
- Tracking error versus the RU1000G Index
- The contribution/detraction from the manager's investment performance due to the Super 6 names, of the Magnificent 7 names.
- Team/Tenure/Stability. Lead PM background and experience.

The data showed the following information

- Correlation to APERS existing LCG manager(s), JPM had the highest correlation, Blair had the lowest correlation.
- Tracking error to the RU100G, Blair had the best tracking error, meaning, the least likely to be a benchmark hugger.
- Blair was the best momentum factor diversifier when compared to the existing APERS investment managers.
- Regarding exposure to the Magnificent 7, Blair had the lowest exposure to the Magnificent 7, which implies their strong ability to pick other stocks extremely well.
- JPM and Blair investment team lead PM have the longest tenure. TRP's lead PM is the least tenured.

Additional notes:

JP Morgan

- Highest correlation to APERS existing managers across all time horizons, 3y, 5y, 10y, and 20y
- Over last 5y similar investment style to APERS existing managers when it comes to inflation and higher interest rates
- Over last 5y similar investment style to APERS existing managers when it comes to economic cycles.
- Same momentum factor as the APERS existing managers.
- Tracking error to RU1000G is tight.
- Lead PM is engineer by education, and software development. Joined firm in 2003
- Portfolio does not do well when momentum gains strength. Very similar to the current APERS investment managers.

Willaim Blair

- Over last 5yr Lowest correlation to APERS existing managers.
- Over last 5yr when it comes to economic cycles, their style best compliments APERS existing managers.
- Over last 5yr when it comes to the interest rate environment, inflation, their style best compliments APERS existing managers.
- Had has the lowest exposure to the Magnificent 7, and yet their performance has been solid which suggests that they are better stock pickers than the other 2 managers.
- Manager has been underweight momentum.
- Best tracking error to the RU1000G
- One of Lead PMs (Jim Golan) started in research, specifically in I.T. research.
- Firm is 100% employee owned.

T. Rowe Price

- Over last 5yr their style had a bias to interest rate risk. This severely impeded their performance over the past 2yr as interest rates rose significantly.
- They have experienced organizational change, which suggests that tenure is a bigger issue.
- Same momentum factor as the APERS existing managers.
- Tracking error to RU100G is tight.
- Shortest tenured PM. Background is healthcare. Applied Physics degree.

### Eighty-Eight Years as an Independent Investment Firm with \$60.7 billion in Assets.

William Blair is committed to building enduring relationships with our clients. We work closely with private and public pension funds, insurance companies, endowments, foundations, and sovereign wealth funds, as well as financial advisors. We are 100% active-employee-owned with broad-based ownership. Our investment teams are solely focused on active management and employ disciplined, analytical research processes across a wide range of strategies. William Blair is based in Chicago with global resources providing expertise and solutions to meet our clients' evolving needs.

### Commitment to Clients

William Blair's professionals strive to meet and exceed client expectations every day. Since 1935, our commitment to clients has been embodied by our founder's credo: "When our clients succeed, the firm's success will follow."

### Intrinsic Strengths — Team Stability & Consistency

In our view, the firm's partnership structure and collegial culture are critical factors to our success. These characteristics assist in attracting and retaining our seasoned investment professionals. With long-tenured portfolio managers and research analysts, our portfolios have been managed by stable investment teams providing for consistent application of our investment philosophies.

### Tenured & Experienced Teams

330 Employees (55 Partners)

	Average Years	
	Industry	At William Blair
30 Portfolio Managers	25	11
51 Analysts	18	11

### Driven by Fundamental Research

Our philosophy and process are driven by a passion for and dedication to intensive fundamental research. Our portfolio managers and analysts tend to have long tenures, and many are equity owners of the firm. Our rigorous research process is collaborative, leveraging all of our intellectual capital. Research analysts and portfolio managers are peers, working side by side to debate and evaluate ideas, with portfolio managers making the ultimate investment decisions for each portfolio. We take pride in the depth of our knowledge and acuity of our insight.

### Diverse Thought Drives Strong Outcomes

Diverse leadership teams: IM led by women for over 20 years

- From 12/31/17 to 12/31/22:<sup>1</sup>
  - 30% of new hires are racially/ethnically diverse (R/ED) and 43.7% are women
  - Women represent 41.4% of IM
  - R/ED talent increased from 15.7% to 22.3%
- Received 100% score on the Human Rights Campaign's Corporate Equality Index<sup>2</sup> for the second consecutive year

<sup>1</sup>As of December 31, 2022. Includes dedicated resource groups. R/ED excludes non-US employees. 169 total hires.

<sup>2</sup>Human Rights Campaign's Corporate Equality Index is the national benchmarking survey and report measuring company policies and practices related to LGBTQ workplace equality.

<b>U.S. Growth &amp; Core Equity</b>	<b>\$22.3 billion</b>
U.S. Equity Sustainability	\$64 million
All Cap Growth	\$399 million
Large Cap Growth	\$7.5 billion
Small-Mid Cap Growth (Closed 3/18)	\$9.6 billion
Small Cap Growth	\$1.9 billion
Small-Mid Cap Core	\$2.8 billion
<b>U.S. Value Equity</b>	<b>\$3.4 billion</b>
Mid Cap Value	\$11 million
Small-Mid Cap Value	\$16 million
Small Cap Value (Closed 7/21)	\$3.4 billion
<b>Global Equity</b>	<b>\$35.2 billion</b>
International Growth (Closed 6/12)	\$9.1 billion
International Leaders	\$9.3 billion
International Leaders Concentrated	\$58 million
International Leaders ADR	\$174 million
International Small Cap Growth (Closed 3/11)	\$1.8 billion
Emerging Markets Growth	\$6.7 billion
Emerging Markets Leaders	\$4.3 billion
Emerging Markets Leaders Concentrated	\$85 million
Emerging Markets Small Cap Growth (Closed 10/13)	\$1.0 billion
Emerging Markets Ex China Growth	\$21 million
China A-Shares Growth	\$238 million
China Growth	\$1 million
Global Leaders	\$1.8 billion
Global Leaders Concentrated	\$5 million
Global Leaders Sustainability	\$86 million
<b>Emerging Markets Debt</b>	<b>\$246 million</b>
Emerging Markets Debt	\$235 million
EMD Local Currency	\$11 million

