LACERS
LA CITY EMPLOYEES' RETIREMENT SYSTEM

Board of Administration Agenda

REGULAR MEETING

TUESDAY, JUNE 27, 2023

TIME: 10:00 A.M.

MEETING LOCATION:

LACERS Boardroom
977 N. Broadway
Los Angeles, California 90012

Important Message to the Public

An opportunity for the public to address the Board in person from the Boardroom and provide comment on items of interest that are within the subject matter jurisdiction of the Board or on any agenda item will be provided at the beginning of the meeting and before consideration of items on the agenda.

Members of the public who do not wish to attend the meeting in person may listen to the live meeting via one-way audio on Council Phone by calling (213) 621-CITY (Metro), (818) 904-9450 (Valley), (310) 471-CITY (Westside) or (310) 547-CITY (San Pedro Area).

Disclaimer to Participants

Please be advised that all LACERS Board meetings are recorded.

LACERS Website Address/link:
www.LACERS.org

In compliance with Government Code Section 54957.5, non-exempt writings that are distributed to a majority or all of the Board in advance of the meeting may be viewed by clicking on LACERS website at www.LACERS.org, at LACERS' offices, or at the scheduled meeting. In addition, if you would like a copy of a non-exempt record related to an item on the agenda, please call (213) 855-9348 or email at lacers.board@lacers.org.

President:	Vacant
Vice President:	Elizabeth Lee
Commissioners:	Annie Chao Thuy Huynh Janna Sidley Sung Won Sohn Michael R. Wilkinson
Manager-Secretary:	Neil M. Guglielmo
Executive Assistant:	Ani Ghoukassian
Legal Counsel:	City Attorney's Office Public Pensions General Counsel Division

Notice to Paid Representatives

If you are compensated to monitor, attend, or speak at this meeting, City law may require you to register as a lobbyist and report your activity. See Los Angeles Municipal Code §§ 48.01 *et seq*. More information is available at ethics.lacity.org/lobbying. For assistance, please contact the Ethics Commission at (213) 978-1960 or ethics.commission@lacity.org.

Request for Services

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities.

Sign Language Interpreters, Communication Access Real-Time Transcription, Assistive Listening Devices, Telecommunication Relay Services (TRS), or other auxiliary aids and/or services may be provided upon request. To ensure availability, you are advised to make your request at least 72 hours prior to the meeting you wish to attend. Due to difficulties in securing Sign Language Interpreters, five or more business days' notice is strongly recommended. For additional information, please contact: Board of Administration Office at ***(213) 855-9348*** and/or email at ***lacers.board@lacers.org***.

I. PUBLIC COMMENTS AND GENERAL PUBLIC COMMENTS ON MATTERS WITHIN THE BOARD'S JURISDICTION AND COMMENTS ON ANY SPECIFIC MATTERS ON THE AGENDA

II. ELECTION TO FILL UNEXPIRED TERM OF THE VACANT OFFICE OF THE BOARD PRESIDENT PURSUANT TO LOS ANGELES CITY CHARTER SECTION 503(A) AND POSSIBLE BOARD ACTION

III. IF VACANCY CREATED IN OFFICE OF THE VICE PRESIDENT BY BOARD ACTION ON AGENDA ITEM II, ELECTION TO FILL UNEXPIRED TERM OF BOARD VICE PRESIDENT, PURSUANT TO LOS ANGELES CITY CHARTER SECTION 503(A) AND POSSIBLE BOARD ACTION

IV. DISABILITY RETIREMENT APPLICATION(S)

A. CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54957(b) TO CONSIDER THE DISABILITY RETIREMENT APPLICATION OF JESSE RODRIGUEZ AND POSSIBLE BOARD ACTION (HEARING)

V. LEGAL/LITIGATION

A. ANNUAL LITIGATION REPORT: CLOSED SESSION PURSUANT TO SUBDIVISIONS (a), (d)(1) OF GOVERNMENT CODE SECTION 54956.9 TO CONFER WITH AND/OR RECEIVE ADVICE FROM LEGAL COUNSEL REGARDING PENDING LITIGATION IN THE FOLLOWING THREE (3) CASES, AND POSSIBLE BOARD ACTION:

a. In re ASHINC Corp, et al. v. Yucaipa American Alliance Fund I, LLC, et al. (Bankr. D. Del., Case No. 12-11564);

b. Youngman v. Yucaipa American Alliance Fund I, LLC, et al. (LASC, Case No. 21STCV37137); and

c. American Federation of State, County, and Municipal Employees et al. v. City of Los Angeles et al. (LASC, Case No. BS 166535)

VI. BOARD PRESIDENT VERBAL REPORT

VII. GENERAL MANAGER VERBAL REPORT

A. REPORT ON DEPARTMENT OPERATIONS

B. UPCOMING AGENDA ITEMS

VIII. RECEIVE AND FILE ITEMS

A. MONTHLY REPORT ON SEMINARS AND CONFERENCES FOR MAY 2023

IX. COMMITTEE REPORT(S)

A. INVESTMENT COMMITTEE VERBAL REPORT FOR THE MEETING ON JUNE 13, 2023

B. BENEFITS ADMINISTRATION COMMITTEE VERBAL REPORT FOR THE MEETING ON JUNE 27, 2023

X. CONSENT ITEM(S)

A. APPROVAL OF MINUTES FOR THE REGULAR MEETING OF MAY 23, 2023 AND POSSIBLE BOARD ACTION

XI. BOARD/DEPARTMENT ADMINISTRATION

A. CONSIDERATION OF PROPOSED ASSUMPTION CHANGES BASED ON THE ACTUARIAL EXPERIENCE STUDY DURING THE PERIOD OF JULY 1, 2019 THROUGH JUNE 30, 2022 AND POSSIBLE BOARD ACTION

B. STATUS OF LACERS IMPLEMENTATION PLAN AS IT RELATES TO RECOMMENDATIONS PROVIDED IN THE CITY'S 2022 MANAGEMENT AUDIT AND POSSIBLE BOARD ACTION

XII. INVESTMENTS

A. CHIEF INVESTMENT OFFICER VERBAL REPORT INCLUDING DISCUSSION ON THE PORTFOLIO EXPOSURE TO GLOBAL EVENTS

B. APPROVAL OF 3-YEAR CONTRACT WITH LAZARD ASSET MANAGEMENT LLC REGARDING THE MANAGEMENT OF AN ACTIVE NON-U.S. EQUITIES DEVELOPED MARKETS CORE PORTFOLIO AND POSSIBLE BOARD ACTION

C. APPROVAL OF 1-YEAR CONTRACT WITH POLEN CAPITAL CREDIT, LLC REGARDING THE MANAGEMENT OF AN ACTIVE HYBRID HIGH YIELD FIXED INCOME/U.S. FLOATING RATE BANK LOAN PORTFOLIO AND POSSIBLE BOARD ACTION

D. APPROVAL OF 5-YEAR PRIVATE EQUITY CONSULTANT CONTRACT WITH AKSIA CA LLC AND POSSIBLE BOARD ACTION

XIII. OTHER BUSINESS

XIV. NEXT MEETING: The next Regular meeting of the Board is scheduled for Tuesday, July 11, 2023 at 10:00 a.m., in the LACERS Boardroom, at 977 N. Broadway, Los Angeles, California 90012-1728.

XV. ADJOURNMENT

Agenda of: **JUNE 27, 2023**

Item No: **VIII-A**

MONTHLY REPORT ON SEMINARS AND CONFERENCES ATTENDED BY BOARD MEMBERS ON BEHALF OF LACERS (FOR THE MONTH OF MAY 2023)

In accordance with Section V.H.2 of the approved Board Education and Travel Policy, Board Members are required to report to the Board, on a monthly basis at the last Board meeting of each month, seminars and conferences they attended as a LACERS representative or in the capacity of a LACERS Board Member which are either complimentary (no cost involved) or with expenses fully covered by the Board Member. This monthly report shall include all seminars and conferences attended during the 4-week period preceding the Board meeting wherein the report is to be presented.

BOARD MEMBERS:

Commissioner Janna Sidley

DATE(S) OF EVENT	SEMINAR / CONFERENCE TITLE	EVENT SPONSOR (ORGANIZATION)	LOCATION (CITY, STATE)
Apr. 30 to May 2, 2023	**Verde Exchange Conference**	Verde Exchange	Los Angeles, CA

Agenda of:	**June 27, 2023**
Item No:	**X-A**

MINUTES OF THE REGULAR MEETING
BOARD OF ADMINISTRATION
LOS ANGELES CITY EMPLOYEES' RETIREMENT SYSTEM

May 23, 2023

10:00 a.m.

PRESENT:	President:	Vacant
	Vice President:	Elizabeth Lee
	Commissioners:	Annie Chao Thuy Huynh Sung Won Sohn Michael R. Wilkinson
	Legal Counselor:	Anya Freedman
	Manager-Secretary:	Neil M. Guglielmo
	Executive Assistant:	Ani Ghoukassian
ABSENT:	Commissioner:	Janna Sidley

The Items in the Minutes are numbered to correspond with the Agenda.

I

PUBLIC COMMENTS AND GENERAL PUBLIC COMMENTS ON MATTERS WITHIN THE BOARD'S JURISDICTION AND COMMENTS ON ANY SPECIFIC MATTERS ON THE AGENDA – Vice President Lee asked if any persons wanted to make a general public comment to which there was no public comment cards submitted.

II

ELECTION TO FILL UNEXPIRED TERM OF THE VACANT OFFICE OF THE BOARD PRESIDENT PURSUANT TO LOS ANGELES CITY CHARTER SECTION 503(A) AND POSSIBLE BOARD ACTION – Neil M. Guglielmo, General Manager, advised that the nominations for Board President were being considered. Commissioner Sohn nominated Commissioner Chao and Commissioner Huynh nominated Vice President Lee. Mr. Guglielmo called for the vote on the nomination of Commissioner Chao as President: Ayes, Commissioners Chao, Sohn, and Wilkinson -3; Nays, Commissioner Huynh and Vice President Lee -2. Commissioner Chao did not receive the majority vote. Mr. Guglielmo called for the vote on the nomination of Vice President Lee as President: Ayes, Commissioner Huynh and Vice President Lee -2; Nays, Commissioners Chao, Sohn, and Wilkinson -3. Vice President Lee did not receive the majority vote. The Board Officer election will be continued to the next Board meeting.

III

IF VACANCY CREATED IN OFFICE OF THE VICE PRESIDENT BY BOARD ACTION ON AGENDA ITEM II, ELECTION TO FILL UNEXPIRED TERM OF BOARD VICE PRESIDENT, PURSUANT TO LOS ANGELES CITY CHARTER SECTION 503(A) AND POSSIBLE BOARD ACTION – No action was taken on this item and it will be continued to the next Board meeting.

IV

BOARD PRESIDENT VERBAL REPORT – Vice President Lee and Commissioner Chao recognized Asian American Pacific Islander (AAPI) Heritage Month.

V

GENERAL MANAGER VERBAL REPORT

A. REPORT ON DEPARTMENT OPERATIONS – Neil M. Guglielmo, General Manager, advised the Board of the following items:

- Evacuation Drill held at LACERS HQ
- HQ updates
- Retirement Services updates
- Health Benefits Administration updates
- Communications and Stakeholder Relations updates
- Upcoming events

B. UPCOMING AGENDA ITEMS – Neil M. Guglielmo, General Manager, advised the Board of the following items:

- Governance Committee on June 13th: Continuation of the Triennial Board Policy Review
- Benefits Administration Committee on June 13th: Health Plan Financial Dashboard
- Board Meeting on June 27th: Experience Study
- Benefits Administration Committee on June 27th: Medical Plan RFP Evaluations, and the Dental and Vision Contracts Renewal

VI

RECEIVE AND FILE ITEMS

A. MONTHLY REPORT ON SEMINARS AND CONFERENCES FOR APRIL 2023 – This report was received by the Board and filed.

B. COMMISSIONER THUY HUYNH EDUCATION EVALUATION REPORT ON THE INSTITUTIONAL INVESTOR PUBLIC FUNDS ROUNDTABLE; LOS ANGELES, CA; APRIL 24-26, 2023 – This report was received by the Board and filed.

C. COMMISSIONER ELIZABETH LEE BOARD EDUCATION EVALUATION REPORT ON THE INTERNATIONAL FOUNDATION OF EMPLOYEE BENEFIT PLANS (IFEBP) PORTFOLIO CONCEPTS AND MANAGEMENT PROGRAM; PHILADELPHIA, PA; MAY 1-4, 2023 – This report was received by the Board and filed.

D. COMMISSIONER ANNIE CHAO BOARD EDUCATION EVALUATION REPORT ON THE CALIFORNIA ASSOCIATION OF PUBLIC RETIREMENT SYSTEMS (CALAPRS) TRUSTEES ROUNDTABLE; VIRTUAL; MAY 5, 2023 – This report was received by the Board and filed.

E. COMMISSIONER THUY HUYNH BOARD EDUCATION EVALUATION REPORT ON THE CALIFORNIA ASSOCIATION OF PUBLIC RETIREMENT SYSTEMS (CALAPRS) TRUSTEES ROUNDTABLE; VIRTUAL; MAY 5, 2023 – This report was received by the Board and filed.

F. COMMISSIONER MICHAEL R. WILKINSON BOARD EDUCATION EVALUATION REPORT ON THE STATE ASSOCIATION OF COUNTY RETIREMENT SYSTEMS (SACRS) SPRING CONFERENCE; SAN DIEGO, CA; MAY 9-12, 2023 – This report was received by the Board and filed.

VII

COMMITTEE REPORT(S)

A. INVESTMENT COMMITTEE VERBAL REPORT FOR THE MEETING ON MAY 9, 2023 – Vice President Lee stated the Committee heard a presentation by PGIM, Inc. The Committee also approved the Real Estate FY 2023-24 Strategic Plan and contract with Loomis, Sayles & Company, L.P.

VIII

Commissioner Huynh moved approval of Consent Agenda Item VIII-A, seconded by Commissioner Wilkinson, and adopted by the following vote: Ayes, Commissioners Chao, Huynh, Sohn, Wilkinson, Vice President Lee -5; Nays, None.

CONSENT ITEM(S)

A. APPROVAL OF MINUTES FOR THE MEETING OF APRIL 25, 2023 AND POSSIBLE BOARD ACTION

IX

BOARD/DEPARTMENT ADMINISTRATION

A. PROPOSED BUDGET, PERSONNEL, AND ANNUAL RESOLUTIONS FOR FISCAL YEAR 2023-24 AND POSSIBLE BOARD ACTION – Isaias Cantu, Senior Management Analyst, presented and discussed this item with the Board. Commissioner Sohn moved approval, seconded by Commissioner Wilkinson, and adopted by the following vote: Ayes, Commissioners Chao, Huynh, Sohn, Wilkinson, Vice President Lee -5; Nays, None.

X

INVESTMENTS

A. CHIEF INVESTMENT OFFICER VERBAL REPORT INCLUDING DISCUSSION ON THE PORTFOLIO EXPOSURE TO GLOBAL EVENTS – Bryan Fujita, Investment Officer III, reported on the portfolio value of $21.41 billion as of May 22, 2023. Mr. Fujita discussed the following items:

- Volatility Index at 17.5
- New NEPC documents to Board members
- Organizational update on Barrow Hanley Global Investors
- Recent headlines about Wells Fargo Bank
- Emerging Manager Networking Forum on June 8, 2023
- Future Agenda Items: Total Fund Portfolio Performance Review as of March 31, 2023, Two International Travel Authorities, and Investment Committee Charter

Mr. Fujita shared that Russian exposure for LACERS was 1.5 basis points and there were no material changes since May 22, 2023.

B. PRESENTATION BY NORTHERN TRUST COMPANY REGARDING MASTER CUSTODY SERVICES, INTEGRATED DISBURSEMENTS, COMPLIANCE ANALYST, PRIVATE MONITOR ANALYTICS, RISK ANALYTICS, SECURITIES LENDING SERVICES AND FAIR VALUE REPORTING TOOLS – Gary Guibert, Senior Vice President, with Northern Trust Company, presented and discussed this item with the Board for 45 minutes.

C. PRESENTATION BY TOWNSEND HOLDINGS LLC OF THE REAL ESTATE FISCAL YEAR 2023-24 STRATEGIC PLAN AND POSSIBLE BOARD ACTION – Felix Fels, Associate Partner, and Prashant Tawari, Partner, with Townsend Holdings LLC, presented and discussed this item with the Board for 40 minutes. Commissioner Huynh moved approval, seconded by Commissioner Wilkinson, and adopted by the following vote: Ayes, Commissioners Chao, Huynh, Sohn, Wilkinson, and Vice President Lee -5; Nays, none.

D. APPROVAL OF 3-YEAR CONTRACT WITH LOOMIS, SAYLES & COMPANY, L.P. REGARDING THE MANAGEMENT OF AN ACTIVE HIGH YIELD FIXED INCOME PORTFOLIO AND POSSIBLE BOARD ACTION – Bryan Fujita, Chief Operating Officer, and Jeremiah Paras, Investment Officer I, presented and discussed this item with the Board for 15 minutes. Commissioner Chao moved approval of the following Resolution:

CONTRACT RENEWAL
LOOMIS, SAYLES & COMPANY, L.P.
ACTIVE HIGH YIELD FIXED INCOME PORTFOLIO MANAGEMENT

RESOLUTION 230523-B

WHEREAS, LACERS' current three-year contract with Loomis, Sayles & Company, L.P. (Loomis) for active high yield fixed income portfolio management expires on August 31, 2023; and,

WHEREAS, Loomis is in compliance with the LACERS Manager Monitoring Policy; and,

WHEREAS, a contract renewal with Loomis will allow the LACERS total portfolio to maintain a diversified exposure to high yield fixed income; and,

WHEREAS, on May 23, 2023, the Board approved the Investment Committee's recommendation to approve a three-year contract renewal with Loomis.

NOW, THEREFORE, BE IT RESOLVED, that the General Manager is hereby authorized to approve and execute a contract subject to satisfactory business and legal terms and consistent with the following services and terms:

Company Name:	Loomis, Sayles & Company, L.P.
Service Provided:	Active High Yield Fixed Income Portfolio Management
Effective Dates:	September 1, 2023 through August 31, 2026
Duration:	Three years
Benchmark:	Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index
Allocation as of March 31, 2023:	$224 million

Which motion was seconded by Commissioner Sohn, and adopted by the following vote: Ayes, Commissioners Chao, Huynh, Sohn, Wilkinson, and Vice President Lee -5; Nays, None.

E. NOTIFICATION OF COMMITMENT OF UP TO $40 MILLION IN GGV CAPITAL IX L.P. – This report was received by the Board and filed.

F. NOTIFICATION OF COMMITMENT OF UP TO $10 MILLION IN GGV CAPITAL IX PLUS L.P. – This report was received by the Board and filed.

G. NOTIFICATION OF COMMITMENT OF UP TO $25 MILLION IN BARINGS EMERGING GENERATION FUND II, L.P. – This report was received by the Board and filed.

H. NOTIFICATION OF COMMITMENT OF UP TO $50 MILLION IN HELLMAN & FRIEDMAN CAPITAL PARTNERS XI, L.P. – This report was received by the Board and filed.

I. NOTIFICATION OF COMMITMENT OF UP TO $60 MILLION IN TA XV-A, L.P. – This report was received by the Board and filed.

XI

LEGAL/LITIGATION

A. APPROVAL OF ONE-YEAR EXTENSIONS TO OUTSIDE FIDUCIARY COUNSEL AND INDEPENDENT CONFLICT COUNSEL CONTRACTS WITH KUTAK ROCK LLP, NOSSAMAN LLP, AND OLSON REMCHO LLP, AND POSSIBLE BOARD ACTION – Miguel Bahamon, Deputy City Attorney, presented this item to the Board. Commissioner Wilkinson moved approval, seconded by Commissioner Chao, and adopted by the following vote: Ayes, Commissioners Chao, Huynh, Sohn, Wilkinson, and Vice President Lee -5; Nays, None.

.

XII

OTHER BUSINESS – There was no other business.

XIII

NEXT MEETING: The next Regular meeting of the Board is scheduled for Tuesday, June 13, 2023, at 10:00 a.m., in the LACERS Boardroom, at 977 N. Broadway, Los Angeles, California 90012-1728.

XIV

ADJOURNMENT – There being no further business before the Board, Vice President Lee adjourned the Meeting at 12:31 p.m.

Elizabeth Lee
Vice-President

Neil M. Guglielmo
Manager-Secretary

LACERS
LA CITY EMPLOYEES' RETIREMENT SYSTEM

REPORT TO BOARD OF ADMINISTRATION | **MEETING: JUNE 27, 2023**
From: Neil M. Guglielmo, General Manager | **ITEM: XI-A**

SUBJECT: **CONSIDERATION OF PROPOSED ASSUMPTION CHANGES BASED ON ACTUARIAL EXPERIENCE STUDY DURING THE PERIOD FROM JULY 1, 2019 THROUGH JUNE 30, 2022 AND POSSIBLE BOARD ACTION**

ACTION: ☒ CLOSED: ☐ CONSENT: ☐ RECEIVE & FILE: ☐

Recommendation

That the Board consider and adopt the actuarial assumptions recommended by LACERS' consulting actuary, Segal, as listed in Appendix B of the attached Actuarial Experience Study covering the period from July 1, 2019 to June 30, 2022.

Executive Summary

Actuarial assumptions are used in the actuarial valuation process for measuring the costs and liabilities of the plan and the contribution requirements of the Plan Sponsor (City of Los Angles or Employer). While the City Charter requires that an actuarial experience study be completed every five years, the typical timeframe between experience studies for LACERS has been three years. LACERS' last full experience study was conducted through June 30, 2019. This Experience Study before the Board is based on the three-year period from July 1, 2019 through June 30, 2022.

Overall, Segal recommends changes to both Economic and Demographic assumptions. The discussion below provides details as to how the assumptions will change and the associated cost impacts. Changes in Actuarial assumptions will be reflected in the June 30, 2023 (2023) Actuarial Valuation to be presented to the Board in November 2023 and factored into the annual Employer contribution for the Fiscal Year (FY) 2024-25 City Budget. As adopted, the new assumptions will be implemented in LACERS' pension administration system effective July 1, 2024.