### ESG Integration & Commitment

- Investment opportunities and risks holistically incorporate material ESG considerations
- PRI signatory since 2011

Signatory of:



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***ARKANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM***

***BOARD OF TRUSTEES***

**INVESTMENT POLICY STATEMENT**



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# **ARKANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM**

## **INVESTMENT POLICY**

### **I. INTRODUCTION**

The Arkansas Public Employees Retirement System ("APERS") was established by the General Assembly in 1957 as a multi-employer defined benefit plan for State of Arkansas employees. The administration and control of the system shall be vested to a thirteen member Board of Trustees as defined in Title 24 of the Arkansas Code of 1987 which contains the statutes that govern the Arkansas Public Employees Retirement System. Including other responsibilities, the Board of Trustees may do any and all things necessary for the proper administration of the system and carry out make effective the provisions of this Title 24, and provide for the administrative direction and control of the executive director and such clerical staff as may be required in the administration of the system.

### **II. STATEMENT OF PURPOSE**

The assets of the Arkansas Public Employees Retirement System ("APERS") shall be invested as determined from time to time by the APERS Board. The purpose of the Investment Policy Statement ("IPS") is to establish a framework that sets forth the investment objectives of APERS and the investment policies to be followed in carrying out those objectives.

### **III. STATUTORY AUTHORITY**

The primary statutory authority for the investment activities of APERS is found in Sections 24-2-601 through 24-2-619 of the Arkansas Code, as amended. Trustees shall invest and manage trust assets as a prudent investor would, by considering the purposes, terms, distribution requirements, and other circumstances of the trust. Trustees who have special skills or expertise, have a duty to use those special skills or expertise (24-2-611). The prudent investor rule shall be applied by each party serving in a fiduciary capacity for APERS.



#### **IV. INVESTMENT OBJECTIVES**

The investment objectives shall be: (1) the prudent investment of APERS' assets in order to provide benefits to participants and their beneficiaries; and (2) to maximize total return - consistent with prudent risk taking on the amounts available to provide such benefits. For this purpose, short-term fluctuations in value shall be considered secondary to long-term investment considerations. This objective is not to be a goal from year to year, but is intended as a long-term guideline to those involved in investing the Trust's assets. This policy does not require the elimination of risk, but instead strives to achieve a balance between risk and return. Some risk must be taken to achieve desired levels of return. The objective is to ensure that economic and investment risk taken is prudent and properly managed within a framework of contributions from each asset class. The investments of the APERS' Fund shall be diversified in order to mitigate the risk of large losses, and will be implemented with an appropriate number of managers whose investment styles are varied enough to balance the overall risk of the Fund in consideration of the return objective.

#### **V. ASSET ALLOCATION (BY MAJOR CATEGORIES)**

Asset allocation provides for diversification of assets in an effort to maximize the Fund's investment return consistent with its risk portfolio. Allocation targets and ranges are established and referred to as "Policy" portfolio.

Asset Class	Market Value Exposure	
	Target	Range
Domestic Equity + Convertible Bonds	39%	34% - 44%
International Equity	17%	12% - 22%
Cash + Fixed Income	21%	16% - 26%
Real Assets	16%	11% - 21%
Private Equity	5%	0% - 10%
Other Private Markets	2%	0%- 7%
	100%	

The Board of Trustees shall receive an Asset Allocation Review prepared by the Investment Consultant at least annually to determine if the Fund allocation is consistent with the level of risk and volatility acceptable to the Board. This review will include the Fund's expected return and risk outlook based on capital market assumptions developed by the Investment Consultant.

Periodically, (e.g., three to five years, or when a significant change to the Fund's assets or liabilities has occurred), an Asset-Liability Study will be conducted by the Investment Consultant and presented to the Board. This Study will integrate actuarial liability projections with the asset allocation model in a simulation exercise that examines the financial condition of the Fund consistent with appropriate investment planning horizon.

Should the amount invested in an asset class fall outside the target ranges, Staff will rebalance to the allocation within the specified ranges. Within these broader asset classes, the Trustees shall establish commitment levels to various investment styles, as the dynamics of the Fund's financial needs dictate.

## **VI. PORTFOLIO GUIDELINES**

Through selecting, timing and weighing investments, the Fund's objective is to maximize the total return of the account assets, through price appreciation and/or yield, consistent with the level of risk taken. In determining the appropriate risk posture for the Fund, consideration should be given to the overall risk characteristics of the Fund, and the extent to which components of the Fund are diversified. Additionally, the Board of Trustees establishes the following specific guidelines:

- A. Securities may not be purchased on margin.
- B. The System may establish a Securities Lending Program subject to restrictions established by the Board.
- C. Each investment manager will be required to invest within the specific guidelines and parameters set by the Board of Trustees.
- D. APERS recognizes legal responsibility to seek to invest in the Arkansas economy, while realizing its primary, legal, and fiduciary commitment is to beneficiaries of the retirement system, under the prudent investor rule.

- E. It is the intent of APERS to include qualified minority (African-American, Hispanic American, American Indian, Asian-American, or Pacific Islander-American), female, and disabled owned businesses in the Fund's investment manager selection process. The inclusion of the above managers in the selection process will be recorded and periodically reviewed by APERS staff and presented to the Board as requested. This process is intended to ensure all investment managers are given equitable consideration in the manager selection process in keeping with the fiduciary obligations of the APERS Board for the beneficiaries and annuitants of the System.

## **VII. CUSTODIANSHIP OF SECURITIES**

Securities may be held by the State Treasurer of, under the authority granted by Arkansas Code 24-2-606. APERS may establish an arrangement with a financial institution, as specified by this Code, for the custodianship of its securities subject to the approval of the Board of a Request for Proposal as well as a proposed contract.

## **VIII. ROLES AND RESPONSIBILITIES**

### **A. Custodian Bank**

The custodian bank shall, by nominee arrangement, hold any and all securities for the beneficial interest of the APERS fund. Custodial activities will include, but are not limited to, the purchase, registration, and sale of stocks, bonds, notes, and other securities, as well as the collection of any income. Furthermore, the custodian bank shall sweep idle cash balances in short-term investment vehicles that are consistent with the investment guidelines promulgated by OCC Reg 9 and/or SEC Rule 2a-7. Dividends, interest, proceeds from sales, new contributions and all other moneys are to be invested or reinvested promptly.

### **B. Administrative Staff**

The Administrative Staff, at the direction of the Board of Trustees, shall execute all investment transactions for any assets managed in-house. In addition, they are responsible for communicating the necessary information to fulfill contractual obligations with the investment professionals. The Administrative Staff shall also communicate relevant Board decisions to investment managers, custodian bank, actuary, and consultant.

## C. Board of Trustees

The Board of Trustees shall oversee the total investment program. The Board shall approve the investment policy and provide overall direction to the Administrative Staff in the execution of the investment policy. The Board of Trustees shall review and approve or disapprove investment recommendations not governed by Investment Policy prior to their execution. The Board shall also review and approve investment policy changes. Furthermore, the Board shall review and approve or disapprove any contracts of a financial nature, when performed by other than APERS' staff persons, such as, although not limited to, those for investment counselors, custodial arrangements, option programs, and security lending.

## **IX. TOTAL FUND PERFORMANCE MEASUREMENT STANDARDS**

The Total Fund Performance and that of the underlying strategies will be measured against appropriate benchmarks and peer groups. Benchmarks establish target investment exposures and provide a relative measure to gauge whether a particular strategy is meeting its goals and objectives. The Total Fund Policy Benchmark is an aggregation of the asset class benchmarks weighted by the policy portfolio.

- A. The Total Fund's objective is to rank in the upper 50th percentile compared to the results of other similarly managed public fund portfolios measured over a market cycle.
- B. The Total Fund's objective is to generate an annualized total return that exceeds the return of the Policy Benchmark, after managers' fees, over a market cycle.

## **X. PROXY VOTING**

The Board has directed that the individual investment managers will be responsible for voting proxies in the best interest of APERS. Each investment counselor is responsible for maintaining records of how each proxy is voted. A written report of proxy voting will be provided to the Board within 30 days from the end of each quarter. In general, each investment counselor is expected to vote for improvements in corporate governance, for the alignment interests of corporate management with shareholder interests, and for equal access to the management proxy card. A detailed explanation will be given for each instance where the proxy is voted against these concepts or against management.

## **XI. REVIEW OF INVESTMENT PROCESS**

- A. Periodically, the Board will review the investment results achieved by each manager over a market cycle (typically, a three to five-year time horizon) to determine whether:
  1. The investment managers performed in adherence to the investment philosophy and policy guidelines set forth herein.
  2. The investment managers performed satisfactorily when compared with:
    - a. Its appropriate benchmark.
    - b. Other similarly managed funds.
- B. In addition to reviewing each investment manager's results, the Board will re-evaluate, from time to time, its progress in achieving the total fund, equity, fixed-income, and international equity segments objectives previously outlined.
- C. The periodic re-evaluation also will involve an evaluation of the continued appropriateness of:
  1. The manager structure;
  2. The allocation of assets among the managers; and
  3. The investment objectives for the Fund's assets. The Board may appoint investment consultants to assist in the ongoing evaluation process. The consultants selected by the Board are expected to be familiar with the investment practices of other similar retirement plans and will be responsible for suggesting appropriate changes in the Fund's investment program over time.

## **XII. STATEMENT OF INVESTMENT POLICY**

- ♦ ADOPTED 1985
- ♦ AMENDED NOVEMBER 2004
- ♦ AMENDED JULY 2007
- ♦ AMENDED MAY 2010
- ♦ AMENDED NOVEMBER 2019
- ♦ REVIEWED NOV 2020



***ARKANSAS PUBLIC EMPLOYEES RETIREMENT SYSTEM***

***BOARD OF TRUSTEES***

**INVESTMENT POLICY STATEMENT**



**ARKANSAS PUBLIC EMPLOYEES' RETIREMENT SYSTEM  
BOARD OF TRUSTEES**

**INVESTMENT POLICY STATEMENT**



Adopted by the Board of Trustees  
Month DD, YYYY

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# ARKANSAS PUBLIC EMPLOYEES' RETIREMENT SYSTEM

## INVESTMENT POLICY STATEMENT

### I. INTRODUCTION

The Arkansas Public Employees Retirement System ("APERS" or "System") was established by the Arkansas General Assembly in 1957 as a multi-employer defined benefit retirement plan for State of Arkansas employees. The administration and control of the system shall be vested in a thirteen-member Board of Trustees ("board" or "trustees"). APERS is governed by the laws of the State of Arkansas and its governing statutes, rules, and regulations. Arkansas State Code "Title 24. Retirement and Pensions." contains the statutes that govern the Arkansas Public Employee Retirement System. Including other responsibilities, the Board of Trustees may do any and all things necessary for the proper administration of the system and carry out make effective the provisions of this Title 24. Arkansas Code §24-4-104(d)(2) states that the Board shall appoint an executive director who shall be the executive administrative officer of the Arkansas Public Employees Retirement System. Arkansas Code §24-4-105 provides for the administrative direction and control of the executive director and clerical staff as may be required in the administration of the system. Arkansas Code §24-2-201 et seq. and §§24-2-601 through 24-2-619 are the primary statutory authority for the investment activities of APERS.

### II. STATEMENT OF PURPOSE

Arkansas Code § 24-2-613(b)(1) Trustees shall develop an investment policy. This policy shall be a written statement of goals for the fund and rules to be followed to achieve those goals.

The Investment Policy Statement ("IPS" or "Statement") incorporates the laws, documents, principles, and standards that guide the management of the System's investments. This IPS governs the investment assets of APERS and is established to provide a framework for the management of those assets. The Executive Director and Chief Investment Officer shall administer this Statement pursuant to laws of the State of Arkansas, and the investment policies adopted by the APERS Board of Trustees. This IPS is intended to be binding upon all persons with authority over the System's assets, including external investment managers/advisors, custodians, consultants, and staff.

The Board intends for this IPS to be a dynamic document subject to review and refinement. Policies may be modified to reflect changes in assets and investment strategy, benefit changes, and economic conditions.