Cost Impact of the Recommended Assumptions Based on June 30, 2022 Actuarial Valuation (Beginning of the Year)

Segal has estimated the impact of all the recommended economic and demographic assumptions as if they were applied to the June 30, 2022 actuarial valuations. The tables below shows the changes in the employer contribution rate, unfunded actuarial accrued liability (UAAL), and funded ratio due to the proposed assumption changes.

Impact on Employer Contribution Rate	Retirement Plan	Health Plan	Total
Increase/(decrease) in Normal Cost rate	0.34%	0.52%	0.86%
Increase/(decrease) in Unfunded Actuarial Accrued Liability (UAAL) rate	(0.25)%	(0.16)%	(0.41)%
Total increase/(decrease) in employer rate	**0.09%**	**0.36%**	**0.45%**

Impact on UAAL and Funded Ratio	Retirement Plan	Health Plan	Total
Increase/(decrease) in UAAL	$(142,672,096)	$(52,416,871)	$(195,088,967)
Change in funded ratio	From 73.3% to 73.7%	From 97.0% to 98.4%	From 76.4% to 76.9%

Note that the Employer covered payroll for FY 2023-24 is approximately $2.7 billion, thus a 0.45% cost increase is an approximately $12.2 million increase in the annual contribution to the Plans.

Discussion

As a result of the July 1, 2019 to June 30, 2022 (2019-2022) Actuarial Experience Study, Segal recommends changes to the Economic and Demographic assumptions as discussed below.

Economic Assumptions

The Economic assumptions reviewed include:

Assumption	Current	Recommended
Net Investment Return	7.00%	7.00%
Member Contribution Crediting Rate	2.75%	2.50%
Cost of Living Adjustment[1]	2.75% for Tier 1 and 2.00% for Tier 3	2.75% for Tier 1 and 2.00% for Tier 3
Payroll Growth	Inflation of 2.75% plus “across the board” salary increase of 0.50% annually	Inflation of 2.50% plus “across the board” salary increase of 0.50% annually
Increase in IRC Section 401(a)(17) Compensation Limit	Annual increase of 2.75%	Annual increase of 2.50%
Salary Increases	Inflation of 2.75% plus “across the board” salary increase of 0.50% plus merit and promotion increases	Inflation of 2.50% plus “across the board” salary increase of 0.50% plus decreased merit and promotion assumptions during earlier years of service and increased assumptions during later years of service

[1] Cost of Living Adjustments for LACERS Members and Beneficiaries are capped at 3.00% for Tier 1 and 2.00% for Tier 3.

1. **Inflation and Investment Return Assumptions**

Although there has been a spike that started in the second quarter of 2021 and continued into 2022, while still elevated, the inflation rate has been relatively steady since the Federal Reserve started increasing interest rates around the second quarter of 2022. Additionally, Segal compared yields on thirty-year inflation indexed U.S. Treasury bonds to comparable traditional U.S. Treasury bonds over the past few years, observing a “break-even rate” that has exceeded 2.5% just once during the observed period. Segal also reviewed historical CPI and its proposed inflation assumption over the years while comparing its proposed rate of 2.50% with other entities. Segal recommends the same 2.50% assumption for its California public retirement system clients.

<u>Inflation Assumptions for other entities</u>

Entity	**Inflation Assumption**
Public Plans Database Median Inflation assumption of 194 large public retirement funds in 2021	2.50%
CalPERS	2.30%
CalSTRS	2.75%
LACERS and ten of the 1937 Act systems (including LACERA)	2.75%
WPERP	2.50%
LAFPP	2.50%
Ten 1937 Act systems	2.50%
New England Pension Consultants (NEPC)	2.60%
Average Inflation Assumption of seven Investment Advisory Firms surveyed by Segal (including NEPC and Segal Marco Advisors)	2.43%
Social Security Administration 2023 Projected Average Increase in CPI over 75 Years (Intermediate Assumption)	2.40%

<u>Recommended Investment Return</u>

Along with a reduction in the Inflation assumption, Segal recommends retaining the Investment Return assumption at 7.00%. In this study, Segal no longer includes an explicit adjustment for investment management fees and converts the portfolio’s expected arithmetic average return to an expected geometric average return.

The following table summarizes the components of the recommended investment return assumption. For comparison purposes, the chart includes similar values from the last Actuarial Experience Study as well as the comparison values that apply the prior model to this year’s information.

Assumption Component	June 30, 2023 Recommended Value	June 30, 2023 Comparison Value	June 30, 2020 Adopted Value
Inflation	2.50%	2.50%	2.75%
Portfolio Expected Arithmetic Real Rate of Return	6.27%	6.27%	5.50%
Expense Adjustment	(0.20)%	(0.40)%	(0.40)%
Adjustment to Expected Geometric Real Rate of Return	(1.03)%	N/A	N/A
Risk Adjustment	(0.54)%	(1.37)%	(0.85)%
Total	7.00%	7.00%	7.00%
Confidence Level	56%	63%	59%

Segal explains that

> *the expected geometric average return reflects expected median outcomes, while the expected arithmetic average return reflects expected average or mean outcomes. Expected median outcomes are lower than expected average outcomes because they are less affected by the possibility of extraordinary ("outlier") favorable outcomes.*

Segal further explains that

> *Even though…expected geometric returns are lower than expected arithmetic returns, public retirement systems that have set investment return assumptions using this geometric approach have in practice adopted investment return assumptions that are comparable to those adopted by the Board for LACERS under the arithmetic approach… [since] the investment return assumption is not reduced to anticipate future investment management expenses.*

<u>Adopted Investment Return for other Entities</u>

Entity	Adopted Investment Return
CalPERS	6.80%
CalSTRS	7.00%
LACERS	7.00%
WPERP	6.50%
LAFPP	7.00%
San Jose City	6.625%
San Diego City	6.50%
Eight 1937 Act Systems (including LACERA)	7.00%
Eight 1937 Act Systems	6.75%
Two 1937 Act Systems	6.50%
One 1937 Act System	6.25%
One 1937 Act System	7.25%

Among California retirement systems, an Investment Return of 6.75% or lower is becoming more common, but when comparing across the nation with 210 other large public retirement funds based on their 2021 fiscal year valuations, 7.00% is the median Investment Return as depicted in the table below.

Investment Return for Public Plans

LACERS	LOW	MEDIAN	HIGH
7.00%	4.25%	7.00%	8.25%

2. **Salary Increases**

Salary increases impact plan costs in two ways: (i) by increasing Members' benefits (since benefits are a function of the Members' highest average pay) and future normal cost collections; and (ii) by increasing total active member payroll which in turn generates lower Unfunded Actuarial Accrued Liability contribution rates. Salary increases are composed of the following factors:

i. Inflation - Unless pay grows at least as fast as consumer prices grow, employees will experience a reduction in their standard of living. There may be times when pay increases lag or exceed inflation, but over the long term, labor market forces may require an employer to maintain its employees' standards of living. As mentioned earlier, Segal recommends reducing the assumed Rate of Inflation from 2.75% to 2.50%.

ii. Real "Across the Board" Salary Increases - These increases are typically termed productivity increases since they are considered to be derived from the ability of an organization or an economy to produce goods and services in a more efficient manner. As that occurs, at least some portion of the value of these improvements can provide a source for pay increases. These increases are typically assumed to extend to all employees "across the board." Segal recommends maintaining the Real "Across the Board" Salary Increase at 0.50%. This means that the combined inflation and "across the board" salary increase assumption will decrease from 3.25% to 3.00%.

iii. Merit and Promotion Increases – These increases are employee-specific and based on actual increases received net of Inflationary and Real "Across the Board" Salary Increases. Segal provides its recommended Merit and Promotion Increases assumptions based on years of service as follows:

Years of Service	Current Assumption	Actual Average Increase	Proposed Assumption
0 – 1	6.70%	5.14%	6.00%
1 – 2	6.50%	5.33%	5.90%
2 – 3	5.80%	4.91%	5.40%
3 – 4	4.00%	4.36%	4.20%
4 – 5	3.00%	4.03%	3.50%
5 – 6	2.20%	3.38%	2.80%
6 – 7	2.00%	2.90%	2.50%
7 – 8	1.80%	2.31%	2.10%
8 – 9	1.60%	1.99%	1.80%
9 – 10	1.40%	1.73%	1.60%
10 – 11	1.00%	1.92%	1.50%
11 – 12	1.00%	1.68%	1.40%
12 – 13	1.00%	1.40%	1.30%
13 – 14	1.00%	1.28%	1.20%
14 – 15	1.00%	0.95%	1.10%
15 & Over	1.00%	0.75%	1.00%

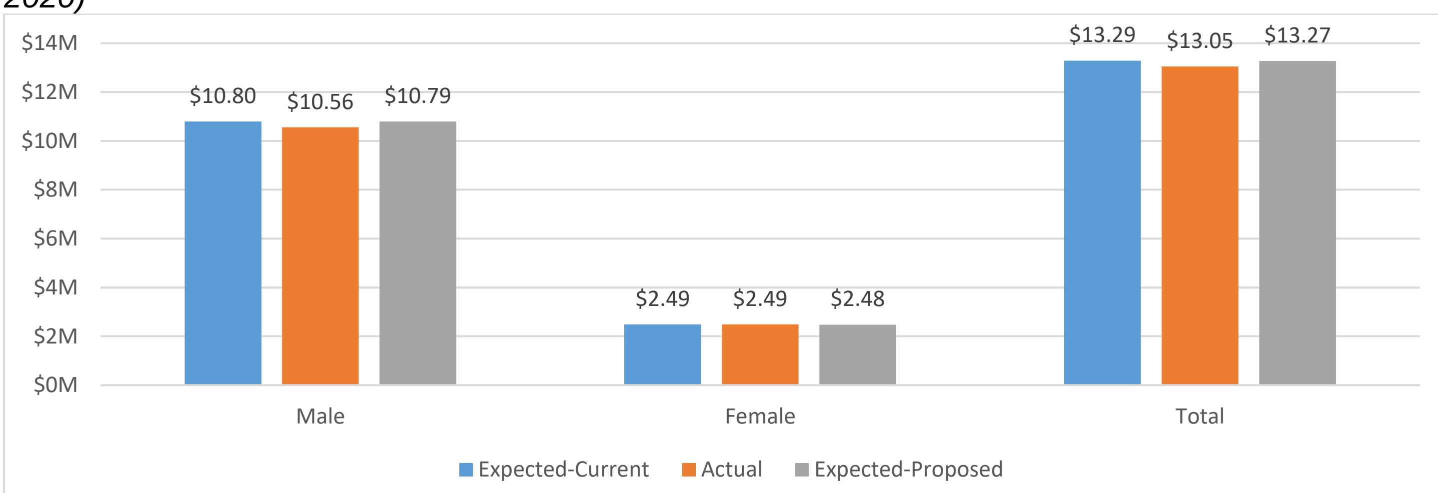
Staff supports the reduction in Inflation and maintaining the Rate of Return along with all other actuarial recommended Economic assumptions.

<u>Demographic Assumptions</u>

Demographic assumptions reviewed include:

1. **Mortality Rates:** Anticipate longer life expectancy.

Post-Retirement Benefit-Weighted Deaths (in Millions) Healthy Members (July 1, 2011 – June 30, 2020)[2]



[2] Segal excludes FY 2020/2021 and 2021/2022 due to relatively higher number of COVID-19 deaths during that period.

2. **Retirement Rates:** Increase assumed "non-55/30" retirements across all Tiers for ages 60-69.

3. **Termination Rates:** Decrease the termination rate assumption for certain service groups while increasing the termination rate assumption for other service groups. Overall, the proposed rates represent a slight decrease from the current rates.

   Segal also recommends that no termination is assumed after a member is first assumed to retire. In other words, at those ages members will either retire in accordance with the retirement rate assumptions or continue working, rather than terminate and defer their benefit.

4. **Disability Incidence Rate:** Decrease most of the assumed disability rates.

5. **Retiree Health Assumptions:** Maintain the assumptions used to predict percentage of eligible members electing health plan coverage, members covering their spouses (or domestic partners) and spousal age difference.

LACERS' staff supports the changes to Demographic assumptions as proposed by Segal.

Cost Impact and Employer Contribution Rates

If all the recommended assumptions are adopted, when applied to the 2022 Actuarial Valuation, the projected cost impact on the Employer Contribution Rate is an increase of 0.45% of payroll consisting of 0.86% of payroll for the Normal Cost and (0.41)% of payroll for the UAAL (based on contribution rates payable at the beginning of the year). The below table breaks down the cost impacts to the Health and Retirement Plans.

Impact on Employer Contribution Rate	Retirement Plan	Health Plan	Total
Normal Cost	0.34%	0.52%	0.86%
UAAL	(0.25)%	(0.16)%	(0.41)%
Total increase in average employer rate	**0.09%**	**0.36%**	**0.45%**

These rate adjustments are necessary to pay the increased liabilities associated with the changes anticipated by LACERS' experience.

Change in Plan Liabilities as of June 30, 2022

Plan/Cost Component[3]	Current Assumptions	Proposed Assumptions	Increase/ Decrease	Change as % of Payroll
Retirement Plan				
Normal Cost	$412,247,235	$423,981,661	$11,734,426	0.51%
Actuarial Accrued Liability	$24,078,751,303	$23,936,079,207	$(142,672,096)	(6.32)%
Health Plan				
Normal Cost	$ 81,027,749	$93,699,705	$12,671,956	0.56%
Actuarial Accrued Liability	$3,580,696,288	$3,528,279,417	$(52,416,871)	(2.32)%

A combined 0.45% increase in the Employer Contribution Rate results in an approximately $12.2 million increase in annual contributions to LACERS based on a $2.7 billion payroll.

Commensurate with these increases in liabilities, as applied to the June 30, 2022 Actuarial Valuation, the Retirement Plan funded percentage would increase from 73.3% to 73.7%; the Health Plan funded percentage would increase from 97.0% to 98.4%.

Paul Angelo and Andy Yeung of Segal will be in attendance at the Board meeting to present the report.

Prepared By: Edwin Avanessian, Chief Management Analyst, Administrative Operations

NG:TB:ea

Attachment:
Analysis of Actuarial Experience during the period July 1, 2019 through June 30, 2022 prepared by Segal

[3] Segal recommends a refinement in the application of the Entry Age actuarial cost method used to allocate the Total Present Value of Future Benefits between the current and future Normal Costs and Actuarial Accrued Liability to produce a cost attribution period that is more consistent with each member's participation in LACERS. This refinement includes (a) rounding a member's benefit service down to the number of completed years, (b) subtracting that service from the year of the valuation, and (c) using that result to set the year of entry into LACERS for purposes of applying the Entry Age actuarial cost method.

BOARD Meeting: 6/27/23
Item: XI-A
Attachment

Los Angeles City Employees' Retirement System

Actuarial Experience Study

Analysis of Actuarial Experience During the Period July 1, 2019 through June 30, 2022

Segal

Segal
180 Howard Street
Suite 1100
San Francisco, CA 94105-6147
segalco.com

June 21, 2023

Board of Administration
Los Angeles City Employees' Retirement System
977 N. Broadway
Los Angeles, CA 90012-1728

Re: Review of Actuarial Assumptions for the June 30, 2023 Actuarial Valuation

Dear Members of the Board:

We are pleased to submit this report of our review of the actuarial experience for the Los Angeles City Employees' Retirement System (LACERS). This study utilizes the census data for the period July 1, 2019 to June 30, 2022 and provides the proposed actuarial assumptions, both economic and demographic, to be used in the June 30, 2023 valuations.

We are members of the American Academy of Actuaries and we meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion herein.

We look forward to reviewing this report with you and answering any questions you may have.

Sincerely,

Paul Angelo, FSA, MAAA, FCA, EA
Senior Vice President and Actuary

Andy Yeung, ASA, MAAA, FCA, EA
Vice President and Actuary

Todd Tauzer, FSA, MAAA, FCA, CERA
Vice President and Actuary

DNA/jl

Table of Contents

1. Introduction, Summary, and Recommendations

To project the cost and liabilities of the pension and retiree health plans, assumptions are made about all future events that could affect the amount and timing of the benefits to be paid and the assets to be accumulated. Each year actual experience is compared against the projected experience, and to the extent there are differences, the future contribution requirement is adjusted.

If assumptions are modified, contribution requirements are adjusted to take into account a change in the projected experience in all future years. There is a great difference in both philosophy and cost impact between recognizing the actuarial deviations as they occur annually and changing the actuarial assumptions. Taking into account one year's gains or losses without making a change in the assumptions means that year's experience is treated as temporary and that, over the long run, experience will return to what was originally assumed. For example, the actuarial assumptions used in the most recent valuation did not include any possible short-term or long-term impacts on mortality of the covered population that emerged due to COVID-19.[1] Changing assumptions reflects a basic change in thinking about the future, and has a much greater effect on the current contribution requirements than recognizing gains or losses as they occur.

The use of realistic actuarial assumptions is important in maintaining adequate funding, while paying the promised benefit amounts to participants already retired and to those near retirement. The actuarial assumptions used do not determine the "actual cost" of the plan. The actual cost is determined solely by the benefits and administrative expenses paid out, offset by investment income received. However, it is desirable to estimate as closely as possible what the actual cost will be so as to permit an orderly method for setting aside contributions today to provide benefits in the future, and to maintain equity among generations of participants and taxpayers.

This study was undertaken in order to review the economic and demographic actuarial assumptions and to compare the actual experience with that expected under the current assumptions during the three-year experience period from July 1, 2019 through June 30, 2022. The study was performed in accordance with Actuarial Standard of Practice (ASOP) No. 27 "Selection of Economic Assumptions for Measuring Pension Obligations"[2] and ASOP No. 35 "Selection of Demographic and Other Non-Economic Assumptions for Measuring Pension Obligations." These Standards of Practice provide guidance for the selection of the various actuarial assumptions utilized in a pension plan actuarial valuation. Based on the study's results and expected future experience, we are recommending various changes in the current actuarial assumptions.

We are recommending changes in the assumptions for inflation, merit and promotion salary increases, retirement from active employment, retirement age for deferred vested (non-reciprocal) members, reciprocal salary increases, pre-retirement mortality, post-retirement

[1] An analysis of the ongoing impact of the COVID-19 pandemic is beyond the scope of the current experience study.
[2] References made later in this report are with respect to the revised ASOP 27 adopted in June 2020.

healthy and disabled life mortality, termination, disability incidence (non-service connected and service connected), and allocation of total present value of future benefits for actives. For the retiree health (OPEB) plan related assumptions, we are recommending no changes in the assumptions. That is, we will maintain the current retiree health assumptions for the percentage of eligible retirees who choose to be covered by the health plan, spouse/domestic partner coverage, and spouse/domestic partner age difference.

Our recommendations for the major actuarial assumption categories are as follows:

Pg #	Actuarial Assumption Categories	Recommendation
12	**Inflation:** Future increases in the Consumer Price Index (CPI), which drives investment returns and active member salary increases.	Reduce the inflation assumption from 2.75% to 2.50% per annum as discussed in Section (3)(A).
	Crediting Rate for Employee Contributions: Future increases in the account balance of a member between the date of the valuation and the date of separation from active service.	Reduce the interest crediting rate for employee contributions from 2.75% to 2.50% per annum as described in Section (3)(A).
15	**Retiree Cost of Living Increases:** Future increases in the cost of living adjustment for retirees.	For Tier 1 and Tier 1 Enhanced which have a 3.00% maximum cost of living adjustment, maintain the retiree cost of living assumption at 2.75% per annum (based on our recommended inflation assumption of 2.50% plus a margin for adverse deviation of 0.25%) as discussed in Section (3)(A). For Tier 3 which has a 2.00% maximum cost of living adjustment, maintain the retiree cost of living assumption at 2.00% per annum as discussed in Section (3)(A).
17	**Investment Return:** The estimated average future net rate of return on current and future assets of the System as of the valuation date. This rate is used to discount liabilities.	Maintain the investment return assumption at 7.00% per annum as discussed in Section (3)(B).
26	**Individual Salary Increases:** Increases in the salary of a member between the date of the valuation to the date of separation from active service. This assumption has three components: • Inflationary salary increases • Real "across the board" salary increases • Merit and promotion increases	Reduce the current inflationary salary increase assumption from 2.75% to 2.50% and maintain the current real "across the board" salary increase assumption at 0.50%. This means that the combined inflationary and real "across the board" salary increases will decrease from 3.25% to 3.00%. We recommend adjusting the merit and promotion rates of salary increase as developed in Section (3)(C) to reflect past experience. Overall future merit and promotion salary increases are higher under the proposed assumptions. The recommended total rates of salary increase anticipate slightly lower increases overall than the current assumptions.

Pg #	Actuarial Assumption Categories	Recommendation
30	**Retirement Rates:** The probability of retirement at each age at which participants are eligible to retire. **Other Retirement Related Assumptions including:** • Retirement age for deferred vested members • Future reciprocal members and reciprocal salary increases • Percent married/domestic partner and spousal age differences for members not yet retired • Allocation of total present value of future benefits (PVFB) for actives	For active members, adjust the current retirement rates to those developed in Section (4)(A). The retirement rate assumptions anticipate earlier retirements overall. For inactive vested members that work for a reciprocal employer, maintain the assumed retirement age of 59. For inactive vested members that do not work for a reciprocal employer, increase the assumed retirement age from 59 to 60. For future deferred vested members, maintain the percent assumed to work at a reciprocal system at 5%. For all reciprocal members, decrease the compensation increase assumption from 4.25% to 4.00%. For active and inactive members, maintain the percent married/domestic partner at retirement assumption for males at 76% and for females at 52%. For active and inactive members, maintain the assumption that male members are 3 years older than their female spouses and that female members are 2 years younger than their male spouses. We are recommending a refinement in the method used to allocate total present value of future benefits (PVFB) between the current and future Normal Costs and Actuarial Accrued Liability (AAL) to produce a cost attribution period that is more consistent with each member's participation in LACERS. Even though this refinement does not increase the PVFB, there is a higher allocation of the PFVB to the current and future Normal Costs and a lower allocation to the AAL. See the last subsection of Section 4(A) for further details.