The purpose of this Statement is to:

- A. Set forth the investment policies, objectives, and guidelines the Board of Trustees determines to be appropriate, prudent, and in consideration of the System's needs, to comply with all current state laws and to direct the System's investment activities.
- B. Establish criteria to evaluate the System's investment performance. (Section VIII)
- C. Communicate investment policies, objectives, guidelines, and performance criteria to staff, external investment managers/advisors, consultants, custodians, and any/all other interested parties.
- D. Serve as a review document to guide ongoing oversight of the System's investments for compliance with the laws of Arkansas and applicable federal laws.
- E. Demonstrate the Retirement Board's fulfillment of its responsibilities to manage the investments of the System solely in the interest of members and their beneficiaries.
- F. Document the Retirement Board's fulfillment of its overall fiduciary responsibilities with respect to the investment of System assets

### III. STATUTORY GOVERNING AUTHORITY

Arkansas Code § 24-2-602 states that the boards of trustees of the Arkansas Public Employees Retirement System...shall have full power to invest and reinvest the moneys of the respective systems and to hold, purchase, sell, assign, transfer, or dispose of any investments so made as well as the proceeds of the investments and moneys.

#### Board of Trustees

The Board is responsible for establishing the policy for the system and overseeing the investment of the portfolio and the expenditures required to meet system obligations. Specifically regarding investments, the board takes action based upon information presented at Board and/or Investment Finance Subcommittee meetings and upon recommendations made by staff. Arkansas Code §24-2-611 states "Trustees shall invest and manage trust assets as a prudent investor would, by considering the purposes, terms, distribution requirements, and other circumstances of the trust. The trustees shall exercise reasonable care, skill, and caution. Investment and management decisions respecting individual assets must be evaluated not in isolation but in the context of the portfolio as a whole and as a part of an overall investment strategy having risk and return objectives reasonably suited to the trust."

#### Investment Finance Subcommittee (IFS)

The APERS Board of Trustees provides the IFS with investment oversight responsibilities. The IFS makes recommendations to the Board and supports the Board's deliberations on topics covered and set forth in this policy. The IFS approves or disapproves investments recommended by the ED and CIO.

#### Executive Director (ED)

Arkansas Code §24-4-104(d)(2) and (3) authorize the board to appoint an executive director who shall be the executive administrative officer of the system and shall also be ex officio secretary of the board. The board may delegate to the executive director any of the powers and duties vested in or imposed upon it by law.

#### Chief Investment Officer (CIO)

The CIO is part of the investment staff, reports to the ED, works with the Board as well as the IFS on policy-related issues and directs the investment program consistent with this IPS and within applicable state and federal laws. The CIO and ED implement this policy and board decisions made in connection with this policy. The CIO and the investment staff manage daily cash-flow and liquidate assets as necessary to pay benefits. The board delegates duties to the CIO to perform that are consistent with this investment policy statement.

#### Investment Staff

The investment staff, under the direction of the CIO, are responsible for the daily operation and implementation of the investment program. Investment staff are also responsible for supporting the investment program at the strategic, compliance and operational levels through the establishment of appropriate procedures as well as implementation of tools and processes to implement, measure and monitor the investment program as further described in this IPS and the internal investment department policy and procedure document.

#### Custodian Bank

Arkansas Code §24-2-606: Securities may be held by the State Treasurer or, APERS may establish an arrangement with a financial institution for the custodianship of its securities subject to the approval of the Board.

The Custodian Bank serves as the master custodian of the System's assets and is responsible for maintaining the official book of record under the supervision of the CIO and the investment staff, calculating investment performance, and serving as an additional layer of risk control in the safekeeping of System's assets.

## **IV. DELEGATED AUTHORITY**

The Board maintains the ultimate oversight of the system's assets. The Board requires all trustees, the executive director, the chief investment officer, and the investment staff to make all investment decisions in the best interest of the system.

The Investment Finance Subcommittee of the Board of Trustees is authorized to invest in or otherwise sell or dispose of any system asset, without regard to amount, when the transaction is recommended by the ED and the CIO and the transaction, in the

judgement of the IFS, is in compliance with the IPS. All investments will be reported at a regular board meeting by the chair of their designee to the full board of trustees.

The ED and CIO are authorized to invest the funds of the system in accordance with the directions, and Investment Policy Statement established by the board. The ED and CIO are responsible to exercise the delegated investment decisions adopted by the board, and applicable laws of Arkansas, and the policies contained in the policy.

To improve the efficient use of its resources, the board delegates the day-to-day investment operations and implementation through the ED, CIO, and investment staff. The ED and CIO are responsible for performing these delegated duties consistent with the IPS and as otherwise directed by the Board.

The ED and CIO are authorized to: manage the assets so as to assure sufficient cash is available at all times to pay the system's benefits as they come due; assure that the system's asset allocation as approved by the board is achieved and maintained; and that sufficient funds are available for the funding of investments which have been authorized by the board, the Investment Finance Subcommittee, and the ED and CIO, and to take actions necessary or required to achieve the board's objectives.

The ED and CIO have investment discretion to invest the system's cash in short-term fixed income securities, and/or money market funds for the purpose to provide liquidity, enhance income, and provide for temporary investment of system funds.

The ED and CIO are authorized by the board to retain and terminate investment managers within each asset class, with the approval of the Investment Finance Subcommittee, as necessary to achieve the investment objectives of the system. The size of an investment made is subject to specific limitations provided for the asset class applicable to the investment. No existing investment manager shall be terminated without the Investment Finance Subcommittee approval, except for exigent circumstances that include, without limitation, departure of key persons, regulatory events, bankruptcy or insolvency, fraud or other bad acts, in each case, as determined by the ED and CIO exercising reasonable judgement.

## **V. INVESTMENT OBJECTIVES**

The APERS Board of Trustees has a fiduciary responsibility to the members and beneficiaries of the system. All investment transactions undertaken on behalf of the System will be for the sole benefit of the members and their beneficiaries, for the exclusive purpose of providing benefits to them and defraying administrative expenses.

§24-1-101 All assets and income of any state-supported retirement system administered by an agency of the State of Arkansas shall be held, invested, or

disbursed for the exclusive purpose of providing for benefits, investment management, and administrative expenses... and shall not be encumbered for or diverted to any other purposes.

The System's long-term objective is to earn an average rate of return greater than the rate of return of representative indices for individual asset classes but no less than the actuarial assumption rate. The indices are identified in the Asset Allocation Policy. Volatility of returns, or risk, for the System, as measured by standard deviation of investment returns, should be commensurate with the level of returns expected to be achieved over a long period of time.

Assets will be invested with a total return posture given appropriate consideration for portfolio volatility (risk) and liquidity.

The actuarial consultant recommends the actuarial return assumption for the investment program after consulting with APERS staff regarding the expectations surrounding the long-term investment returns available from a well-diversified investment portfolio. The Board is responsible for approving an Actuarial Return Assumption and accepting that the commensurate risk posture of that portfolio is in line with the Board's Risk Tolerance.

The specific investment return objective is to maximize the probability of achieving the Actuarial Return Assumption without exceeding the Risk Tolerance of the Board. The current Actuarial Return Assumption adopted by the Board is 7.00% and will be evaluated annually by the Board.

## **VI. ASSET ALLOCATION POLICY**

Asset allocation determines the different asset classes in the investment portfolio and the distribution of funds among those asset classes. As fiduciaries, the board of trustees have a duty to diversify the investments of the fund to minimize and manage risk, while maximizing the investment return. Arkansas Code §24-2-612. Trustees shall diversify the investments of the trust unless the trustees reasonably determine that, because of special circumstances, the purposes of the trust are better served without diversifying.

The Board recognizes that the most important determinant of long-term return and risk is the asset allocation decision. Approximately 80% to 90% of the variability in returns of a fund across time is expected to be attributable to the asset allocation decision. The remaining ten percent 10% to 20% is expected to be attributable to either selection of individual assets, investment managers, or market timing.

Strategic Asset Allocation is constructed based on long-term asset class forecasts with targets to maintain a set combination of asset classes. The Board's Strategic Target Allocation is intended to reflect, and be consistent with, the return objective and risk

tolerance expressed in this IPS. It is designed to provide the highest probability of meeting or exceeding the Board's objectives at a controlled level of risk and liquidity that is acceptable to the Board. In establishing the asset allocation, the Board considers APERS' ability to withstand not only the long-term risk of underperforming its return objective but also short and intermediate-term volatility in investment performance and fluctuations in the financial condition of the fund.

Strategic Target Allocation should deliver:

1. A representation of the board's long-term return objective with its implied risk tolerance;
2. Sufficient confidence for the board to "stay the course" given extreme market moves;
3. A benchmark against which to measure performance.

The ED and CIO should ensure the risk representations in the capital markets models and assumptions used by the Board in setting the Strategic Target Allocation and Risk Tolerance are consistent internally, consistent with industry best practice, and consistent with the Board's investment risk philosophy and with the risk analytics used for monitoring portfolio risk.

The Executive Director and Chief Investment Officer consistently review the asset allocation as well as the asset class benchmarks and will recommend any changes/updates as deemed necessary.

The Strategic Target Allocation, asset classes, targets, and acceptable ranges as determined and approved by the Board to facilitate the achievement of long-term investment objectives within acceptable risk parameters are in the table to follow. Target allocations may not be attained at any specific point in time as actual asset allocation is often dictated by current and anticipated financial market conditions, as well as any actions and/or decisions by the board. Asset classes will not be "out of alignment" during any transition period, e.g., due to changes in asset allocation policy.

The Board approved and adopted the following expected return and risk assumptions, as well as the asset allocation mix which was presented at the February 2023 Board meeting:

## Strategic Asset Allocation: Targets and Ranges

Asset Class	Minimum	Target	Maximum
Domestic Equity + Convertible Securities	34%	39%	44%
International Equity	12%	17%	22%
Real Assets	11%	16%	21%
Cash + Fixed Income	16%	21%	26%
Private Equity + Diversified Strategy	2%	7%	12%

## Asset Class Policy Benchmarks

Asset Class	Policy Benchmark
Domestic Equity + Convertible Securities	Russell 3000 Index
International Equity	MSCI ACWI ex US
Real Assets	CPI-U + 4%
Cash + Fixed Income	Bloomberg Aggregate
Private Equity + Diversified Strategy	each investment will have its own benchmark

Annual Review. The Executive Director and Chief Investment Officer will work with the investment consultant and prepare an Asset Allocation Review for the board to review. The strategic asset allocation will be reviewed annually to determine if the asset allocation remains acceptable to the Board. This annual review will include recent and historical investment experience and consider new developments. This includes a review and revision, where appropriate, of the long-term capital market assumptions regarding expected investment returns, standard deviations, and correlations, and the Board's long-term goals and objectives. A formal asset allocation will be conducted every three to five years, or as needed, or as directed by the board, to verify or amend the targets.

Asset Liability. An Asset-Liability study will be conducted and presented to the board. The study will integrate the actuarial liability projections with the asset allocation model. It is an exercise that examines the financial condition of the fund for consistency with the investment planning horizon. This study should be conducted every three to five years, or when a significant change to the fund's assets or liabilities has occurred, or, as directed by the board.

Rebalancing Policy. The Executive Director and Chief Investment Officer are responsible for a periodic and orderly rebalancing of the portfolio so that asset classes remain within the strategic asset allocation range, and for establishing an orderly rebalancing should one or more of the asset classes fall outside the established range. The goal of the rebalancing policy is to maintain the Board-approved strategic allocation and its risk and return profile. The Board has chosen a

rebalancing policy that is governed by allocation ranges rather than time periods. The ranges, specified in the table above, are a function of the volatility of each asset class and the proportion of the total fund allocated to the asset class.

Investment staff will ensure that the integrity of the board's strategic target allocation is preserved through a disciplined process that allows the flexibility to rebalance the portfolio between investment managers within an asset class and between asset classes, within the board-approved ranges, to adjust for market movements and consider current market conditions, or valuations, in portfolio allocations.

Investment staff is responsible for implementing all portfolio re-balancing activities, subject to approval by the CIO, that are appropriate for existing circumstances. Investment staff will consider cash flows, opportunity costs, transaction costs and portfolio disruptions in any rebalancing implementation.

The CIO will report the results of any rebalancing activity to the board upon completion of the rebalance at the next regularly scheduled Board meeting.

Risk Management. APERS will have a risk management program/system to help ensure that investment risk is managed to be consistent with the risk appetite established in this IPS. The CIO establishes and oversees risk management and compliance.