Pg #	Actuarial Assumption Categories	Recommendation
40	**Mortality Rates:** The probability of dying at each age. Mortality rates are used to project life expectancies.	**Healthy Retirees:** *Retirement Plan* Current & recommended base table: Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Table with rates increased by 10% for males. *Health Plan* Current & recommended base table: Pub-2010 General Healthy Retiree Headcount-Weighted Above-Median Mortality Table with rates increased by 10% for males. **All Beneficiaries:** *Retirement Plan* Current base table – both not in pay status at the valuation and in pay status at the valuation: Pub-2010 Contingent Survivor Amount-Weighted Above-Median Mortality Table increased by 10% for males and females. Recommended base table – not in pay status at the valuation: Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Table with rates increased by 10% for males. Recommended base table – in pay status at the valuation: Pub-2010 Contingent Survivor Amount-Weighted Above-Median Mortality Table increased by 5% for males and increased by 10% for females. *Health Plan* Current base table – both not in pay status at the valuation and in pay status at the valuation: Pub-2010 Contingent Survivor Headcount-Weighted Above-Median Mortality Table increased by 10% for males and females. Recommended base table – not in pay status at the valuation: Pub-2010 General Healthy Retiree Headcount-Weighted Above-Median Mortality Table with rates increased by 10% for males. Recommended base table – in pay status at the valuation: Pub-2010 Contingent Survivor Headcount-Weighted Above-Median Mortality Table increased by 5% for males and increased by 10% for females. For the purposes of the actuarial valuations (for funding and financial reporting), when calculating the liability for the continuance to a beneficiary of a surviving member we recommend that the General Healthy Retiree mortality tables be used for beneficiary mortality both before and after the expected death of the General member. Upon the actual death of the member (i.e. for all beneficiaries in pay status as of the valuation date), we recommend for the purposes of the actuarial valuations that we use the Contingent Survivor mortality tables as stated above. **Pre-Retirement Mortality:** *Retirement Plan* Current & recommended base table: Pub-2010 General Employee Amount-Weighted Above-Median Mortality Table increased by 10% for males and females. *Health Plan* Current & recommended base table: Pub-2010 General Employee Headcount-Weighted Above-Median Mortality Table increased by 10% for males and females.

Pg #	Actuarial Assumption Categories	Recommendation
		Disabled Retirees: *Retirement Plan* Current base table: Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table increased by 10% for males and decreased by 5% for females. Recommended base table: Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table increased by 5% for males and decreased by 5% for females. *Health Plan* Current base table: Pub-2010 Non-Safety Disabled Retiree Headcount-Weighted Mortality Table increased by 10% for males and decreased by 5% for females. Recommended base table: Pub-2010 Non-Safety Disabled Retiree Headcount-Weighted Mortality Table increased by 5% for males and decreased by 5% for females. **All current tables** are projected generationally with the two-dimensional mortality improvement scale MP-2019. **All recommended tables** are projected generationally with the two-dimensional mortality improvement scale MP-2021. This is the most recent projection scale, as an updated projection scale was not published in 2022.
52	**Termination Rates:** The probability of leaving employment at each age and receiving either a refund of member contributions or a deferred vested retirement benefit.	We recommend adjusting the termination rates to those developed in Section (4)(D) to reflect a slightly lower incidence of termination.
55	**Disability Incidence Rates:** The probability of becoming disabled at each age.	We recommend adjusting the disability rates to those developed in Section (4)(E) to reflect a slightly lower incidence of disability overall.
58	**Retiree Health Assumptions:** Assumptions related to the Other Postemployment Benefits (OPEB) plan.	We recommend maintaining the current assumptions.

We have estimated the impact of all the recommended economic and demographic assumptions as if they were applied to the June 30, 2022 actuarial valuations. The tables below shows the changes in the employer contribution rate, unfunded actuarial accrued liability (UAAL), and funded ratio due to the proposed assumption changes.

Cost Impact of the Recommended Assumptions
Based on June 30, 2022 Actuarial Valuation

Impact on Employer Contribution Rate	Retirement Plan	Health Plan	Total
Increase/(decrease) in Normal Cost rate	0.34%	0.52%	0.86%
Increase/(decrease) in UAAL rate	(0.25)%	(0.16)%	(0.41)%
Total increase/(decrease) in employer rate	**0.09%**	**0.36%**	**0.45%**

Impact on UAAL and Funded Ratio	Retirement Plan	Health Plan	Total
Increase/(decrease) in UAAL	$(142,672,096)	$(52,416,871)	$(195,088,967)
Change in funded ratio	From 73.3% to 73.7%	From 97.0% to 98.4%	From 76.4% to 76.9%

Section 2 provides some background on the basic principles and methodology used for the experience study and for the review of the economic and demographic actuarial assumptions. A detailed discussion of each assumption and reasons for the proposed changes are found in Section 3 for the economic assumptions and Section 4 for the demographic assumptions. The cost impact of the proposed changes is detailed in Section 5.

2. Background and Methodology

In this report, we analyzed both economic and demographic ("non-economic") assumptions. The primary economic assumptions reviewed are inflation, investment return, and salary increases. Demographic assumptions include the probabilities of certain events occurring in the population of members, referred to as "decrements," e.g., termination from service, disability retirement, service retirement, and death before and after retirement. In addition to decrements, other demographic assumptions reviewed in this study include the percentage of members with an eligible spouse or domestic partner, spousal age difference, percent of members assumed to go on to work for a reciprocal system, and reciprocal salary increases. There are also retiree health (OPEB) plan related assumptions (e.g., percentage of eligible retirees who chose to be covered by the health plan, spouse/domestic partner coverage, and spouse/domestic partner age difference) that we have studied in this report.

Economic Assumptions

Economic assumptions consist of:

- **Inflation:** Increases in the price of goods and services. The inflation assumption reflects the basic return that investors expect from securities markets. It also reflects the expected basic salary increase for active employees and drives increases in the allowances of retired members (if any).
- **Investment Return:** Expected long-term rate of return on the System's investments after accounting for certain investment expenses and all administrative expenses. This assumption has a significant impact on contribution rates.
- **Salary Increases:** In addition to inflationary increases, it is assumed that salaries will also grow by real "across the board" pay increases in excess of price inflation. It is also assumed that employees will receive raises above these average increases as they advance in their careers. These are commonly referred to as merit and promotion increases. Payments to amortize any Unfunded Actuarial Accrued Liability (UAAL) are assumed to increase each year by the price inflation rate plus any real "across the board" pay increases that are assumed.

The setting of these economic assumptions is described in Section 3.

Demographic Assumptions

In order to determine the probability of an event occurring, we examine the "decrements" and "exposures" of that event. For example, taking termination from service, we compare the number of employees who actually terminate in a certain age and/or service category (i.e., the number of "decrements") with those who could have terminated (i.e., the number of "exposures"). For example, if there were 500 active employees in the 20-24 age group at the beginning of the year and 50 of them left during the year, we would say the probability of termination in that age group is 50 ÷ 500 or 10%.

The reliability of the resulting probability is highly dependent on both the number of decrements and the number of exposures. For example, if there are only a few people in a high age category at the beginning of the year (number of exposures), we would not lend as much credibility to the probability of termination developed for that age category, especially if it is out of line with the pattern shown for the other age groups. Similarly, if we are considering the death decrement, there may be a large number of exposures in the age 20-24 category, but very few decrements (actual deaths); therefore, we would not be able to rely heavily on the probability developed for that category.

One reason we use several years of experience for such a study is to have more exposures and decrements, and therefore more statistical reliability. Another reason for using several years of data is to smooth out fluctuations that may occur from one year to the next. However, we also calculate the rates on a year-to-year basis to check for any trend that may be developing in the later years.

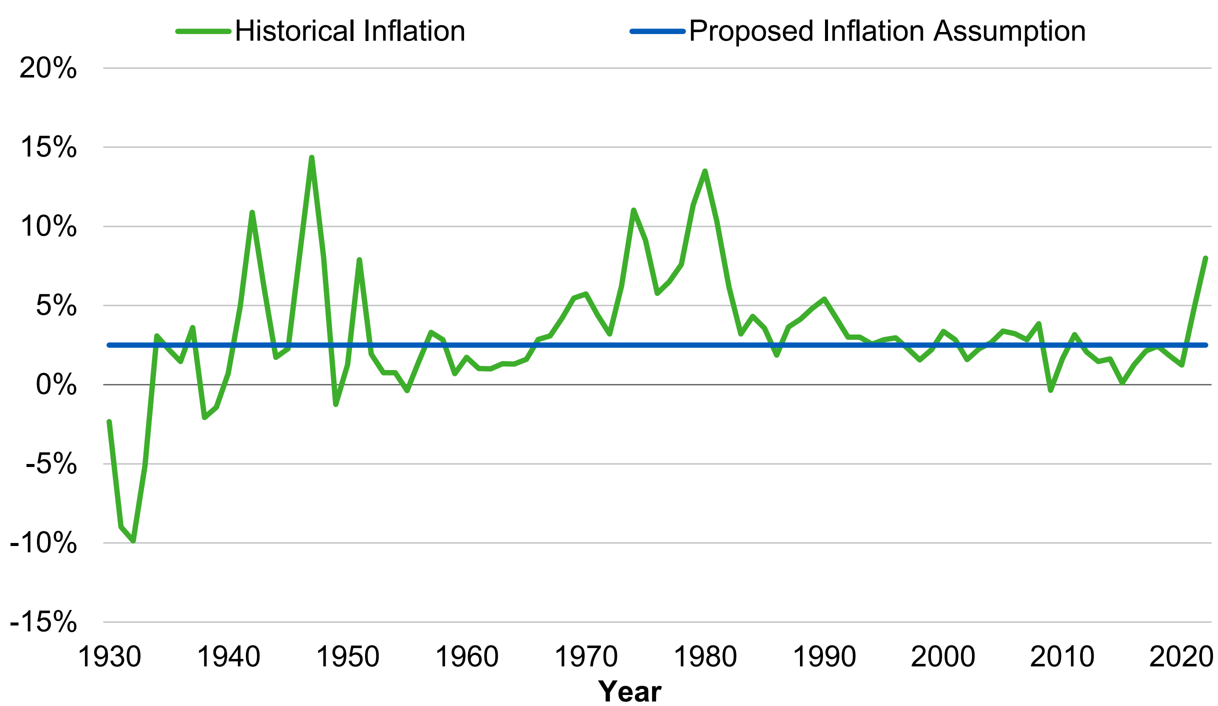
3. Economic Assumptions

A. Inflation

Unless an investment grows at least as fast as prices increase, investors will experience a reduction in the inflation-adjusted value of their investment. There may be times when "riskless" investments return more or less than inflation, but over the long term, investment market forces will generally require an issuer of fixed income securities to maintain a minimum return which protects investors from inflation.

The inflation assumption is long term in nature, so our analysis begins with a review of historical information. Following is a graph showing historical inflation rates and a comparison with the inflation assumption of 2.50% that we recommend in this report:

Historical Consumer Price Index – 1930 to 2022[1]
(U.S. City Average - All Urban Consumers)



There has been a spike in inflation that started in the second quarter of 2021 and continued into 2022. However, the rate of inflation, while still elevated, has been relatively steady since the Federal Reserve began to increase interest rates starting around the second quarter of 2022.

Based on information found in the Public Plans Database, which is produced in partnership with the National System of State Retirement Administrators (NASRA), the median inflation assumption used by 194 large public retirement funds in their 2021 fiscal year valuations was

[1] Source: Bureau of Labor Statistics – Based on annual-to-annual CPI for All Items in U.S. city average, all urban consumers, not seasonally adjusted (Series ID: CUUR0000SA0).

2.50%.[1] In California, CalSTRS, LACERS and ten[2] 1937 Act CERL systems currently use an inflation assumption of 2.75%, ten 1937 Act CERL systems use an inflation assumption of 2.50%[3] and CalPERS uses an inflation assumption of 2.30%.

LACERS' investment consultant, New England Pension Consultants (NEPC), anticipates an annual inflation rate of 2.60% (reduced from 2.75% when we conducted the last review in 2020), while the average inflation assumption provided by NEPC and five other investment advisory firms retained by Segal's California public sector clients, as well as Segal's investment advisory division (Segal Marco Advisors)[4], was 2.43% (increased from 2.36% when we conducted the last review in 2020). Note that, in general, investment consultants use a time horizon for this assumption that is shorter than the time horizon we use for the actuarial valuation.[5]

To find a forecast of inflation based on a longer time horizon, we referred to the Social Security Administration's (SSA) 2023 report on the financial status of the Social Security program.[6] The projected average increase in the Consumer Price Index (CPI) over the next 75 years under the intermediate cost assumptions used in that report was 2.40% (unchanged from 2.40% when we conducted the last review in 2020). The SSA report also includes alternative projections using lower and higher inflation assumptions of 1.80% and 3.00%, respectively.

We also compared the yields on the thirty-year inflation indexed U.S. Treasury bonds to comparable traditional U.S. Treasury bonds.[7] This "break-even rate" is commonly regarded as a market-based gauge of future inflation expectations. As of May 2023, the difference in yields is about 2.26% which provides a measure of market expectations of inflation. This market expectation for long term inflation can be quite volatile and has dropped from a high of 2.55% over the last 12 months, which is illustrated in the table below. It is worth noting that even during the peak of the recent inflation spike this break-even rate exceeded 2.50% in only a single month, April 2022.

1 Among 219 large public retirement funds, the 2021 fiscal year inflation assumption was not available for 25 of the public retirement funds in the survey data as of March 2023.

2 We note that out of these ten 1937 Act CERL Systems, five of those are served by Segal and we would generally expect to recommend 2.50% as the inflation assumption in their next experience study.

3 Four of these 1937 Act CERL systems use a 2.50% inflation assumption with a 2.75% COLA assumption.

4 We note that this is the first time we have included inflation and real rate of return assumptions used by Segal Marco Advisors in our review of economic assumptions for LACERS.

5 The time horizon used by the six investment consultants included in our review generally ranges from 20 years to 30 years, and NEPC uses 30 years.

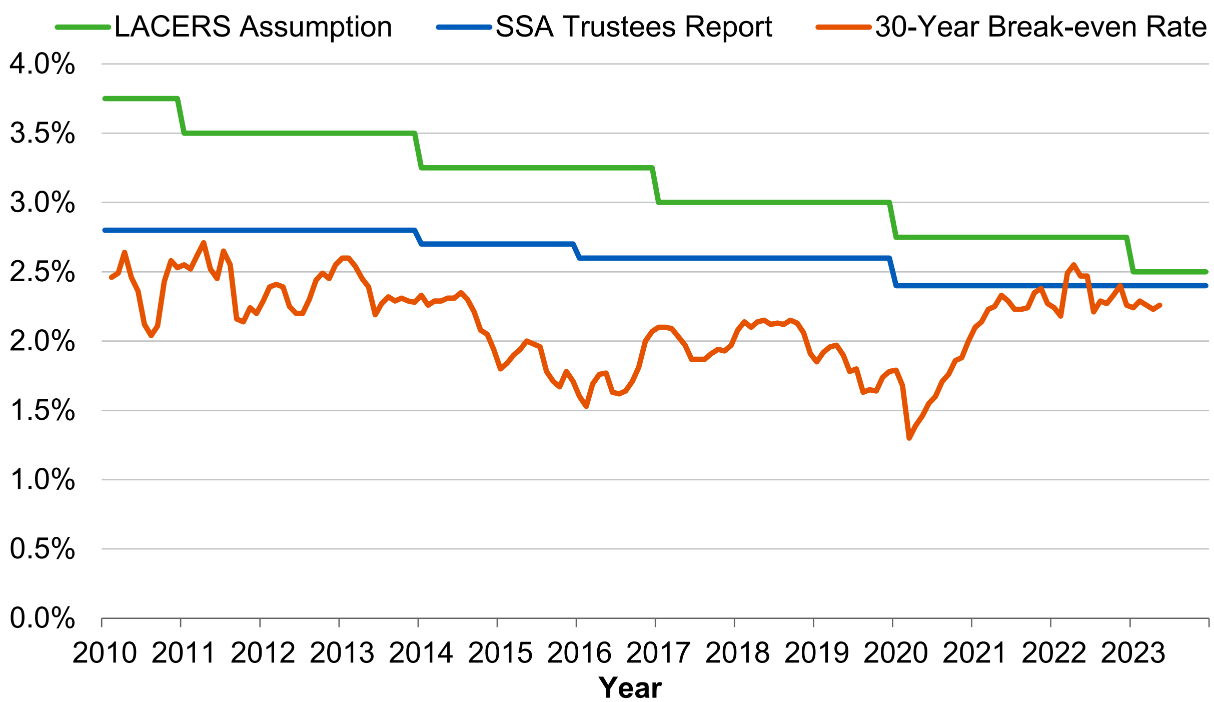
6 Source: Social Security Administration: The 2023 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds

7 Source: Board of Governors of the Federal Reserve System.

Observation Month	Difference in Yields	Observation Month	Difference in Yields
December 2021	2.27%	September 2022	2.27%
January 2022	2.24%	October 2022	2.33%
February 2022	2.18%	November 2022	2.40%
March 2022	2.49%	December 2022	2.26%
April 2022	2.55%	January 2023	2.24%
May 2022	2.47%	February 2023	2.29%
June 2022	2.47%	March 2023	2.26%
July 2022	2.21%	April 2023	2.23%
August 2022	2.29%	May 2023	2.26%

The following graph shows Segal's historical and proposed inflation assumptions compared to the two other metrics just discussed, going back to 2010. In effect, this compares Segal's assumption to two separate independent forecasts, one based on market observations and one developed by economists at the SSA. The graph shows that over the observed period, Segal's assumption has been higher but consistently moving towards these other forecasts.

Historical Inflation Forecasts



The setting of the inflation assumption using the information outlined above is a somewhat subjective process, and Segal does not apply a specific weight to each of the metrics in determining our recommended inflation assumption. Based on a consideration of all of the above metrics, beginning in 2021 we are generally recommending the same 2.50% inflation assumption in our experience studies for our California public retirement system clients.

Based on all of the above information, we recommend reducing the annual inflation assumption from 2.75% to 2.50%.

Crediting Rate for Employee Contributions

We note that the interest credited to employee contributions is based on the average rates of a five-year U.S. Treasury Note. Currently, an assumption of 2.75% is used to approximate that crediting rate, and the 2.75% crediting rate assumption is tied to the current inflation assumption.

In conjunction with our recommendation to lower the current 2.75% annual inflation assumption to 2.50% for the June 30, 2023 valuation, as discussed above, and assuming the Board wishes to maintain the linkage between the two, we would also recommend that the assumed interest crediting rate for employee contributions be lowered from 2.75% to 2.50%.

Retiree Cost of Living Increases

In our last experience study as of June 30, 2019, consistent with the 2.75% annual inflation assumption adopted by the Board, the Board adopted a 2.75% retiree cost-of-living adjustment (COLA) for Tier 1 and Tier 1 Enhanced and a 2.00% retiree cost-of-living adjustment for Tier 3.

In the last experience study, we set the recommended post-retirement cost-of-living adjustment (COLA) assumption to be equal to our recommended inflation assumption for Tier 1 and Tier 1 Enhanced. However, we observed in the table below that during the most recent 5-year, 10-year and 20-year periods ending before December 31, 2022, the changes in the annual average CPI based on the Los Angeles-Long Beach-Anaheim Area used by the Board to set COLAs have exceeded those of the annual average CPI for the U.S. City Average.

	Change in Annual Average CPI for Los Angeles-Long Beach-Anaheim	Change in Annual Average CPI for U.S. City Average
5-Year Period	3.94%	3.61%
10-Year Period	2.76%	2.46%
20-Year Period	2.71%	2.46%

In order to reflect this experience and to mitigate actuarial losses which may arise from future COLA increases greater than the inflation assumption, we believe it is reasonable for the Board to consider adopting an extra margin above the general price inflation in anticipating future COLAs for Tier 1 and Tier 1 Enhanced members.

Accordingly, for Tier 1 and Tier 1 Enhanced retirees with a maximum 3.00% COLA, our recommended COLA assumption is 2.75%. This recommendation includes a 0.25% margin above our recommended inflation assumption and leaves the COLA assumption unchanged. For Tier 3 retirees with a maximum 2.00% COLA, our recommended COLA assumption is 2.00%, which also leaves the COLA assumption unchanged for Tier 3 as shown below. These recommendations are summarized as follows:

Tier	Maximum COLA	Current Assumption	Proposed Assumption
Tier 1	3.00%	2.75%[1]	2.75%[1]
Tier 3	2.00%	2.00%	2.00%

In developing the COLA assumption, we also considered the results of a stochastic approach that would attempt to account for the possible impact of low inflation that could occur before COLA banks are able to be established for the member. Although the results of this type of analysis might justify the use of a lower COLA assumption, we are not recommending that at this time. The reasons for this conclusion include the following:

- The results of the stochastic modeling are significantly dependent on assuming that lower levels of inflation will persist in the early years of the projections. If this is not assumed, then the stochastic modeling will produce results similar to our proposed COLA assumptions.
- Using lower long-term COLA assumptions based on a stochastic analysis would mean that an actuarial loss would occur even when the inflation assumption of 2.50% is met in a year. We question the reasonableness of this result.

We do not see the stochastic possibility of COLAs averaging less than those predicted by the assumed rate of inflation as a reliable source of cost savings that should be anticipated in our COLA assumptions. Therefore, we continue to recommend setting the COLA assumptions consistent with the COLA assumption we have used in prior years.

[1] We will continue to assume in the valuation that retired members and beneficiaries with a COLA bank on the date of the valuation will continue to receive the maximum COLA until the balances in their COLA banks are used up.

B. Investment Return

The investment return assumption is composed of two primary components, inflation and real rate of investment return, with adjustments for certain expenses and risk.

Real Rate of Investment Return

This component represents the portfolio's incremental investment market returns over inflation. Generally, when an investor takes on greater investment risk, the return on the investment is expected to also be greater, at least in the long run. This additional risk and return is expected to vary by asset class and empirical data supports that expectation. For that reason, the real rate of return assumptions are developed by asset class. Therefore, the real rate of return assumption for a retirement plan's portfolio will vary with the Board's asset allocation among asset classes.

The System's current target asset allocation and the assumed real rate of return assumptions by asset class are shown in the following table. The first column of real rate of return assumptions are determined by reducing NEPC's total or "nominal" December 31, 2022 return assumptions by their assumed 2.60% inflation rate. The second column of returns (except for the final three asset classes) represents the average of a sample of real rate of return assumptions. The sample includes the expected annual real rate of return provided to us by NEPC and five other investment advisory firms retained by Segal's public sector clients, as well as Segal's investment advisory division. We believe these averages are a reasonable current consensus forecast of long-term future market returns in excess of inflation.[1]

[1] Note that, just as for the inflation assumption, in general the time horizon used by the investment consultants in determining the real rate of return assumption is shorter than the time horizon encompassed by the actuarial valuation.

LACERS' Target Asset Allocation and Assumed Arithmetic Real Rate of Return Assumptions by Asset Class and for the Portfolio

Asset Class	Percentage of Portfolio	NEPC's Assumed Real Rate of Return[1]	Average Assumed Real Rate of Return from a Sample of Consultants to Segal's California Public Sector Clients[2]
Large Cap U.S. Equity	15.00%	5.60%	6.00%
Small/Mid Cap U.S. Equity	6.00%	6.70%	6.65%
Developed Int'l Large Cap Equity	15.00%	5.80%	7.01%
Developed Int'l Small Cap Equity	3.00%	7.40%	7.34%
Emerging Markets Equity	6.67%	10.30%	8.80%
Core Bonds	11.25%	2.20%	1.97%
High Yield Bonds	1.50%	5.20%	4.63%
Bank Loans	1.50%	4.60%	4.07%
TIPS	3.60%	1.90%	1.77%
Emerging Market External Debt	2.00%	5.00%	4.72%
Emerging Market Local Currency Debt	2.00%	4.30%	4.53%
Real Estate - Core	4.20%	3.50%	3.86%
Cash & Equivalents	1.00%	0.80%	0.63%
Private Equity	16.00%	10.30%	9.84%
Private Credit (Private Debt)	5.75%	7.10%	6.47%
Emerging Market Small-Cap Equity	1.33%	11.10%	11.10%[3]
REIT	1.40%	6.80%	6.80%[3]
Real Estate - Non Core	2.80%	5.40%	5.40%[3]
Total	**100.00%**	**6.28%**	**6.27%**

The above are representative of "indexed" returns and do not include any additional returns ("alpha") from active management. This is consistent with the Actuarial Standard of Practice No. 27, Section 3.8.3.d, which states:

> "Investment Manager Performance - Anticipating superior (or inferior) investment manager performance may be unduly optimistic (or pessimistic). The actuary should not assume that superior or inferior returns will be achieved, net of investment expenses, from an active investment management strategy compared to a passive investment management strategy unless the actuary believes, based on relevant supporting data,

1 The rates shown have been estimated by Segal by taking NEPC's nominal arithmetic returns and reducing by NEPC's assumed 2.60% inflation rate to develop the assumed real rate of return shown.

2 These are based on the projected arithmetic returns provided by NEPC and five other investment advisory firms serving LACERS and 16 other city and county retirement systems in California, as well as Segal's investment advisory division. These return assumptions are net of any applicable investment management expenses.

3 For these asset classes, NEPC's assumption is applied in lieu of the average because there is a larger disparity in returns for these asset classes among the firms surveyed and using NEPC's assumption should more closely reflect the underlying investments made specifically for LACERS.

that such superior or inferior returns represent a reasonable expectation over the measurement period."

The following are some observations about the returns provided above:

1. The investment consultants to our California public sector clients, as well as Segal's investment advisory division, have each provided us with their expected real rates of return for each asset class, over various future periods of time. However, in general, the returns available from investment consultants are projected over time periods that are shorter than the durations of a retirement plan's liabilities.
2. As discussed in the next section, the real rates of return provided this year by the investment consultants reflect a change in how investment expenses are reported.
3. Using a sample average of expected real rate of returns allows LACERS' investment return assumption to reflect a broader range of capital market information and should help reduce year to year volatility in the investment return assumption.
4. Therefore, we recommend that the 6.27% portfolio net real rate of return be used to determine LACERS' investment return assumption, but with some caution. This return is 0.77% higher than the 5.50% gross return that was used three years ago in the review of the recommended investment return assumption for the June 30, 2020 valuation.
5. The difference is due to changes in the System's target asset allocation (+0.28%) and changes in the real rate of return assumptions provided to us by the investment advisory firms (+0.50%) and the interaction effect between these changes (-0.01%). We believe the increase in the real rates of return may be due to the very low returns earned in the 2021-2022 plan year, as well as the increase in the federal funds rate during 2022, and so should be used with caution in selecting a long-term investment return assumption.

System Expenses

For funding purposes, the real rate of return assumption for the portfolio needs to be adjusted for investment expenses expected to be paid from investment income. Current practice for LACERS also adjusts for expected administrative expenses. In the prior experience studies, we had adjusted the gross real rate of return using the target asset allocation by the investment expenses expected to be paid by LACERS.

However, as prevailing practice by investment advisory firms is to provide us with the real rates of return net of expected investment expenses, especially for active portfolio management, we now need to make adjustments only for investment consulting fees, custodian fees and other miscellaneous investment expenses.

The following table provides the administrative and investment expenses in relation to the actuarial value of assets as of the beginning of the year for the three-year period ending June 30, 2022.

Administrative and Investment Expenses as a Percentage of Actuarial Value of Assets (Dollars in 000's)

Year Ending June 30	Actuarial Value of Assets[1]	Administrative Expenses[2]	Investment Expenses[3]	Administrative %	Investment %	Total %
2020	17,711,462	27,422	5,148	0.15	0.03	0.18
2021	18,697,966	31,084	8,741	0.17	0.05	0.22
2022	20,083,918	31,237	10,718	0.16	0.05	0.21
Three-Year Average (excluding investment management fees)				**0.16**	**0.04**	**0.20**
Current Assumption (including investment management fees)				**0.15**	**0.25**	**0.40**
Proposed Assumption (excluding investment management fees)				**0.16**	**0.04**	**0.20**

Based on the above experience, we recommend reducing the expense component of the investment return assumption from 0.40% to 0.20%.

Note related to investment expenses paid to active managers – As cited above, under Section 3.8.3.d of ASOP No. 27, the effect of an active investment management strategy should be considered "net of investment expenses…unless the actuary believes, based on relevant supporting data, that such superior or inferior returns represent a reasonable expectation over the measurement period."

We have not performed a detailed analysis to measure how much of the investment expenses paid to active managers might have been offset by additional returns ("alpha") earned by that active management. For this study, we will continue to use the current approach that any "alpha" that may be identified would be treated as an increase in the risk adjustment and corresponding confidence level that are discussed in the next section. However, as discussed above, the real return assumptions provided by the investment advisory firms assume that active management will generate additional returns to cover the expense of such management, an assumption that is consistent with ASOP No. 27.

Risk Adjustment

The real rate of return assumption for the portfolio is adjusted to reflect the potential risk of shortfalls in the return assumptions. The System's asset allocation determines this portfolio risk, since risk levels are driven by the variability of returns for the various asset classes and the correlation of returns among those asset classes. This portfolio risk is incorporated into the real rate of return assumption through a risk adjustment.

[1] In this study, we use Actuarial Value of Assets as of the beginning of the plan year. In prior studies, we used the Actuarial Value of Assets as of the end of the plan year.

[2] Note that some California public retirement systems (including LAFPP) have taken the approach of including an explicit charge for administrative expenses instead of a reduction in the investment return assumption to implicitly defray the administrative expenses.

[3] Includes investment consulting fee, miscellaneous investment expense, and investment related administrative expense.

The purpose of the risk adjustment (as measured by the corresponding confidence level) is to increase the likelihood of achieving the actuarial investment return assumption in the long term.[1] This is consistent with our experience that retirement plan fiduciaries would generally prefer that returns exceed the assumed rate more often than not.

The 6.27% expected real rate of return developed earlier in this report was based on expected arithmetic average returns. A retirement system using an expected arithmetic average return as the discount rate in a funding valuation is expected on average to have no surplus or asset shortfall relative to its expected obligations assuming all actuarial assumptions are met in the future.[2] That is the basis used in Segal's previous experience studies for LACERS.

Beginning with this study, in addition to no longer including an explicit adjustment for investment management fees, we are converting the portfolio's expected arithmetic average return to an expected geometric average return. A retirement system using an expected geometric average return as the discount rate in a funding valuation will, over long periods of time, have an equal likelihood of having a surplus or asset shortfall relative to its expected obligations assuming all actuarial assumptions are met in the future.[3]

Under either the arithmetic or geometric model, the confidence level associated with a particular risk adjustment represents a relative likelihood that future investment earnings would equal or exceed the assumed earnings over a 15-year period. The 15-year time horizon represents an approximation of the "duration" of the fund's liabilities, where the duration of a liability represents the sensitivity of that liability to interest rate variations.

For comparison purposes we first consider how the earlier model would look if used in this year's study. Three years ago, the Board adopted an investment return assumption of 7.00%. Under the model used in that experience study, that return implied a risk adjustment of 0.85%, corresponding to a 15-year confidence level of 59%, based on an annual portfolio return standard deviation of 13.33% provided by NEPC in 2020.

If we use the same 59% 15-year confidence level from our last study to set this year's risk adjustment and the current annual portfolio return standard deviation of 14.90% provided by NEPC, the corresponding risk adjustment would be 0.95%. Together with the other investment return components (including for this comparison updated expected arithmetic average returns and the same expense adjustment as used in the prior study), this would result in an investment return assumption of 7.42%, which is higher than the current assumption of 7.00%.

Based on the general practice of using one-quarter percentage point increments for economic assumptions, we evaluated the effect on the confidence level of other alternative investment return assumptions. We also considered that, as discussed above, the increase in the real rates of return provided by the investment consultants may reflect the very low returns earned in the 2021-2022 plan year, as well as the increase in the federal funds rate during 2022, and so could be overly optimistic for use in selecting a long-term investment return assumption. For that reason, for this comparison value we considered a net investment return assumption of 6.75% which, together with the other investment return components, would produce a risk adjustment of 1.62% which corresponds to a confidence level of 66% under the model and expense

[1] This type of risk adjustment is referred to in the Actuarial Standards of Practice as a "margin for adverse deviation."

[2] The mathematical terminology for this is that the mean (or average) surplus or asset shortfall is expected to be zero.

[3] The mathematical terminology for this is that over time the median surplus or asset shortfall is expected to be zero.

adjustment used in prior studies. For comparison, the current net investment return assumption of 7.00% would now produce a risk adjustment of 1.37% and have a confidence level of 63% under the model and expense adjustment used in prior studies.

As noted above, beginning with this study, in addition to no longer including an explicit adjustment for investment management fees, we are converting the portfolio's expected arithmetic average return to an expected geometric average return. For any given asset portfolio, the expected geometric average return will be less than the expected arithmetic average return.[1] The difference depends on the variability of the portfolio as measured by its standard deviation. Based on the annual portfolio return standard deviation of 14.90% provided by NEPC, the adjustment to an expected geometric average return reduces the expected return by 1.03%.

Together with the other investment return components (now excluding investment management expenses) and prior to any risk adjustment, this would result in a median expected assumption of 7.54%, which is higher than the current assumption of 7.00%. In applying this model to LACERS for the first time we again considered a net investment return assumption of 6.75% which, together with the other investment return components, would produce a risk adjustment of 0.79% which under the expected geometric average return model corresponds to a confidence level of 58%. For comparison, the current net investment return assumption of 7.00% would produce a risk adjustment of 0.54% and have a confidence level of 56% under this model.

Recommended Investment Return Assumption

The following table summarizes the components of the recommended investment return assumption developed in the previous discussion. For comparison purposes, we have also included similar values from the last study as well as the comparison values discussed above that apply the prior year's model to this year's information.

Assumption Component	June 30, 2023 Recommended Value	June 30, 2023 Comparison Value	June 30, 2020 Adopted Value
Inflation	2.50%	2.50%	2.75%
Portfolio Expected Arithmetic Real Rate of Return	6.27%	6.27%	5.50%
Expense Adjustment	(0.20)%	(0.40)%[2]	(0.40)%
Adjustment to Expected Geometric Real Rate of Return	(1.03)%	N/A	N/A
Risk Adjustment	(0.54)%	(1.37)%	(0.85)%
Total	**7.00%**	**7.00%**	**7.00%**
Confidence Level	**56%**	**63%**	**59%**

[1] This is because the expected geometric average return reflects expected median outcomes, while the expected arithmetic average return reflects expected average or mean outcomes. Expected median outcomes are lower than expected average outcomes because they are less affected by the possibility of extraordinary ("outlier") favorable outcomes.

[2] For purposes of these comparison values we have assumed the same investment expenses as in the previous study, which included investment management fees.

Based on this analysis, we recommend maintaining the investment return assumption at 7.00% per annum.

The table below shows the System's recommended investment return assumption and the corresponding risk adjustment and confidence level compared to the similar values for prior studies.

Historical Investment Return Assumptions, Risk Adjustments and Confidence Levels based on Assumptions Adopted by the Board

Years Ending June 30	Investment Return	Risk Adjustment	Corresponding Confidence Level
2011	7.75%	0.57%	57%
2014 (Alternative)	7.75%	0.69%	58%
2014 (Adopted)	7.50%	0.94%	61%
2014 (Adopted Value with Restated Expense Adjustment)	7.50%	0.74%	59%
2017 (Recommended)	7.00%	0.87%	60%
2017 (Alternative; Adopted)	7.25%	0.62%	57%
2018 (Recommended, with 2.75% inflation)	7.00%	0.72%	58%
2018 (Adopted, with 3.00% inflation)	7.25%	0.72%	58%
2020	7.00%	0.85%	59%
2023 (Comparison)	7.00%	1.37%	63%
2023 (Recommended)	7.00%	0.54%	56%

As we have discussed in prior experience studies, the risk adjustment model and associated confidence level is most useful as a means for comparing how LACERS has positioned itself relative to risk over periods of time.[1] The use of either a 56% or 63% confidence level should be considered in context with other factors, including:

- As noted above, the confidence level is more of a relative measure than an absolute measure, and so can be reevaluated and reset for future comparisons. This is particularly true when comparing confidence levels developed using different models, as we are doing in this transitional year from one model to another.
- The confidence level is based on the standard deviation of the portfolio that is determined and provided to us by NEPC. The standard deviation is a statistical measure of the future volatility of the portfolio and so is itself based on assumptions about future portfolio volatility and can be considered somewhat of a "soft" number.

[1] In particular, it would not be appropriate to use this type of risk adjustment as a measure of determining an investment return rate that is "risk-free."

- We have not taken into account any additional returns ("alpha") that might be earned on active management. This means that if active management generates enough alpha to cover its related expenses, this would increase returns. This aspect of Segal's model is further evaluated below.

As with any model, the results of the risk adjustment model should be evaluated for reasonableness and consistency. This is discussed in the later section on "Comparison with Other Public Retirement Systems."

Comparison with Alternative Model used to Review Investment Return Assumption

In previous studies, we have consistently reviewed investment return assumptions based on our model that incorporates expected arithmetic real returns for the different asset classes and for the entire portfolio as one component of that model.[1] The use of "forward looking expected arithmetic returns" is one of the approaches discussed for use in the Selection of Economic Assumptions for measuring Pension Obligations under Actuarial Standards of Practice (ASOP) No. 27.

Besides using forward looking expected arithmetic returns, ASOP No. 27 also discusses setting investment return assumptions using an alternative "forward looking expected geometric returns" approach, which is the model we have used in this study.[2] Even though as noted earlier expected geometric returns are lower than expected arithmetic returns, public retirement systems that have set investment return assumptions using this geometric approach have in practice adopted investment return assumptions that are comparable to those adopted by the Board for LACERS under the arithmetic approach. This is because under the model used by those retirement systems and by Segal in this report, the investment return assumption is not reduced to anticipate future investment management expenses.

In the interest of still having an alternative model for comparison, we evaluated the recommended 7.00% assumption based on the expected geometric return for the entire portfolio gross of management investment expenses, but using a fully stochastic approach and a different source for capital market assumptions. Under this alternative model, over a 15-year period, there is a 55% likelihood that future average geometric returns will meet or exceed 7.00%[3] developed using the capital market assumptions compiled by Horizon Actuarial Services based their most recent survey published in August 2022. This 55% likelihood is lower than the corresponding likelihood of 59% that we observed in this comparison during the review of 2020. However, note that some of the investment advisory firms that participated in the 2022 Horizon survey have since raised their capital market assumptions and it is reasonable to expect the 55% likelihood to increase if we were to revise these results using the updated capital market assumptions when the 2023 Horizon survey becomes available.

1 Again, as discussed earlier in this section, if a retirement system uses the expected arithmetic average return as the discount rate in the funding valuation, that retirement system is expected to have no surplus or asset shortfall relative to its expected obligations assuming all actuarial assumptions are met in the future.

2 As also noted earlier in slightly different terms, if a retirement system uses the expected geometric average return as the discount rate in the funding valuation, that retirement system is expected to have an asset value that generally converges to the median accumulated value as the time horizon lengthens assuming all actuarial assumptions are met in the future.

3 We performed this stochastic simulation using the capital market assumptions included in the 2022 survey prepared by Horizon Actuarial Services. That simulation was performed using 10,000 trial outcomes of future market returns, using assumptions from 20-year arithmetic returns, standard deviations and correlation matrix that were found in the 2022 survey that included responses from 24 investment advisors.

Comparing with Other Public Retirement Systems

One final test of the recommended investment return assumption is to compare it against those used by other public retirement systems, both in California and nationwide.

While we are recommending that LACERS maintain the 7.00% investment return assumption, an investment return of 6.75% or lower is becoming more common among California public sector retirement systems. In particular, of the twenty 1937 Act CERL systems, eight use a 7.00% investment return assumption, eight use 6.75%, two use 6.50% and one uses 6.25%. The remaining 1937 Act CERL system currently uses a 7.25% earnings assumption. Furthermore, CalSTRS currently uses a 7.00% earnings assumption and CalPERS uses a 6.80% earnings assumptions, while the San Jose and San Diego City retirement systems use investment return assumptions of 6.625% and 6.50%, respectively.

The following table compares the System's recommended net investment return assumption against those of the 210 large public retirement funds in their 2021 fiscal year valuations based on information found in the Public Plans Database, which is produced in partnership with NASRA:[1]

		Public Plans Data[2]		
Assumption	**LACERS**	**Low**	**Median**	**High**
Net Investment Return	7.00%	4.25%	7.00%	8.25%

The detailed survey results show that over 80% of the systems have an investment return assumption in the range of 6.75% to 7.50%. Also, over half of the systems have reduced their investment return assumption from 2017 to 2021. State systems outside of California tend to change their economic assumptions less frequently and so may lag behind emerging practices in this area.

[1] Among 219 large public retirement funds, the 2021 fiscal year investment return assumption was not available for 9 of the public retirement funds in the Public Plans Database as of March 2023.

[2] Public Plans Data website – Produced in partnership with the National System of State Retirement Administrators (NASRA).

C. Salary Increase

Salary increases impact plan costs in two ways: (1) by increasing members' benefits (since benefits are a function of the members' highest average pay) and future normal cost collections; and (2) by increasing total active member payroll which in turn generates lower UAAL contribution rates as a percent of payroll. These two impacts are discussed separately as follows:

As an employee progresses through his or her career, increases in pay are expected to come from three sources:

1. **Inflation:** Unless pay grows at least as fast as consumer prices grow, employees will experience a reduction in their standard of living. There may be times when pay increases lag or exceed inflation, but over the long term, labor market forces may require an employer to maintain its employees' standards of living.

   As discussed earlier in this report, we recommend reducing the annual inflation assumption from 2.75% to 2.50%. This inflation component is used as part of the salary increase assumption.

2. **Real "Across the Board" Pay Increases:** These increases are typically termed productivity increases since they are considered to be derived from the ability of an organization or an economy to produce goods and services in a more efficient manner. As that occurs, at least some portion of the value of these improvements can provide a source for pay increases. These increases are typically assumed to extend to all employees "across the board". The State and Local Government Workers Employment Cost Index produced by the Department of Labor provides evidence that real "across the board" pay increases have averaged about 0.5% – 0.8% annually during the last ten to twenty years.

   We also referred to the annual report on the financial status of the Social Security program published in March 2023. In that report, real "across the board" pay increases are forecast to be 1.14% per year under the intermediate assumptions.

   The real pay increase assumption is generally considered a more "macroeconomic" assumption that is not necessarily based on individual plan experience. However, recent salary experience with public systems in California as well as anecdotal discussions with plans and plan sponsors indicate lower future real wage growth expectations for public sector employees. We note that for LACERS' active members, the actual average inflation plus "across the board" increase (i.e., wage inflation) over the three year period ending June 30, 2022 was 2.78%, which is less than the change in CPI of 4.30% during that same period. However, this gap is due in large part to the spike in inflation during 2022.

Valuation Date	Actual Average Increase[1]	Actual Change in CPI[2]
June 30, 2020	6.44%	1.62%
June 30, 2021	0.67%	3.83%
June 30, 2022	1.24%	7.45%
Three-Year Average	**2.78%**	**4.30%**

[1] Reflects the increase in average salary for members at the beginning of the year versus those at the end of the year. It does not reflect the average salary increases received by members who worked the full year.

[2] Based on the change in the annual average CPI for the Los Angeles-Long Beach-Anaheim Area. For instance, the result of 7.45% shown for the June 30, 2022 valuation date represents the change in the 2022 annual average CPI vs. the 2021 annual average CPI.

Based on all of the above information, we recommend maintaining the real "across the board" salary increase assumption at 0.50%. This means that the combined inflation and "across the board" salary increase assumption will decrease from 3.25% to 3.00%.