## **VII. INVESTMENT GUIDELINES**

The following guidelines are applicable to the total fund.

- A. Securities may not be purchased on a margin.
- B. Securities may not be sold short.
- C. No single investment may comprise more than 5% of an investment strategy. An exception is for passively managed index products where there is no limitation.
- D. Each investment manager is expected to invest APERS' funds according to the mandate APERS retained them to fulfill and according to state and federal laws.
- E. The fund may establish a Securities Lending Program subject to restrictions established by the Board. The objective of the securities lending program is to generate incremental income from overnight and certain term loans of securities held, subject to guidelines, utilizing a high-quality and reasonably conservative cash collateral re-investment program that safeguards the return of principal and maintains adequate daily liquidity to support trade settlement activity and portfolio restructuring activities. The Board may appoint the custodian bank or a third party to serve as the system's lending agent.
- F. A transition manager may be retained to assist in the transfer of assets from one



investment manager to another and serves as a liaison between the CIO and the investment staff, the Custodian, the investment manager distributing assets, and the investment manager receiving assets. This transition may occur either within an asset class or between asset classes. The transition manager will facilitate clear communication between all parties, work to minimize market impact, trading costs and opportunity cost and may include interim investment management services of account assets for a limited period of time.

The transition manager is required to be a registered investment adviser under the Investment Adviser's Act of 1940 as amended (unless properly exempted from registration by the SEC) or otherwise regulated by an appropriate governmental regulatory oversight organization (unless exempt from such registration requirement), act as a fiduciary to APERS, not delegate such fiduciary responsibility, and provide agency-only execution services. The Transition Manager will provide a detailed post-trade analysis for investment staff.

- G. A risk analytics system, or firm/advisor, may be retained to assist with the CIO with oversight, monitoring, and management of risk in the investment portfolio, as well as to assist to ensure risk representations are consistent.
- H. Under Arkansas Code §24-2-608(b), the Board believes in investing in Arkansas related investments if the investment does not impair the board's fiduciary responsibility or violates §24-2-610, the prudent investor rule.
- I. All investment transactions, which does include the investment manager selection process, will be for the sole benefit of the system. The Board believes that all investment managers should be given equitable consideration in their selection process.

## **VIII. PERFORMANCE MONITORING**

Performance measurement will be based on total rate of return and will be monitored over a sufficient time period to reflect the investment expertise of the investment manager(s) over three to five years. Performance results and evaluation relative to objectives will be reported to the Board on a quarterly basis.

### **A. Return Expectations**

1. Total Portfolio specific performance objectives include, but may not be limited to, the following:
  - a) Achieve a total rate of return over rolling five-year periods meeting or exceeding the Actuarial Return Assumption.
  - b) Exceed an appropriate benchmark reflective of asset class participation over rolling five-year periods (i.e., actual allocation index during the implementation period and Policy Index once fully implemented).

## 2. Individual Investment Managers

The CIO and the investment consultant(s) will determine performance expectations for each manager. Specific performance objectives for actively managed strategies include, but may not be limited to, the following:

- a) Exceed an appropriate index or benchmark over rolling five-year periods.
- b) Rank above median in an appropriate universe of managers possessing a similar style over rolling five-year periods.
- c) The CIO and investment consultant will evaluate performance relative to expectations and appropriate peer groups for each private market investment manager.

There may be short-term variations from these objectives. The board believes that over the long-term (market cycle to market cycle), these goals should be attainable.

### B. Consequences of Underperformance

If an investment manager's performance falls below expectations, and if the performance fails to improve relative to the standards detailed above and/or qualitative factor changes remain unresolved, the manager may be considered for termination or redemption.

## IX. **PROXY VOTING**

The Board has directed that the individual investment managers will be responsible for voting proxies solely in the pecuniary interest of the pension plan. Each investment manager is responsible for maintaining records of how each proxy is voted. A written report shall be provided to the investment staff within 45 days from the end of each quarter. For each vote the report shall contain a vote caption, the plan's vote, the recommendation of company management and, if applicable, the proxy advisor's recommendation. The report(s) shall be posted on the APERS' website.

## X. **INVESTMENT POLICY STATEMENT**

- ADOPTED 1985
- AMENDED NOVEMBER 2004
- AMENDED JULY 2007
- AMENDED MAY 2010
- AMENDED NOVEMBER 2019
- REVIEWED NOVEMBER 2020

**ARKANSAS PUBLIC EMPLOYEES' RETIREMENT SYSTEM  
BOARD OF TRUSTEES**

**INVESTMENT POLICY STATEMENT**

**APERS**

**ARKANSAS PUBLIC  
EMPLOYEES' RETIREMENT SYSTEM**

Adopted by the Board of Trustees  
Month DD, YYYY

TO: Amy Fecher, Executive Director  
FROM: Carlos Borromeo, Deputy Director – Investments & Finance  
DATE: October 24, 2023  
SUBJECT: Revisions to Investment Policy Statement (“IPS”)

The Investment Policy Statement (“IPS”) was first adopted in 1985. The value of the retirement system was ~ \$791 million. I became CIO of APERS in 2010 and the system was ~\$4.7 billion. APERS is now over \$10 billion in valuation. As the fund has grown in value, the IPS has not changed. It is roughly the same IPS as it was in 2010. The 2008 Global Financial Crisis was a reminder of how the markets and investments can change. How the system’s assets are invested and managed should have changed as well.

For the Board to fulfill its fiduciary responsibilities to the members of the system, the Board’s policies, objectives, and guidelines need to be clearly defined their IPS. The proposed revisions to the policy reflect the current practices, and stem from an effort to be more transparent.

This memo is intended to explain any changes, additions, and/or omissions from the previously adopted IPS from November 2020. Please note: Nothing has been completely deleted or omitted from the November 2020 version but are organized differently.

### Section 1, Introduction.

Clarification that the Board is now a thirteen-member board is needed. Additional Arkansas Code cites were added for clarity that the APERS Board of Trustees are responsible for the administration of the system.