3. **Merit and Promotion Increases:** As the name implies, these increases come from an employee's career advances. This form of pay increase differs from the previous two, since it is specific to the individual. For LACERS, there are service-specific merit and promotion increase assumptions.

   The annual merit and promotion increases are determined by measuring the actual increases received by members over the experience period, net of the inflationary and real "across the board" pay increases. This is accomplished by:

   a. Measuring each continuing member's actual salary increase over each year of the experience period on a salary-weighted basis, with higher weights assigned to experience from members with larger salaries;
   b. Excluding any members with increases of more than 50% or decreases of more than 25% during any particular year;
   c. Categorizing these increases according to member demographics;
   d. Removing the wage inflation component from these increases (assumed to be equal to the increase in the members' average salary during the year);
   e. Averaging these annual increases over the experience period; and
   f. Modifying current assumptions to reflect some portion of these measured increases reflective of their "credibility."

   To be consistent with the other economic assumptions, these merit and promotion assumptions should be used in combination with the total 3.00% assumed inflation and real "across the board" increases recommended in this study.

   In past valuations, we only applied one-half year of combined inflation and real "across the board" salary increase to the annualized salary rate provided as of the valuation date to project the salary following the date of the valuation. With this experience study, we recommend the projection to also include one-half year of expected merit and promotion increases.

   The following table shows the actual average merit and promotion increases by years of service over the three-year period from July 1, 2019 through June 30, 2022. The current and proposed assumptions are also shown. The actual increases were reduced by the actual average inflation plus "across the board" increase (i.e. wage inflation, estimated as the increase in average salaries) for each year during the experience period (2.78% on average for the three-year period).

Rate (%)

Years of Service	Current Assumption	Actual Average Increase	Proposed Assumption
Less than 1	6.70	5.14	6.00
1 – 2	6.50	5.33	5.90
2 – 3	5.80	4.91	5.40
3 – 4	4.00	4.36	4.20
4 – 5	3.00	4.03	3.50
5 – 6	2.20	3.38	2.80
6 – 7	2.00	2.90	2.50
7 – 8	1.80	2.31	2.10
8 – 9	1.60	1.99	1.80
9 – 10	1.40	1.73	1.60
10 – 11	1.00	1.92	1.50
11 – 12	1.00	1.68	1.40
12 – 13	1.00	1.40	1.30
13 – 14	1.00	1.28	1.20
14 – 15	1.00	0.95	1.10
15 & Over	1.00	0.75	1.00

Based on this experience, we recommend decreasing the merit and promotion salary increase assumptions during the earlier years of service and increasing the assumptions during the later years of service (up to and including the 14 – 15 years of service category). The overall salary increase assumptions will decrease slightly after taking into account the lower inflation component of the salary increase assumption.

Chart 1 that follows later in the section compares the actual merit and promotion increase experience with the current and proposed assumptions. Also shown is the actual merit and promotion increases.

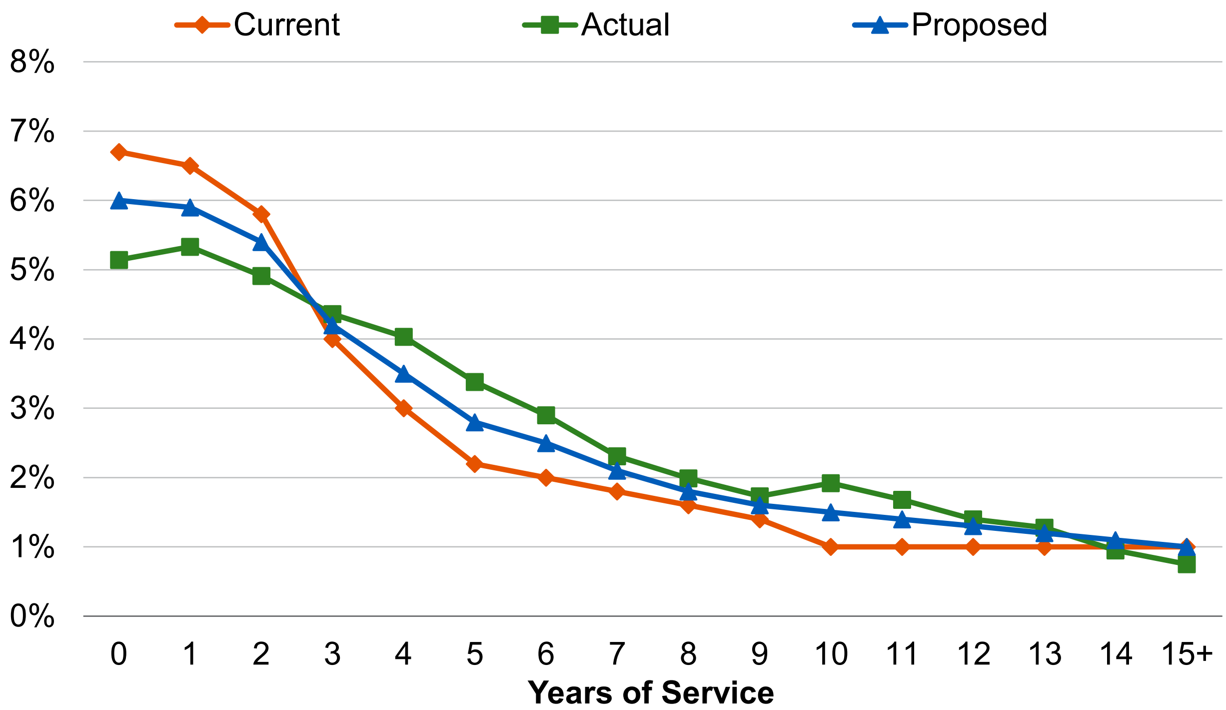
Active Member Payroll

Projected active member payrolls are used to develop the UAAL contribution rate. Future values are determined as a product of the number of employees in the workforce and the average pay for all employees. The average pay for all employees increases only by inflation and real "across the board" pay increases. The merit and promotion increases are not an influence, because this average pay is not specific to an individual.

Under the Board's current practice, the UAAL contribution rate is developed by assuming that the total payroll for all active members will increase annually over the amortization periods at the same assumed rates of inflation plus real "across the board" salary increase assumptions as are used to project the members' future benefits.

Consistent with the combined recommended inflation and real "across the board" salary increase assumptions, we recommend reducing the payroll growth assumption from 3.25% to 3.00% annually.

Chart 1: Merit and Promotion Salary Increase Rates



4. Demographic Assumptions

A. Retirement Rates

The age at which a member retires from service (i.e., who did not retire on a disability pension) will affect both the amount of the benefits that will be paid to that member as well as the period over which funding must take place.

The current retirement assumptions, separately for Tier 1, Tier 1 Enhanced, and Tier 3, are bi-furcated for those members who are age 55 or older and with 30 or more years of service ("55/30"), and for those who do not meet both of those age and service thresholds ("non-55/30").

The retirement experience during the current three-year period indicated that there were more actual retirements than expected under age 70, likely due in large part to actual retirements under the City's Separation Incentive Program (CSIP) that occurred during fiscal year (FY) 2020/2021.[1] This was especially true for those members in the 55/30 category noted above. Because of this, we have also reviewed the retirement experience over a six-year period from July 1, 2016 through June 30, 2022 for Tier 1 members, in order to dampen the effect of the CSIP.

All Tier 1 Airport Peace Officers (including certain fire fighters) appointed to their positions before January 7, 2018 who elected to remain at LACERS after January 6, 2018 and who paid their mandatory additional contribution of $5,700 to LACERS before January 8, 2019, or prior to their retirement date, whichever was earlier, are designated as Tier 1 Enhanced. We noted in our prior experience study report covering the period from July 1, 2016 through June 30, 2019 that "retirement experience for Tier 1 Enhanced members is only starting to emerge. In setting the proposed retirement rates for Tier 1 Enhanced, we have looked at the actual experience over the full 3-year period ending June 30, 2019, though the available experience would only cover about 1-1/2 years (i.e., from January 2018 through June 30, 2019). As there were a lot more retirements in the first six-month period immediately after the Tier 1 Enhanced benefit was adopted, we believe it would not be unreasonable to assume that some Tier 1 Enhanced members might have been waiting to retire in anticipation of receiving an enhanced benefit after the new plan provisions were adopted, so we have looked only at the experience for the period from July 1, 2018 through June 30, 2019 in setting the proposed Tier 1 Enhanced assumptions. This was done to try to eliminate the effect of possible short-term fluctuation in retirement experience when setting long-term retirement assumptions…" Accordingly, for Tier 1 Enhanced we have reviewed the retirement experience over the current three-year period as well as over the most recent approximately 4.5-year period.

[1] The number of Tier 1 and Tier 1 Enhanced retirements (for those who retired under the age of 70) over each of the three years of the recent experience study period were as follows:

	FY 2019/2020	FY 2020/2021	FY 2021/2022
Tier 1	612	1,733	573
Tier 1 Enhanced	11	21	5

Over the recent three-year experience study period, we only observed one Tier 3 service retirement from active service under age 70 at retirement. Even though there is virtually no experience available for Tier 3, we are recommending adjustments in the Tier 3 retirement assumptions, specifically the non-55/30 assumptions, to maintain consistency with the changes we are recommending for Tier 1, as the rates for Tier 3 were initially developed based, in part, on the benefit level comparisons to Tier 1.

The following table shows the observed service retirement rates for Tier 1 members based on the actual experience over the past three years and the past six years, separately for those members who are age 55 or older and with 30 or more years of service (55/30), and those who do not meet both of those age and service thresholds (non-55/30). The actual service retirement rates were determined by comparing those members who actually retired from service to those eligible to retire from service. This same methodology is followed throughout this report and was described in Section 2. Also shown are the current assumed rates and the rates we propose.

Tier 1

Rate of Retirement (%)

	Non-55/30				55/30			
Age	Current Rate	Actual Rate (6 Years)	Actual Rate (3 Years)	Proposed Rate	Current Rate	Actual Rate (6 Years)	Actual Rate (3 Years)	Proposed Rate
50	5.00	3.65	5.26	5.00	0.00	0.00	0.00	0.00
51	3.00	2.60	1.47	3.00	0.00	0.00	0.00	0.00
52	3.00	2.42	3.96	3.00	0.00	0.00	0.00	0.00
53	3.00	2.23	1.81	3.00	0.00	0.00	0.00	0.00
54	18.00	18.48	16.56	18.00	0.00	0.00	0.00	0.00
55	6.00	5.41	5.11	6.00	27.00	34.73	38.82	27.00
56	6.00	4.94	3.82	6.00	18.00	25.79	30.75	18.00
57	6.00	5.20	4.93	6.00	18.00	24.14	29.41	18.00
58	6.00	4.99	5.14	6.00	18.00	24.46	28.95	18.00
59	6.00	5.00	4.62	6.00	18.00	25.75	29.21	18.00
60	7.00	9.37	11.49	9.00	18.00	25.58	29.89	18.00
61	7.00	8.69	10.64	9.00	18.00	25.82	31.73	18.00
62	7.00	10.09	11.80	9.00	18.00	25.61	32.67	18.00
63	7.00	9.48	11.92	9.00	18.00	25.14	32.59	18.00
64	7.00	10.50	13.00	9.00	18.00	28.39	35.00	18.00
65	14.00	16.01	19.53	16.00	21.00	31.01	35.65	21.00
66	14.00	16.50	16.64	16.00	21.00	29.24	35.16	21.00
67	14.00	17.12	19.92	16.00	21.00	26.74	31.41	21.00
68	14.00	18.17	20.85	16.00	21.00	29.87	38.13	21.00
69	14.00	18.62	20.45	16.00	21.00	28.09	30.39	21.00
70 & Over	100.00	16.24	18.62	100.00	100.00	26.54	31.16	100.00

Based on this experience, we recommend increasing the Tier 1 non-55/30 retirement rate assumption at ages 60 – 69 and maintaining the Tier 1 55/30 retirement rate assumption. Overall, the proposed rates represent an increase from the current rates for Tier 1 members.

Chart 2 that follows later in this section compares the actual retirement experience with the current and proposed assumptions for Tier 1 non-55/30 members. Chart 3 shows the same information for Tier 1 55/30 members.

The following table shows the observed service retirement rates for Tier 1 Enhanced members based on the actual experience over the past three years and the past six years, separately for those members who are age 55 or older and with 30 or more years of service (55/30), and those who do not meet both of those age and service thresholds (non-55/30). Also shown are the current assumed rates and the rates we propose.

Tier 1 Enhanced

Rate of Retirement (%)

	Non-55/30				55/30			
Age	Current Rate	Actual Rate (~4.5 Years)	Actual Rate (3 Years)	Proposed Rate	Current Rate	Actual Rate (~4.5 Years)	Actual Rate (3 Years)	Proposed Rate
50	7.00	0.00	0.00	6.00	0.00	0.00	0.00	0.00
51	5.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00
52	5.00	8.33	9.09	5.00	0.00	0.00	0.00	0.00
53	5.00	0.00	0.00	5.00	0.00	0.00	0.00	0.00
54	20.00	16.67	11.11	18.00	0.00	0.00	0.00	0.00
55	8.00	9.76	10.00	10.00	30.00	45.00	33.33	30.00
56	8.00	3.03	4.55	10.00	22.00	28.57	25.00	22.00
57	8.00	7.14	7.14	10.00	22.00	7.14	14.29	22.00
58	8.00	14.29	13.33	10.00	22.00	66.67	66.67	22.00
59	8.00	23.81	23.08	10.00	22.00	77.78	75.00	22.00
60	9.00	14.29	0.00	11.00	22.00	50.00	100.00	22.00
61	9.00	30.77	28.57	11.00	22.00	40.00	0.00	22.00
62	9.00	28.57	20.00	11.00	22.00	50.00	66.67	22.00
63	9.00	0.00	0.00	11.00	22.00	50.00	50.00	22.00
64	9.00	0.00	0.00	11.00	22.00	80.00	50.00	22.00
65	16.00	25.00	50.00	20.00	26.00	50.00	0.00	26.00
66	16.00	33.33	0.00	20.00	26.00	0.00	0.00	26.00
67	16.00	50.00	50.00	20.00	26.00	0.00	0.00	26.00
68	16.00	100.00	100.00	20.00	26.00	50.00	0.00	26.00
69	16.00	0.00	0.00	20.00	26.00	50.00	0.00	26.00
70 & Over	100.00	0.00	0.00	100.00	100.00	25.00	50.00	100.00

Based on this experience, we recommend increasing the Tier 1 Enhanced non-55/30 retirement rate assumption at ages 60 – 69 and maintaining the Tier 1 Enhanced 55/30 retirement rate assumption. Overall, the proposed rates represent an increase from the current rates for Tier 1 Enhanced members.

Chart 4 that follows later in this section compares the actual retirement experience with the current and proposed assumptions for Tier 1 Enhanced non-55/30 members. Chart 5 shows the same information for Tier 1 Enhanced 55/30 members.

Due to the lack of actual experience for Tier 3, the following table only shows the current assumed rates and the rates we propose for that tier.

Tier 3
Rate of Retirement (%)

	Non-55/30		55/30	
Age	Current Rate	Proposed Rate	Current Rate	Proposed Rate
50	5.00	5.00	0.00	0.00
51	3.00	3.00	0.00	0.00
52	3.00	3.00	0.00	0.00
53	3.00	3.00	0.00	0.00
54	17.00	17.00	0.00	0.00
55	0.00[1]	0.00[1]	26.00	26.00
56	0.00[1]	0.00[1]	17.00	17.00
57	0.00[1]	0.00[1]	17.00	17.00
58	0.00[1]	0.00[1]	17.00	17.00
59	0.00[1]	0.00[1]	17.00	17.00
60	6.00	8.00	17.00	17.00
61	6.00	8.00	17.00	17.00
62	6.00	8.00	17.00	17.00
63	6.00	8.00	17.00	17.00
64	6.00	8.00	17.00	17.00
65	13.00	15.00	20.00	20.00
66	13.00	15.00	20.00	20.00
67	13.00	15.00	20.00	20.00
68	13.00	15.00	20.00	20.00
69	13.00	15.00	20.00	20.00
70 & Over	100.00	100.00	100.00	100.00

As alluded to above, we recommend increasing the Tier 3 non-55/30 retirement rate assumption at ages 60 – 69 and maintaining the Tier 3 55/30 retirement rate assumption. Overall, the proposed rates represent an increase from the current rates for Tier 3 members.

Chart 6 that follows later in this section compares the current and proposed assumptions for Tier 3 non-55/30 members. Chart 7 shows the same information for Tier 3 55/30 members.

[1] Not eligible to retire under the provisions of the Tier 3 plan.

Deferred Vested Members

Under the current assumptions, deferred vested members are assumed to retire at age 59, regardless if the member went on to work at a reciprocal retirement system or not. The following table shows the observed deferred vested retirement ages based on the actual experience over the past three years, separately for those who went on to work at a reciprocal retirement system and those that did not. Also shown are the current assumed retirement ages and the retirement ages we propose.

Deferred Vested Retirement Age

	Reciprocal Members	Non-Reciprocal Members
Current Assumption	59.0	59.0
Actual Average Age	58.9	61.5
Proposed Assumption	**59.0**	**60.0**

Based on this experience, we recommend maintaining the deferred vested retirement age assumption at age 59 for those who went on to work at a reciprocal retirement system and increasing the assumption from age 59 to age 60 for non-reciprocal members.

Reciprocity

Based on data available from current inactive vested participants, there is a much lower incidence of members who went to work for a reciprocal system when compared to that observed at our other California public retirement systems. We have observed that as of June 30, 2022, about 4% of all the inactive vested membership has worked for a reciprocal system, compared to the current assumption of 5%. In addition, only about 1% of members who left active service and terminated from the System over the 3-year experience study period established reciprocity with another entity. We do not recommend using the approximate 1% proportion of only newly terminated employees to set this assumption because it may be the case that not all members had yet reported their reciprocal status.

Therefore, we recommend maintaining the reciprocity assumption of 5% for the June 30, 2023 valuation. We will continue to monitor this assumption in future valuations.

It is assumed that all current and future members covered under a reciprocal retirement system will receive annual salary increases from termination until their date of retirement. Under the current assumption, these annual salary increases are 4.25% per year. This salary increase assumption is based on the current ultimate merit and promotion salary increase assumption (1.00%), together with the current inflation (2.75%) and real “across the board” salary increase (0.50%) assumptions.

Based on the recommended ultimate 1.00% merit and promotion salary increase assumption, together with the recommended 2.50% inflation assumption and 0.50% real “across the board” salary increase assumption, we recommend reducing the reciprocal salary increase assumption from 4.25% to 4.00%.

Survivor Continuance Under the Unmodified Option

Under current assumptions for the Retirement Plan, it is assumed that 76% of all active and inactive male members and 52% of all active and inactive female members would be married or have an eligible domestic partner at the time of their retirement or pre-retirement death. We reviewed experience for new retirees during the three-year period and determined the actual percentage of these new retirees that had an eligible spouse or eligible domestic partner at the time of retirement. The results of that analysis are shown below.

New Retirees – Actual Percent with Eligible Spouse or Domestic Partner

Year Ending December 31	Male	Female
2020	76%	58%
2021	76%	50%
2022	73%	57%
Total	**75%**	**53%**

Based on this experience, we recommend maintaining the percent married assumption for male and female members at 76% and 52%, respectively.

Since the present value of the survivor's continuance benefit is dependent on the survivor's age and sex, we must also have assumptions for the age and sex of the survivor. Based on the experience for members who retired during the current three-year period (results shown in the table below) and studies done for other retirement systems, **we recommend the following:**

1. Since most of the actual survivors are of the opposite sex, even with the inclusion of domestic partners, **we will continue to assume that all active and inactive members have a survivor of the opposite sex.**
2. **Based on the below experience, we recommend maintaining the spouse age difference assumption that male retirees are three years older than their spouses and maintaining the spouse age difference assumption that female retirees are two years younger than their spouses.** These assumptions will continue to be monitored in future experience studies.

Member's Age as Compared to Spouse's Age

	Male Retiree	Female Retiree
Current Assumption	3 years older	2 years younger
Actual Experience	3.3 years older	2.0 years younger
Proposed Assumption	**3 years older**	**2 years younger**

Refinements in the Method used to Allocate Total Present Value of Future Benefits (PFVB) for Actives

With this experience study, we are recommending a refinement in the application of the Entry Age actuarial cost method used to allocate PVFB between the current and future Normal Costs and Actuarial Accrued Liability (AAL) to produce a cost attribution period that is more consistent with each member's participation in LACERS. This refinement includes (a) rounding a member's benefit service down to the number of completed years, (b) subtracting that service from the year of the valuation, and (c) using that result to set the year of entry into LACERS for purposes of applying the Entry Age actuarial cost method. Even though this refinement does not increase the PVFB, it does result in a higher allocation of the PFVB to the current and future Normal Costs and a lower allocation to the AAL.

Chart 2: Retirement Rates
Tier 1 – Non-55/30

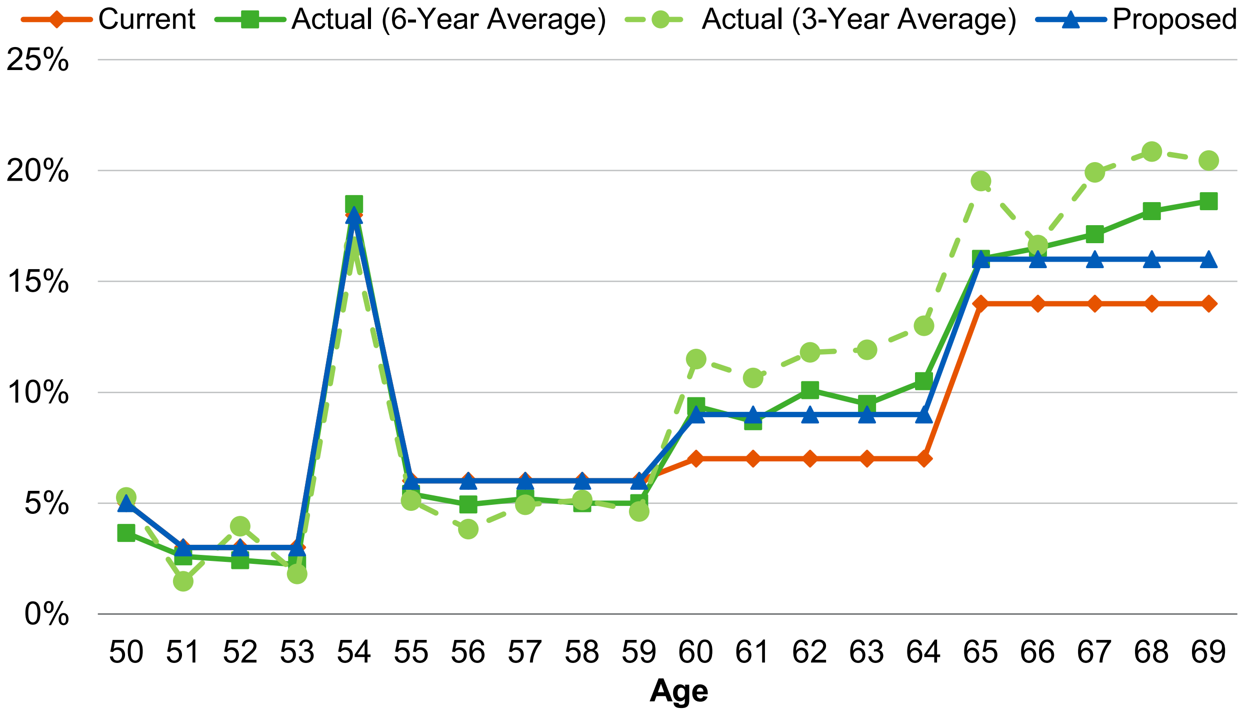


Chart 3: Retirement Rates
Tier 1 – 55/30

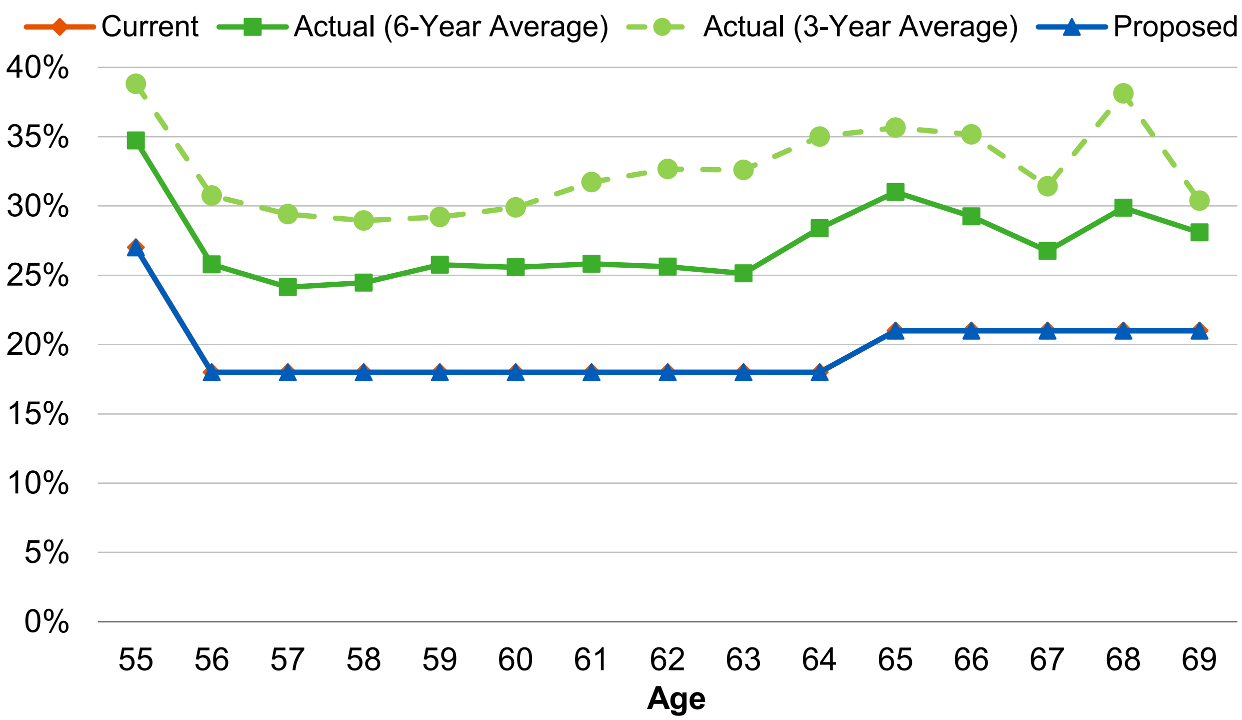


Chart 4: Retirement Rates
Tier 1 Enhanced – Non-55/30

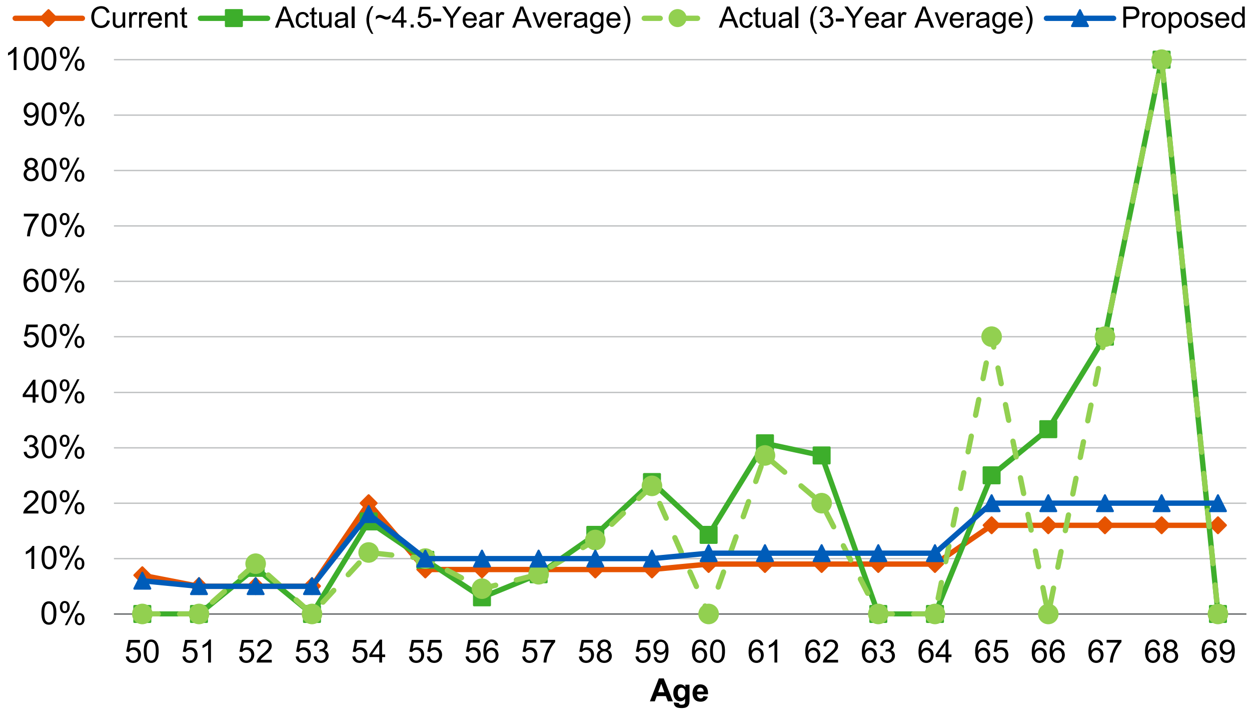


Chart 5: Retirement Rates
Tier 1 Enhanced – 55/30

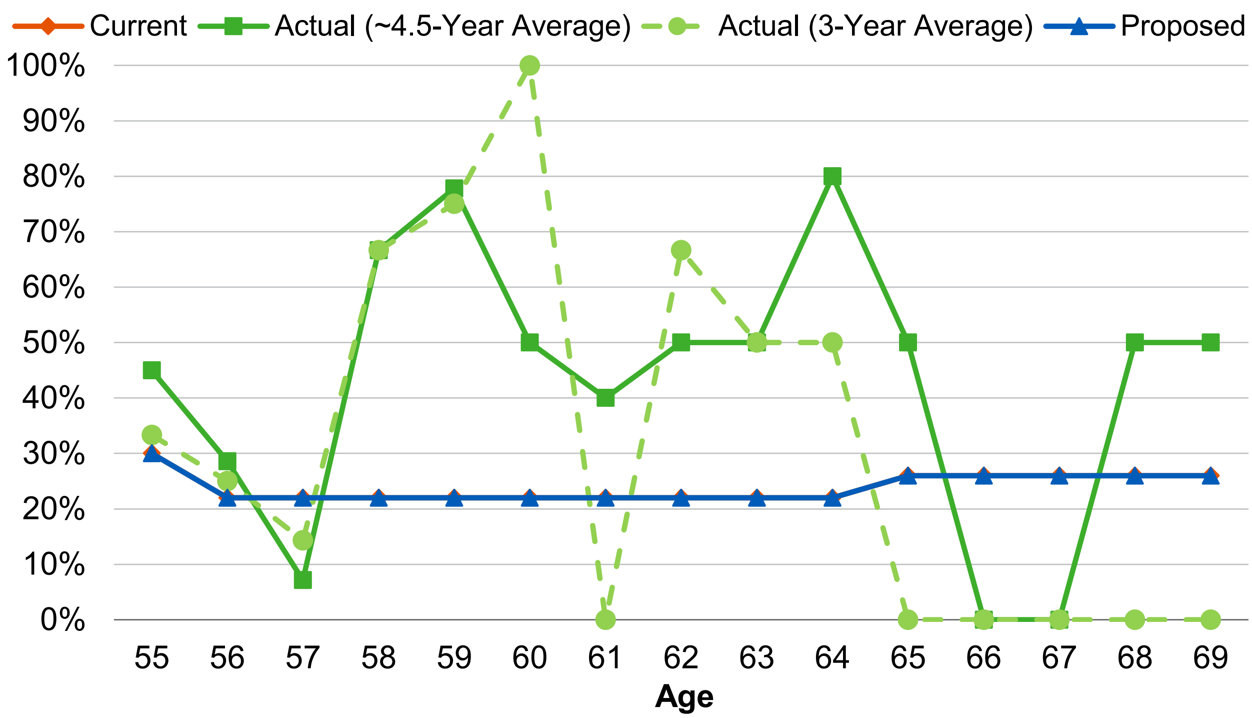


Chart 6: Retirement Rates
Tier 3 – Non-55/30

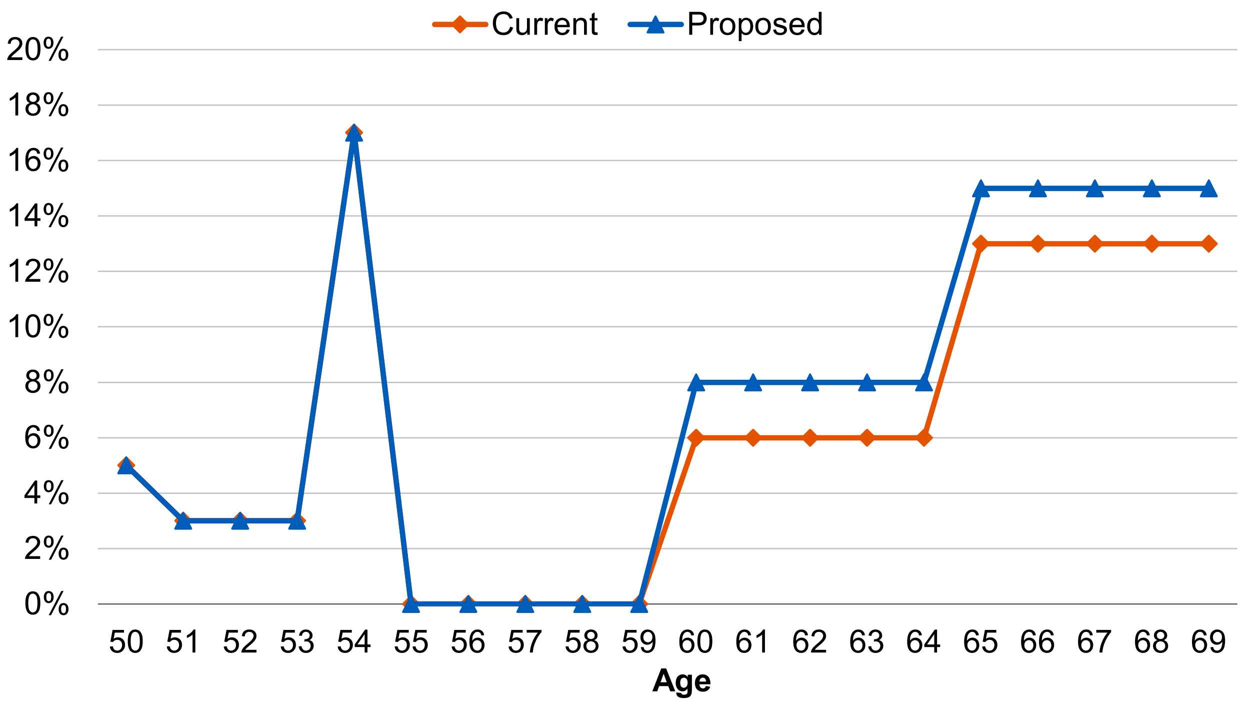
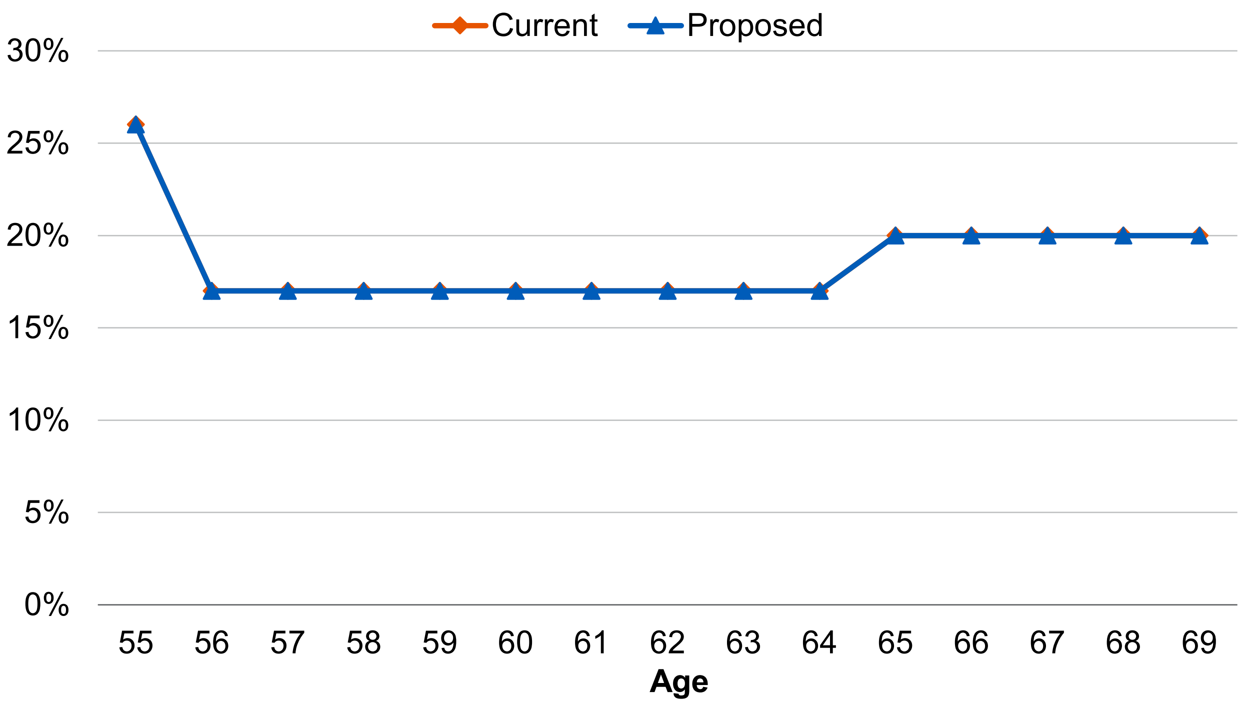


Chart 7: Retirement Rates
Tier 3 – 55/30



B. Mortality Rates - Healthy

The “healthy” mortality rates project the life expectancy of a member who retires from service (i.e., who did not retire on a disability pension). Also, the “healthy” pre-retirement mortality rates project what proportion of members will die before retirement. The table currently being used for post-service retirement mortality rates for the Retirement Plan is the Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males, projected generationally with the two-dimensional mortality improvement scale MP-2019. The table currently being used for post-service retirement mortality rates for the Health Plan is the Pub-2010 General Healthy Retiree Headcount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males, projected generationally with the two-dimensional mortality improvement scale MP-2019.

The Public Retirement Plans Mortality tables (Pub-2010) was published by the Retirement Plans Experience Committee (RPEC) of the SOA in 2019. For the first time, the published mortality tables are based exclusively on public sector pension plan experience in the United States. Within the Pub-2010 family of mortality tables, there are separate tables by job categories of General, Safety and Teachers. Included with the mortality tables is the analysis prepared by RPEC that continues to observe that benefit amount for healthy retirees and salary for employees are the most significant predictors of mortality differences within the job categories. Therefore, Pub-2010 includes mortality rates developed for annuitants on a “benefit” weighted basis, with higher credibility assigned to experience from annuitants receiving larger benefits. We continue to recommend using the "amount weighted" above-median version of the Pub-2010 mortality tables (adjusted for LACERS experience as discussed herein) for the Retirement Plan.

We also continue to recommend that the mortality improvement scale be applied generationally where each future year has its own mortality table that reflects the forecasted improvements, using the published improvement scales. The “generational” approach is now the established practice within the actuarial profession.

A generational mortality table provides dynamic projections of mortality experience for each cohort of retirees. For example, the mortality rate for someone who is 65 next year will be slightly less than for someone who is 65 this year. In general, using generational mortality anticipates increases in the cost of the Plan over time as participants’ life expectancies are projected to increase.

We understand that RPEC intends to publish annual updates to their mortality improvement scales. Improvement scale MP-2021 is the latest improvement scale available as RPEC decided not to release an updated projection scale in 2022. According to RPEC, they have been relying on the most recent population mortality experience in their model to project future mortality trends. In 2022, if they were to follow their past practice, they would have relied on the newest mortality data available from 2020 to prepare the “MP-2022” mortality improvement scale. However, population data from 2020 was severely affected by the COVID-19 pandemic. They believed it would not be appropriate to incorporate, without adjustment, the substantially higher rates of population mortality experience from 2020 into their graduation and projection models used to forecast future mortality. As a result, they elected not to release a new mortality improvement scale for 2022. We recommend that the Board adopt the Amount-Weighted

Above-Median Pub-2010 mortality tables (adjusted for LACERS experience as discussed herein), and project the mortality improvement generationally using the MP-2021 mortality improvement scale, for the Retirement Plan.

In order to reflect more LACERS experience in our analysis, we contemplated using experience for an eleven-year period by using data from the current (from July 1, 2019 through June 30, 2022) and the last three (from July 1, 2016 through June 30, 2019; from July 1, 2014 through June 30, 2017; and from July 1, 2011 through June 30, 2014) experience study periods in order to analyze this assumption. However, LACERS had previously provided us with information on the number of COVID-19 related deaths during fiscal years 2020/2021 and 2021/2022, and based on the relatively higher number of COVID-19 related and other deaths during that period we have decided to exclude mortality experience during the period from July 1, 2020 – June 30, 2022 in our review of the mortality assumption. Accordingly, we are proposing mortality assumptions using LACERS experience for a nine-year period from July 1, 2011 through June 30, 2020.

Even with the use of nine years of experience, based on standard statistical theory the data is only partially credible especially under the recommended amount-weighted basis when dispersion of retirees' benefit amounts is taken into account. In 2008 the SOA published an article recommending that mortality assumptions include an adjustment for credibility. Under this approach, the number of deaths needed for full credibility for a headcount-weighted mortality table is just over 1,000, where full credibility means a 90% confidence that the actual experience will be within 5% of the expected value. Therefore, in our recommended assumptions, we have only partially adjusted the Pub-2010 mortality tables to fit LACERS' experience. In future experience studies, more data will be available which may further increase the credibility of the LACERS experience.

Post-Retirement Mortality (Service Retirements)

Among all retired members, the actual deaths weighted by benefit amounts under the current assumptions for the nine years included in the review of the mortality assumption are shown in the table below. We also show the deaths weighted by benefit amount under the proposed assumptions. We continue to recommend the use of a generational mortality table, which incorporates a more explicit assumption for future mortality improvement. Accordingly, the goal is to start with a mortality table that closely matches the current experience (without a margin for future mortality improvement), and then reflect mortality improvement by projecting lower mortality rates in future years.

The proposed mortality table also reflects current experience to the extent that the experience is credible based on standard statistical theory. For LACERS, the volume of member data makes it relatively credible. As shown in the table below, the proposed mortality table for the Retirement Plan has an actual to expected ratio of 98%, after an adjustment to male rates for partial credibility. In future years the ratio should remain around 98%, as long as actual mortality improves at the same rates as anticipated by the generational mortality tables. The number of actual deaths compared to the number expected under the current and proposed assumptions weighted by benefit amounts for the nine years included in the review of the mortality assumption are as follows:

Healthy Retiree Mortality Experience – Benefit Weighted

($ in millions)

Gender	Current Expected Weighted Deaths	Actual Weighted Deaths	Proposed Expected Weighted Deaths
Male	$10.80	$10.56	$10.79
Female	$2.49	$2.49	$2.48
Total	**$13.29**	**$13.05**	**$13.27**
Actual / Expected	**98%**		**98%**

Notes:

1. Experience shown above is weighted by monthly benefit amounts for deceased members.
2. Expected amounts under the proposed generational mortality table are based on mortality rates from the base year projected with mortality improvements to the experience study period.
3. Results may not add due to rounding.