### Section 2, Statement of Purpose.

Arkansas Code references have been added where appropriate. Arkansas Code §24-2-613(b)(1) specifically states that an IPS will be developed. In addition to the original purpose statement, clarification has been added in place of the phrase, “from time to time.” The Board is responsible for oversight and management of the system and the investments. There are two things that decide how the assets are managed, (1) the laws of the State of Arkansas, and (2) the policies adopted by the Board. Those two things are exclusively for the benefit of APERS members and beneficiaries.

### Section 3, Renamed to Statutory Governing Authority.

The new policy reorganizes the previous “Roles and Responsibilities” section into this new section. With the addition of the Board’s Investment and Finance Subcommittee, these roles needed to be clearly stated in the IPS. The Executive Director is stated in state code. The

changes also clearly set out the responsibilities of the Board, ED, CIO, Investment staff, and custodian bank.

Section 4 is new. Delegated Authority.

The previous IPS was silent on specifically assigned staff or committee authority for the Investment and Finance Subcommittee, ED, CIO, and Investment Staff to perform. Examples include the daily wiring of funds to cover benefit payments, special payroll payments, to cover capital calls, to distribute capital distributions, etc. APERS has received questions regarding this authority by Legislative Audit and the new policy strives to define this more fully. An example of a Leg Audit question: "Who authorized staff to sell the S&P 500 to fund that capital call?"

Once the Board sets the strategic asset allocation, then it is the responsibility of the Executive Director, CIO, and Investment Staff to execute the board's policies.

This section provides discretion to the Executive Director and CIO to make decisions when time is of the essence. There are investment opportunities that have been presented that would be beneficial for the system. Most recently a real estate investment manager, who is an existing APERS manager, presented an opportunity. While the board would have most likely approved the investment, our meeting schedule did not allow for the manner of timely response that was needed. The manager was investing in student housing at the University of Arkansas. The opportunity had a very short window that APERS missed out on.

Section 5, Investment Objectives.

This section needed to be expounded to better explain the process. The board doesn't make up an assumed rate of return of 7.00%. There is a process to that decision. To achieve that assumed rate of return, the asset allocation is closely scrutinized.

Section 6, Asset Allocation Policy.

Asset Allocation is the most important decision the Board will make. Since it will determine how the fund performs, more attention and detail are needed in the IPS. The Annual Review section and the asset liability section were retained, and a rebalancing policy, and risk management was added.

When the allocation is outside of the Board's approved range, the current rebalancing policy is to address it at the next Board meeting. The CIO asks the board for approval to rebalance the portfolio. That process seems unnecessary. Once the board sets the asset allocation, and delegates the CIO to ensure that the fund stays "within the lanes", then the boundaries are set. APERS needs the ability to rebalance as needed when outside the approved ranges.

Risk Management. Currently there is no way to confirm or deny the information APERS is being given by either the investment consultant(s) or the actuary. Historically the board has accepted

the risk/standard deviation information that has been provided from the external consultant(s). APERS should have the ability to verify data and information.

#### Section 7, Investment Guidelines.

This section adds and rearranges a few things from the previous policy. Letters A through E all existed in the previous version.

Letter F, transition manager. A transition manager is needed when APERS wants to maintain exposure to the markets while transitioning from one account to another account. An example would be the following hypothetical situation.

- The Board terminates a U.S. Micro Cap Equity Manager A
- The Board wants Emerging Market exposure, so they hire a separately managed account with an International EM Manager X who is benchmarked off the S&P LgMd Euro-Pac Growth GD index
- As APERS liquidates Manager A, we want exposure to the S&P LgMd Euro-Pac Growth GD index. Since the liquidity for U.S. micro-cap is not that liquid, we need to do it in pieces over time. This process can get cumbersome, and the service was formally provided by our custodian bank.
- A transition manager would only be retained in special circumstances.

Letter G, risk analytics. An existing manager recently presented a risk management strategy to APERS that we feel has real value. The new policy would allow the CIO to hire a risk advisor.

#### Section 8, Performance Monitoring.

In the previous IPS version this was titled “Total Fund Performance Measurement Standards” and this new policy expounds on it.

#### Section 9, Proxy Voting.

Updated it and took some of the wording verbatim from Act 498 of 2023, Ark. Code Ann. §24-2-805.



November 2023

## **Arkansas Public Employees' Retirement System**

- Value-Add Real Estate Commitment

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### **Avery Robinson, CAIA**