For healthy members in the Retirement Plan valuation, we recommend maintaining the healthy mortality to follow the Pub-2010 General Healthy Retiree Amount-Weighted Mortality Table (separate tables for males and females), with rates increased by 10% for males and unadjusted for females, projected generationally, but updated with the two-dimensional mortality improvement scale MP-2021.

For the purpose of setting the assumptions for the Health Plan valuation, we have also provided in the table below the actual and expected deaths computed without weighting these by benefit amounts.

Healthy Retiree Mortality Experience – Headcount Weighted

Gender	Current Expected Weighted Deaths	Actual Weighted Deaths	Proposed Expected Weighted Deaths
Male	2,798	2,957	2,794
Female	875	943	874
Total	**3,673**	**3,900**	**3,668**
Actual / Expected	**106%**		**106%**

For healthy members in the Health Plan valuation, we recommend maintaining the healthy mortality to follow the Pub-2010 General Healthy Retiree Headcount-Weighted Mortality Table (separate tables for males and females) with rates increased by 10% for males and unadjusted for females, projected generationally, but updated with the two-dimensional mortality improvement scale MP-2021.

Chart 8 that follows later in this section compares the number of actual to expected deaths on a benefit-weighted basis over the nine years included in the review of the mortality assumption for the current and proposed assumptions for service retirement members.

Chart 9 that follows later in this section compares the number of actual to expected deaths on a headcount-weighted basis over the nine years included in the review of the mortality assumption for the current and proposed assumptions for service retirement members.

Chart 10 shows the life expectancies (i.e., expected future lifetime) under the current and the proposed tables on a benefit-weighted basis. Life expectancies under the proposed generational mortality rates are based on age as of 2023. In practice, assumed life expectancies will increase as a result of the mortality improvement scale.

Beneficiary Mortality

For all beneficiaries, the table currently being used for the Retirement Plan is the Pub-2010 Contingent Survivor Amount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2019. The table currently being used for the Health Plan is the Pub-2010 Contingent Survivor Headcount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2019.

The Pub-2010 Contingent Survivors Table is developed based only on contingent survivor data after the death of the retirees. This is consistent with the mortality experience that we have available for beneficiaries. The Pub-2010 contingent survivor mortality rates are comparable to LACERS' actual mortality experience for beneficiaries. However, in contrast to service retirees, there is much less beneficiary data, so it is given little credibility when adjusting the base table. As shown in the table below, the proposed mortality tables have an actual to expected ratio of 99%, after adjustments for partial credibility. In future years the ratio should remain around 99% as long as actual mortality improves at the same rates as anticipated by the generational mortality tables. The number of actual deaths compared to the number expected under the current and proposed assumptions weighted by benefit amounts for the nine years included in the review of the mortality assumption are as follows:

Beneficiary Mortality Experience – Benefit Weighted
($ in millions)

Gender	Current Expected Weighted Deaths	Actual Weighted Deaths	Proposed Expected Weighted Deaths
Male	$0.22	$0.22	$0.21
Female	$3.31	$3.27	$3.30
Total	$3.52	$3.49	$3.51
Actual / Expected	**99%**		**99%**

Notes:

1. Experience shown above is weighted by monthly benefit amounts for deceased beneficiaries.
2. Expected amounts under the proposed generational mortality table are based on mortality rates from the base year projected with mortality improvements to the experience study period.
3. Results may not add due to rounding.

For all beneficiaries in the Retirement Plan, we recommend maintaining the beneficiary mortality to follow the Pub-2010 Contingent Survivor Amount-Weighted Above-Median Mortality Table (separate tables for males and females), but updated with rates increased by 5% for males and increased by 10% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021.

For the purpose of setting the assumptions for the Health Plan valuation, we have also provided in the table below the actual and expected deaths computed without weighting these by benefit amounts.

Beneficiary Mortality Experience – Headcount Weighted

Gender	Current Expected Weighted Deaths	Actual Weighted Deaths	Proposed Expected Weighted Deaths
Male	144	154	138
Female	1,677	1,694	1,674
Total	**1,821**	**1,848**	**1,812**
Actual / Expected	**101%**		**102%**

For all beneficiaries in the Health Plan, we recommend maintaining the beneficiary mortality to follow the Pub-2010 Contingent Survivor Headcount-Weighted Above-Median Mortality Table (separate tables for males and females), but updated with rates increased by 5% for males and increased by 10% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021.

As stated above, the Contingent Survivor mortality tables are developed based on contingent survivor data only after the death of the retirees (i.e., it does not reflect any contingent survivor data before the death of the retirees). In the last experience study, we recommended that the Board applied the Contingent Survivor mortality tables to predict the mortality rates for the beneficiaries both before and after the death of the retirees. According to analysis provided by RPEC, the mortality rates for the beneficiaries could be somewhat overstated before the death of the retirees as the Contingent Survivor mortality tended to be higher than retiree mortality and the difference was statistically significant. Based on that analysis, for the purposes of the actuarial valuations (for funding and financial reporting), when calculating the liability for the continuance to a beneficiary of a surviving member, we recommend that the Healthy Retiree mortality tables be used for beneficiary mortality both before and after the expected death of the member. Upon the actual death of the member (i.e., for all beneficiaries in pay status as of the valuation date), we recommend for the purposes of the actuarial valuations that we use the Contingent Survivor mortality tables as stated above. We note that the use of different mortality tables (before and after the death of the member) has been found by the RPEC to be reasonable.

Pre-Retirement Mortality

The table currently being used for pre-retirement mortality rates for the Retirement Plan is the Pub-2010 General Employee Amount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males and females, projected generationally with the two-dimensional scale MP-2018. The table currently being used for pre-retirement mortality rates for the Health Plan is the Pub-2010 General Employee Headcount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males and females, projected generationally with the two-dimensional scale MP-2018.

When analyzing pre-retirement mortality, there is much less data available, so it is given little credibility when adjusting the base table. As shown in the table below, the proposed mortality tables have an actual to expected ratio of 126%, after adjustments for partial credibility. In future years the ratio should remain around 126% as long as actual mortality improves at the same rates as anticipated by the generational mortality tables. The number of actual deaths compared to the number expected under the current and proposed assumptions weighted by annual salary for the nine years included in the review of the mortality assumption are as follows:

Pre-Retirement Mortality Experience – Salary Weighted

($ in millions)

Gender	Current Expected Weighted Deaths	Actual Weighted Deaths	Proposed Expected Weighted Deaths
Male	$20.52	$25.68	$20.52
Female	$6.89	$8.72	$6.85
Total	**$27.41**	**$34.40**	**$27.37**
Actual / Expected	**126%**		**126%**

Notes:

1. Experience shown above is weighted by annual salary for deceased members.
2. Expected amounts under the proposed generational mortality table are based on mortality rates from the base year projected with mortality improvements to the experience study period.
3. Results may not add due to rounding.

For members in the Retirement Plan, we recommend maintaining the pre-retirement mortality to follow the Pub-2010 General Employee Amount-Weighted Above-Median Mortality Table (separate tables for males and females) with rates increased by 10% for males and females, projected generationally, but updated with the two-dimensional mortality improvement scale MP-2021.

For members in the Health Plan, we recommend maintaining the pre-retirement mortality to follow the Pub-2010 General Employee Headcount-Weighted Above-Median Mortality Table (separate tables for males and females) with rates increased by 10% for males and females, projected generationally, but updated with the two-dimensional mortality improvement scale MP-2021.

Currently, our assumption is that all Tier 1 Enhanced pre-retirement deaths are service connected. **We recommend maintaining the current assumption for Tier 1 Enhanced members.**

Mortality Table for Determining Actuarial Equivalences

Given that our current and recommended post-retirement mortality assumptions include a generational mortality improvement scale, there are some administrative issues that need to be resolved with LACERS and its vendor maintaining the pension administration software before we could recommend a comparable generational scale to anticipate future mortality improvement. Upon the completion of the last experience study, we have been directed by LACERS to engage in such discussions with the vendor. We will provide a recommendation to LACERS for use in reflecting mortality improvement for determining actuarial equivalences after we conclude those discussions with the vendor.

Chart 8: Post-Retirement Benefit-Weighted Deaths ($ In Millions) Service Retirement Members (July 1, 2011 through June 30, 2020)

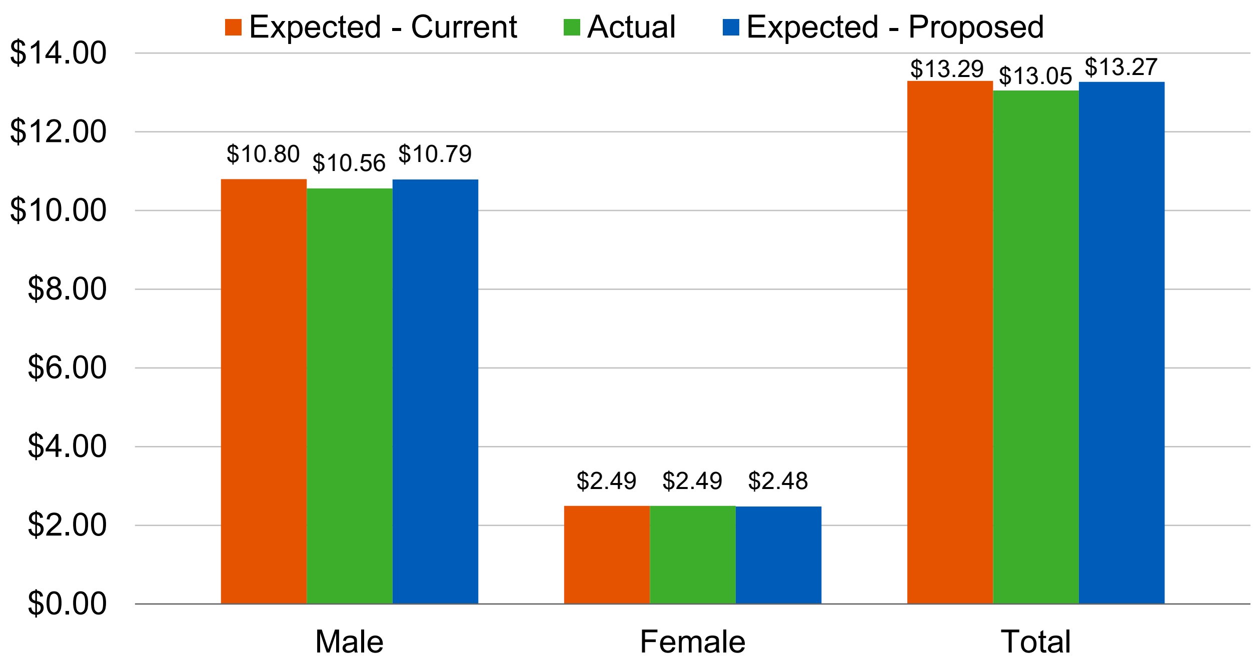


Chart 9: Post-Retirement Headcount-Weighted Deaths Service Retirement Members (July 1, 2011 through June 30, 2020)

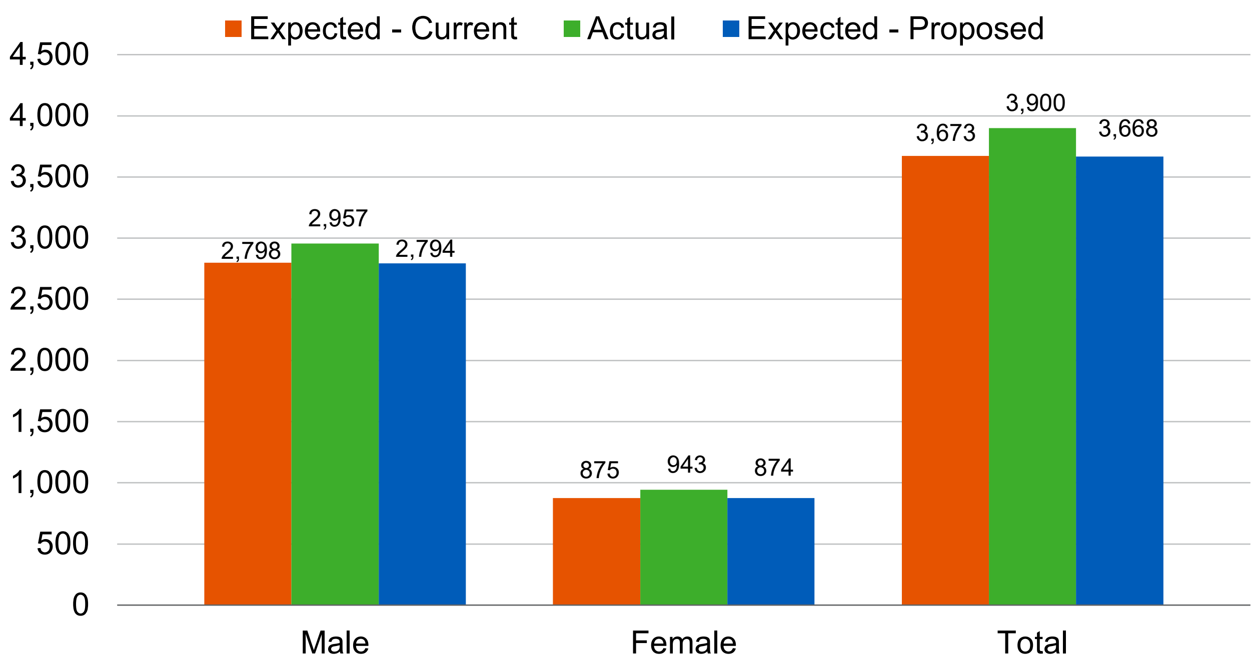
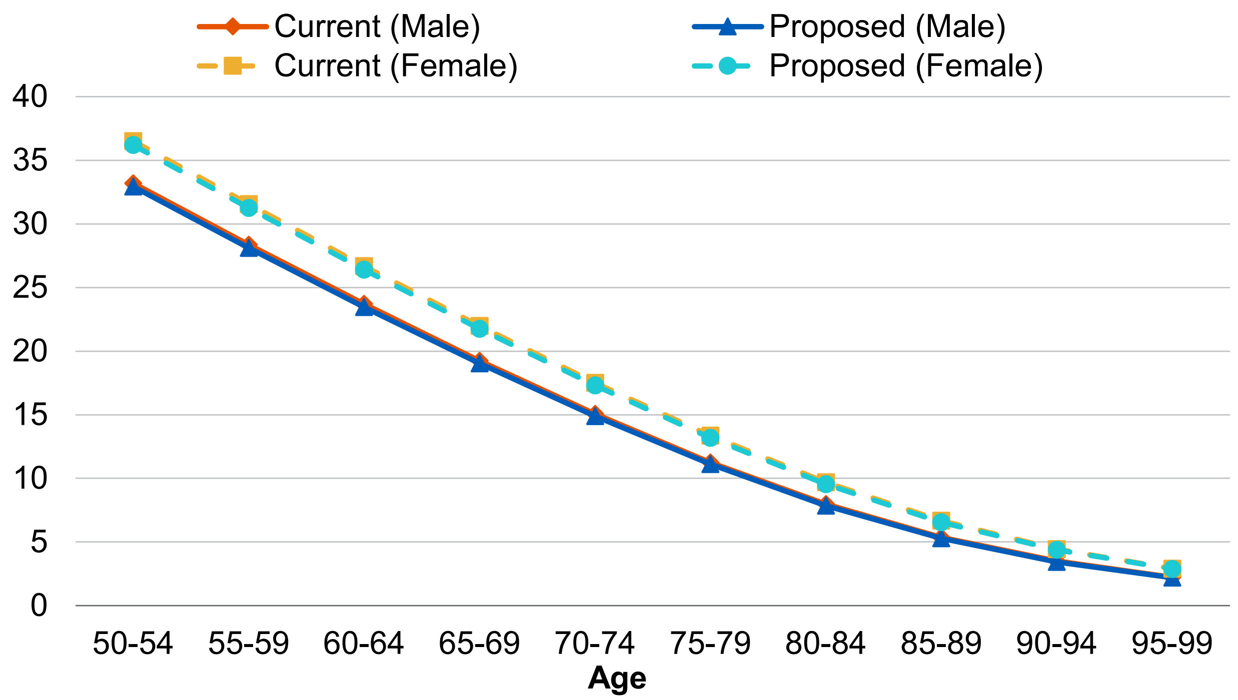


Chart 10: Benefit-Weighted Life Expectancies
Service Retirement Members



C. Mortality Rates - Disabled

Since mortality rates for disabled members can vary from those of healthy members, a different mortality assumption is often used. The table currently being used for the Retirement Plan is the Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females) increased by 10% for males and decreased by 5% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021. The table currently being used for the Health Plan is the Pub-2010 Non-Safety Disabled Retiree Headcount-Weighted Mortality Table (separate tables for males and females) increased by 10% for males and decreased by 5% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021.

Similar to mortality rates for service retirees, the proposed mortality table reflects current experience to the extent that the experience is credible based on standard statistical theory. For LACERS, there is far less data for disabled retirees, so it is given little credibility. As shown in the table below, the proposed mortality table for the Retirement Plan has an actual to expected ratio of 102%, after adjustments for partial credibility. In future years the ratio should remain around 102%, as long as actual mortality improves at the same rates as anticipated by the generational mortality table. The number of actual deaths compared to the number expected under the current and proposed assumptions weighted by benefit amounts for the nine years included in the review of mortality assumptions are as follows:

Disabled Retiree Mortality Experience – Benefit Weighted
($ in millions)

Gender	Current Expected Weighted Deaths	Actual Weighted Deaths	Proposed Expected Weighted Deaths
Male	$0.34	$0.34	$0.32
Female	$0.11	$0.10	$0.11
Total	**$0.45**	**$0.44**	**$0.44**
Actual / Expected	**98%**		**102%**

Notes:

1. Experience shown above is weighted by monthly benefit amounts for deceased members.
2. Expected amounts under the proposed generational mortality table are based on mortality rates from the base year projected with mortality improvements to the experience study period.
3. Results may not add due to rounding.

For disabled members in the Retirement Plan valuation, we recommend maintaining the disabled mortality to follow the Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females), but updated with rates increased by 5% for males and decreased by 5% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021.

For the purpose of setting the assumptions for the Health Plan valuation, we have also provided in the table below the actual and expected deaths computed without weighting these by benefit amounts.

Disabled Retiree Mortality Experience – Headcount Weighted

Gender	Current Expected Weighted Deaths	Actual Weighted Deaths	Proposed Expected Weighted Deaths
Male	221	217	210
Female	75	69	75
Total	**296**	**286**	**285**
Actual / Expected	**97%**		**100%**

For disabled members in the Health Plan valuation, we recommend maintaining the disabled mortality to follow the Pub-2010 Non-Safety Disabled Retiree Headcount-Weighted Mortality Table (separate tables for males and females) but updated with rates increased by 5% for males and decreased by 5% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021.

Chart 11 compares the number of actual to expected deaths on a benefit-weighted basis over the nine years included in the review of mortality assumptions for the current and proposed assumptions for disabled members.

Chart 12 shows the life expectancies (i.e., expected future lifetime) under the current and the proposed tables for disabled members on a benefit-weighted basis. Life expectancies under the current and proposed generational mortality rates are based on age as of 2023. In practice, life expectancies will be assumed to increase based on applying the mortality improvement scale.