Senior Vice President

### **John Jackson, CFA**

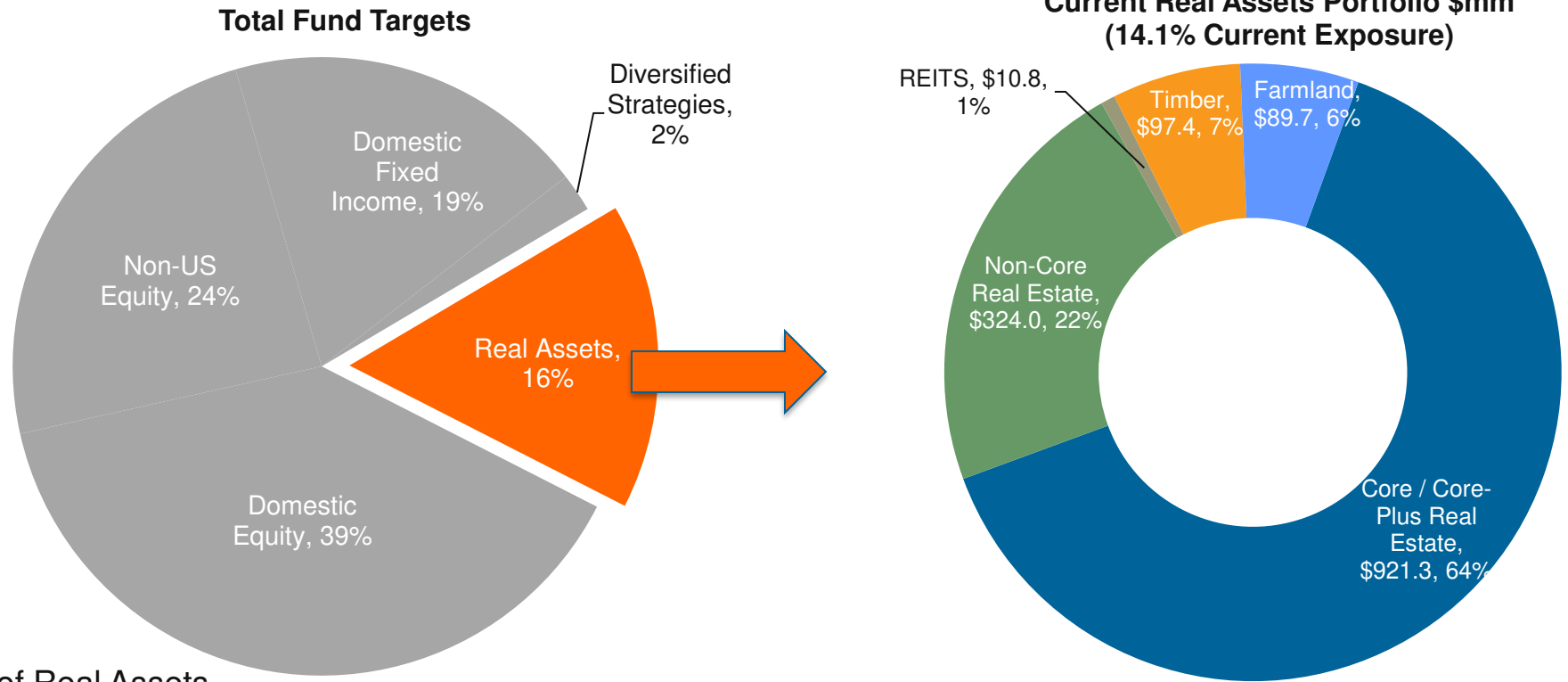
Senior Vice President

### **Brianne Weymouth, CAIA**

Senior Vice President

# Current Portfolio

As of September 30, 2023



- **Role of Real Assets**

- Real Assets investments are designed to pay income and appreciate in value with risk levels that are commensurate with return expectations.

- **APERS Real Assets Allocation**

- APERS overall assets are approximately \$10.2 billion of which the Real Assets investment target is 16% or approximately \$1.6 billion.
- Currently, the APERS real assets portfolio is valued at approximately \$1.4 billion, or 14.1% of the total portfolio.
- In February 2021, the APERS Board approved a real assets strategic established new targets for the underlying strategies within the portfolio. Subsequently, Callan conducted a pacing study on the APERS real assets program with the goal creating a plan to prudently and efficiently reach the overall allocation target of 16%, while factoring the new strategy targets.



# Pacing Study Revisited

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- Diversification across strategies and vintage years is an important risk management tool in real asset investing.
- Callan performs an annual pacing study to examine the expected contributions and distributions into and out of the real asset portfolio.
- The non-core real estate portfolio is particularly dynamic from year to year with certain funds investing and some liquidating.
- Every year the projection model is adjusted to reflect changes in:
  - Total plan assets and growth rate
  - The uncalled commitment balance
  - The real asset net asset value
  - Projected real asset returns
- The pacing study forecasts how much additional capital is required annually to reach and maintain APERS invested close to its 16% real assets target.

# Pacing Plan Revisited

Vintage Year	Commitment Amounts (\$ 000s)				
	Core / Core-Plus RE	Non-Core RE	REITS	Timber	Farmland
2021	\$0	\$125,000	(\$85,000)		\$100,000
2022	\$250,000	\$125,000			
2023	\$0	\$125,000			
2024	\$0	\$125,000			
2025	\$0	\$125,000			
2026	\$0	\$125,000		(\$80,000)*	

## Activity

2021

- Plan: \$125mm Commitment to Non-Core Real Estate
- Action: \$75mm Commitment to Starwood Fund XII, \$50mm Commitment to Harrison Street Fund VIII in May 2021
- Plan: \$100mm Commitment to Farmland
- Action: \$50mm Commitment to IFC, \$50mm Commitment to PGIM in November 2021

2022

- Plan: \$250mm Commitment to Core/Core-Plus Real Estate
- Action: \$85mm Commitment to Carlyle, \$85 Commitment to Clarion, \$85mm to Principal in February 2022
- Plan: \$125mm Commitment to Non-Core Real Estate
- Action: \$75mm Commitment to TA Realty Fund XIII

2023

- Plan: \$125mm Commitment to Non-Core Real Estate
- Pending Action: \$50mm Commitment to Harrison Street Fund IX
- Potential Action: Commitment to Starwood Fund XIII

# Harrison Street Real Estate Partners IX Summary Information

Fund Name	Harrison Street Real Estate Partners IX
Strategy Focus Summary	<p><b>Sectors:</b> Student housing and other education-related properties, senior housing-related properties, healthcare-related properties, life sciences, storage, digital, and build-to-rent real estate</p> <p><b>Geography:</b> North America with a focus on U.S. markets</p>
Target Returns	<p>16% to 18% gross IRR (before fund-level expenses, fees, carried interest, 13% to 15% net IRR.</p> <p>1.7x – 1.8x gross equity multiple, 1.6x – 1.7x net equity multiple</p>
Target Fund Size	\$3.0 billion target and \$4.0 billion hard cap
Capital Commitments	Targeting \$3 billion, raised \$1.2 billion to date
Sponsor Commitment	1% of the total capital commitments
Investment Period	Three years from the initial closing date (June 2022), subject to a one-year extension with unanimous consent from Advisory Committee
Term	10 years from initial closing date, subject to two one-year extensions with majority consent of the Advisory Committee
Leverage Percentage	Maximum of 70%
Notes:	APERS committed to Harrison Street Fund VIII

# Performance Summary

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## Harrison Street Real Estate Partners VIII

As of June 30, 2023

	<b>Inception</b>	<b>Gross Return</b>	<b>Net Return</b>	<b>Gross Multiple</b>	<b>Net Multiple</b>
<b>HSREP VIII</b>	2021	14.9%	9.7%	1.2x	1.1x

### **Fund VIII Summary:**

- Fund VIII is a \$2 billion fund that was launched in 2021
- The investment period for the fund ends in December 2023
- The Fund has 146 investments and has called 78% of capital
- The Fund has not had any realizations to date and has not distributed any capital
- As of June 30, 2023, the Fund's NAV was \$1.8 billion.
- Although the Fund is still early in its life cycle, Harrison St. reported the Fund is projected to meet or exceed target returns