Chart 11: Post-Retirement Benefit-Weighted Deaths ($ In Millions)
Disabled Members
(July 1, 2011 through June 30, 2020)

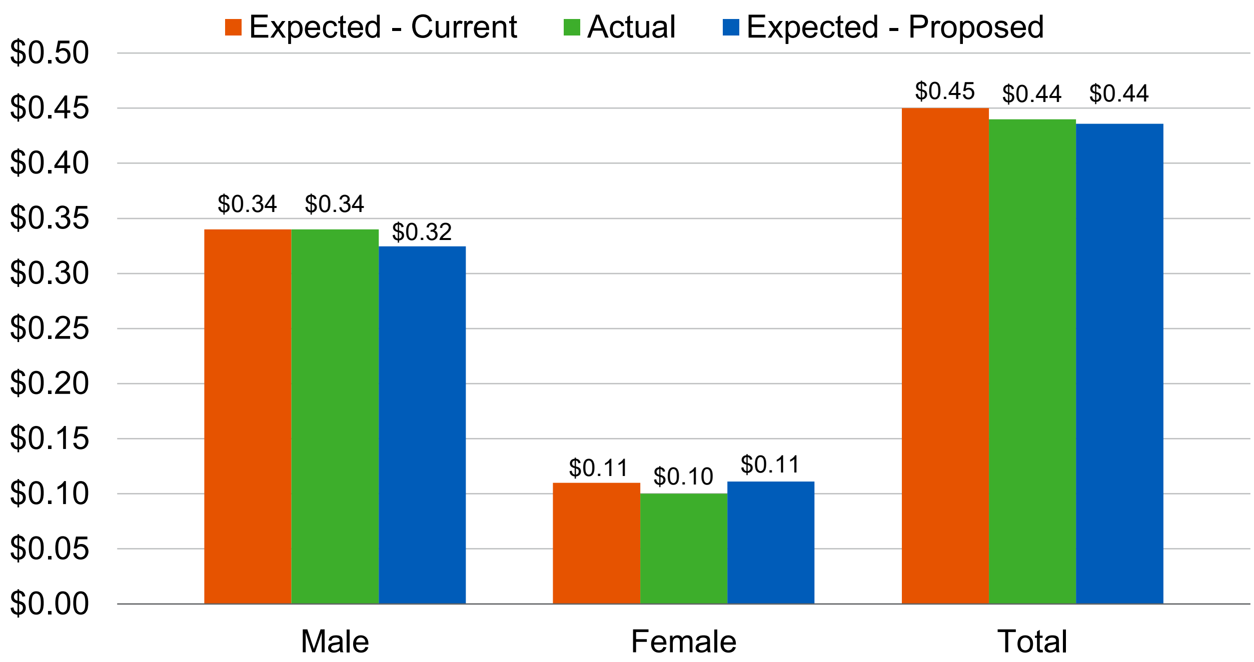
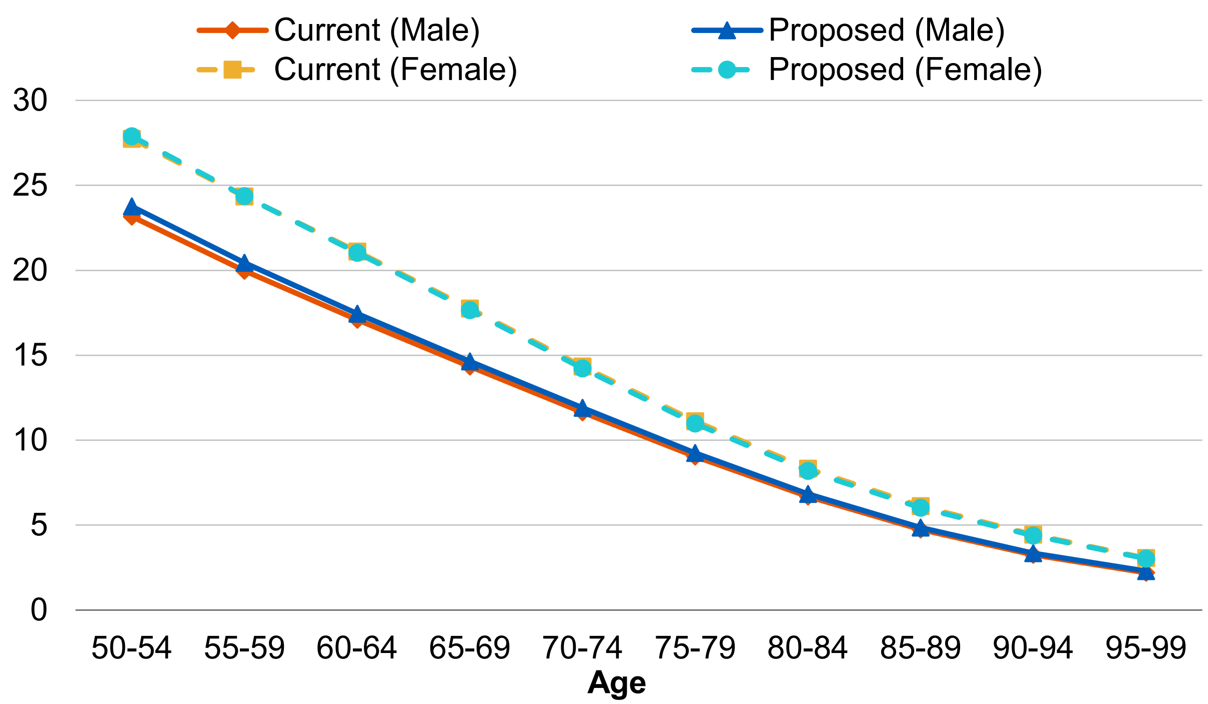


Chart 12: Benefit-Weighted Life Expectancies
Disabled Members



D. Termination Rates

Termination rates include all terminations for reasons other than death, disability, or retirement. Under the current assumptions, all members who terminate with less than five years of service are assumed to receive a refund of contributions. For members who terminate with five or more years of service, the member is assumed to choose between a refund of contributions or a deferred vested benefit, whichever option is more valuable.

The current termination rates are service based for the first five years of service and age based after the first five years of service. During this experience study, we reviewed termination experience for members with five or more years of service based both on ages and on years of service. We determined that the termination rates correlate a little better with years of service than with ages, for members with five or more years of service. Therefore, with this experience study, we are recommending termination rates based only on a function of the member's years of service.

As we note in the next Subsection E regarding disability incidence rates, the observed disability experience includes members who went from inactive (i.e., terminated) status to disability status. In order to remove the effect of double counting members as both terminations one year and disabilities a subsequent year, we have removed an equal number of inactive to disability records over the experience study period from the active to termination experience herein.

The following table shows the observed termination rates based on the actual experience over the past three years. Also shown are the current assumed rates and the rates we propose. Please note that we have excluded any members that were eligible for retirement.

Termination

Rates (%)

Years of Service	Current Rate[1]	Actual Rate	Proposed Rate
Less than 1	11.50	9.54	10.50
1 – 2	10.00	10.20	10.00
2 – 3	8.50	9.44	9.00
3 – 4	7.75	8.00	7.75
4 – 5	7.00	5.41	6.25
5 – 6	4.58	5.13	5.25
6 – 7	4.40	5.74	5.00
7 – 8	4.14	3.47	4.75
8 – 9	3.99	4.95	4.50
9 – 10	3.87	5.97	4.25
10 – 11	4.08	4.09	4.00
11 – 12	3.92	4.46	3.75
12 – 13	3.75	3.32	3.50
13 – 14	3.57	2.56	3.00
14 – 15	3.45	2.23	2.75
15 & Over	3.14	1.72	2.50

[1] The current rates shown for five or more years of service are based on the current age-based rates applied to the last three years of exposures.

It is important to note that not every service category has enough exposures and/or decrements such that the results in that category are statistically credible.

Based on this experience, we recommend decreasing the termination rate assumption for certain service groups while increasing the termination rate assumption for other service groups. Overall, the proposed rates represent a slight decrease from the current rates.

We also continue to recommend that no termination is assumed after a member is first assumed to retire. In other words, at those ages members will either retire in accordance with the retirement rate assumptions or continue working, rather than terminate and defer their benefit.

Chart 13 compares the number of actual to expected terminations over the past three years for the current and proposed assumptions.

Chart 14 compares the actual termination experience with the current and proposed assumptions.

Chart 13: Actual Number of Terminations Compared to Expected

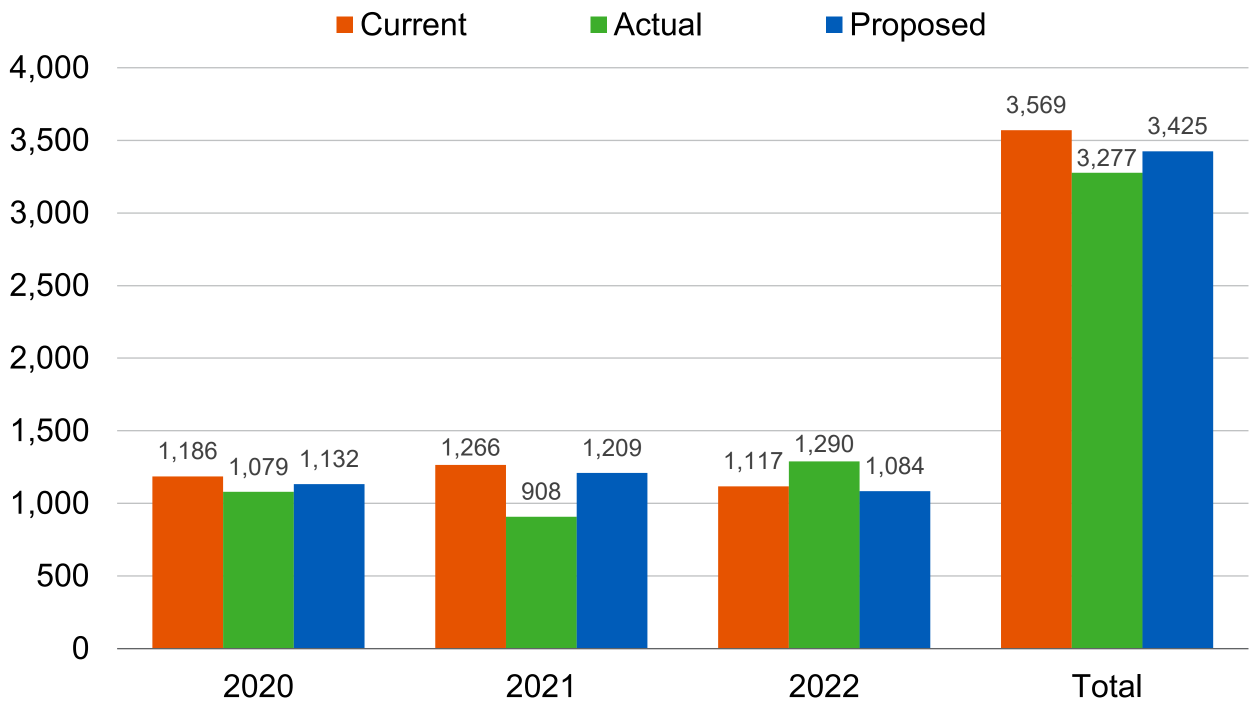
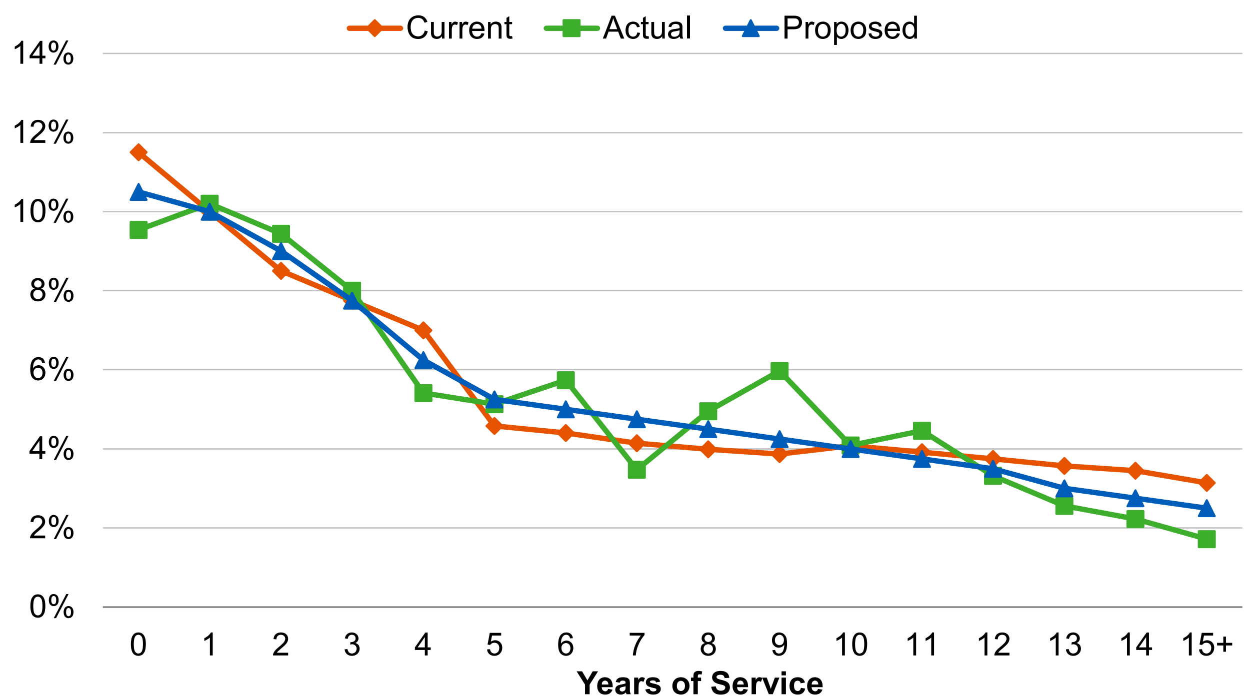


Chart 14: Termination Rates



E. Disability Incidence Rates

When a Tier 1 or Tier 3 member becomes disabled, he or she is generally entitled to a monthly benefit equal to 1/3 of their final average monthly compensation. For Tier 1 Enhanced members, their disability benefits will be different based on the type of disability (service-connected or nonservice-connected) as well as the severity of the disability.

The following table shows the observed disability incidence rates based on the actual experience over the past three years for all disabilities.[1] Also shown are the current assumed rates and the rates we propose.

Disability Incidence[2]

Rates (%)

Age	Current Rate	Actual Rate	Proposed Rate
20 – 24	0.00	0.00	0.00
25 – 29	0.01	0.00	0.01
30 – 34	0.03	0.00	0.02
35 – 39	0.04	0.02	0.03
40 – 44	0.08	0.05	0.07
45 – 49	0.14	0.08	0.12
50 – 54	0.18	0.08	0.15
55 – 59	0.18	0.08	0.15
60 – 64	0.18	0.11	0.16
65 – 69	0.25	0.20	0.23

As shown above, we are recommending decreases to most of the assumed disability rates.

For Tier 1 Enhanced, currently 90% of disability retirements are assumed to be service-connected with service connected disability benefits based on years of service, as follows:

Service-Connected Disability Benefits

Years of Service	Benefit
Less than 20	55% of Final Average Monthly Compensation
20 – 30	65% of Final Average Monthly Compensation
More than 30	75% of Final Average Monthly Compensation

For Tier 1 Enhanced, currently 10% of disability retirements are assumed to be nonservice-connected with nonservice-connected disability benefits equal to 40% of Final Average Monthly Compensation.

[1] The Tier 1 (including Tier 1 Enhanced) experience shown above reflects actual disabilities from the prior years' status of mostly inactive membership. Note that there was no disability experience for Tier 3 members over the experience study period.

[2] Total rates for all disabilities, at central ages in age ranges shown. (For Tier 1 and Tier 3 members, disabilities are not categorized as service-connected or nonservice connected, whereas they are categorized as such for Tier 1 Enhanced members.)

The following table shows the observed percentage of Tier 1 Enhanced members that received a service-connected versus nonservice-connected disability based on the actual experience over the past three years. Also shown are the current assumed percentages and the percentages we propose.

Service-Connected vs. Nonservice-Connected Disability – Tier 1 Enhanced

Disablements Receiving Service-Connected Disability			Disablements Receiving Non-Service Connected Disability
Current Assumption	**Actual Percentage**	**Proposed Assumption**	**Proposed Assumption**
90%	86%[1]	90%	10%

Note that for the seven observed Tier 1 Enhanced disability retirements over the experience study period included in the table above, we have *estimated* the actual disability benefit amounts expressed as a percentage of final average monthly compensation, based on the available data provided to us by LACERS for the annual valuations, as follows:

Estimated Benefit Percentage for new Tier 1 Enhanced Disabilities (% of Final Average Monthly Compensation)

Type of Disability	Years of Service	Number of Disabilities	Current Assumption	Estimated Average Actual %	Proposed Assumption
Service-Connected	Less than 20	4	55%	57%	55%
	20 – 30	1	65%	53%	65%
	More than 30	1	75%	78%	75%
Nonservice-Connected	N/A	1	40%	36%	40%

Based on the experience noted above for Tier 1 Enhanced members, we recommend maintaining the assumed percentage for service-connected disability at 90% with the remaining 10% assumed to be nonservice-connected disability. Furthermore, we recommend maintaining the current assumed benefit percentages for both service-connected disabilities (which vary by service) and nonservice-connected disabilities (i.e., 40%), as a percentage of final average monthly compensation, for Tier 1 Enhanced members.

Chart 15 below compares the number of actual to expected service-connected and nonservice-connected disabilities over the past three years for the current and proposed assumptions.

Chart 16 compares the actual disability incidence experience with the current and proposed assumptions.

[1] Based on six out of seven Tier 1 Enhanced disability retirements over the experience study period. Note that five out of the seven were originally identified by LACERS as service-connected disabilities; an additional member was originally identified as a nonservice-connected disability, but then was subsequently reclassified by LACERS as a service-connected disability (and we have counted this member as a service-connected disability, ultimately).

Chart 15: Actual Number of Disabilities Compared to Expected

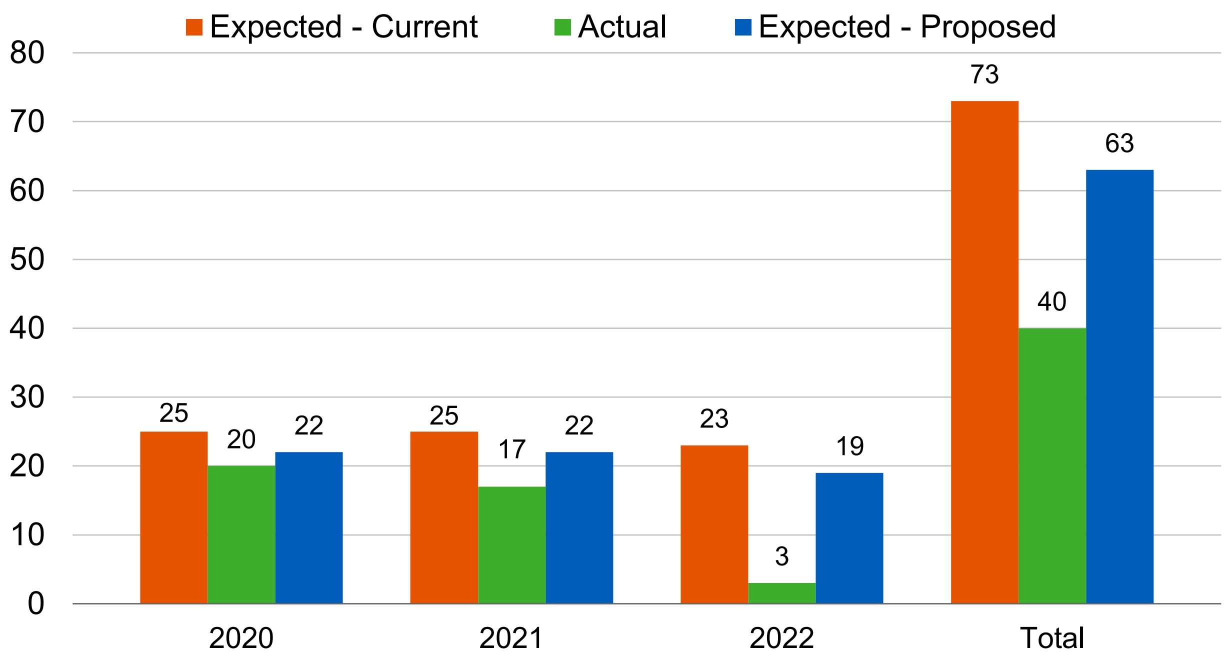
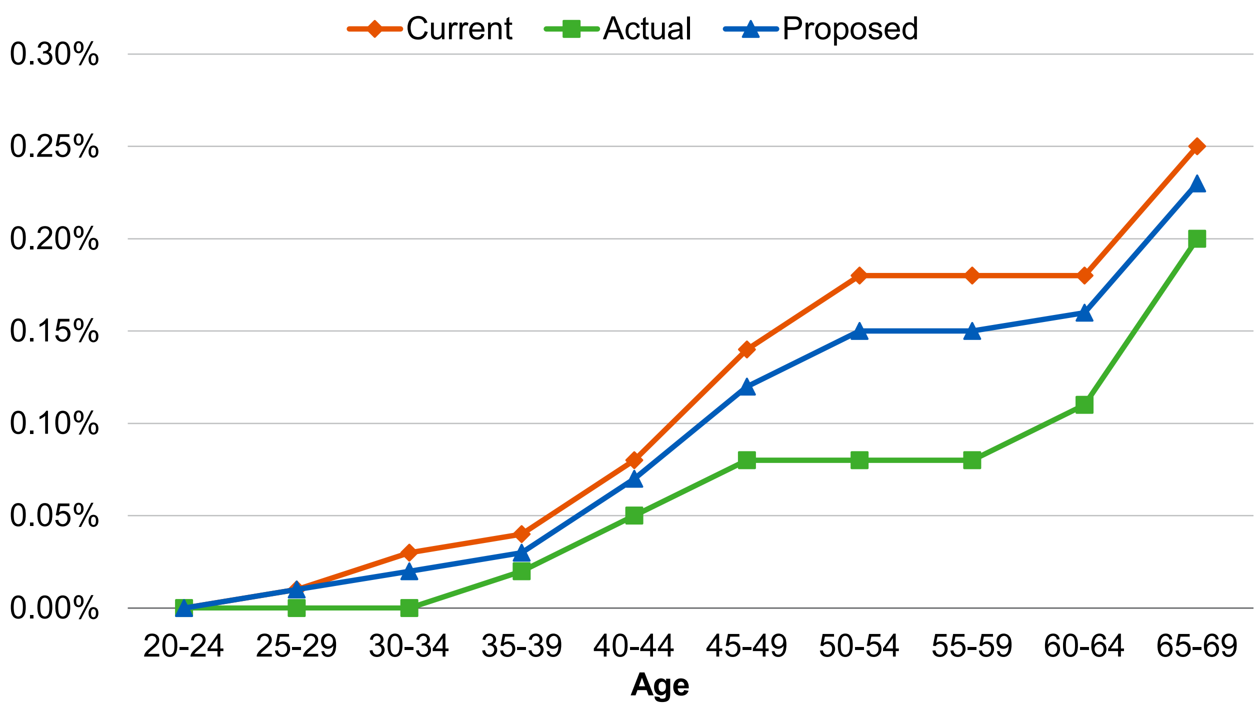


Chart 16: Disability Incidence Rates



F. Retiree Health Assumptions

Retiree Medical Coverage Election

The member's retiree health subsidy amount varies depending on whether the retiree enrolls in a Board approved health carrier, the coverage tier elected, and the service level attained at retirement. Therefore, we make assumptions regarding health plan participation based on a member's service at retirement. The election rates shown below are based on all retirees reported in the valuation as of June 30, 2022. Also shown are the current and proposed assumptions.

Eligible Retirees who Elected Medical

Service Range	Current Rate	Actual Rate	Proposed Rate
10 – 14	60%	58.3%	60%
15 – 19	80%	76.7%	80%
20 – 24	90%	88.6%	90%
25 and over	95%	94.5%	95%

Based on the above, we recommend maintaining the current assumptions for all service ranges.

Spousal/Domestic Partner Coverage

The retiree medical subsidy amount varies depending on whether retirees receiving a medical subsidy elect to cover their spouse or domestic partner.

The following table shows the observed percentage of new retirees receiving a medical subsidy who were reported with a covered Spouse or Domestic Partner based on the actual experience over the past three years. Also shown are the current and proposed assumptions.

New Retirees with Spouse/Domestic Partner Coverage

	New Male Retiree	New Female Retiree
Current Assumption	60%	35%
Actual Experience	59%	33%
Proposed Assumption	**60%**	**35%**

Based on the above, we recommend maintaining the current assumptions.

Covered Spouse/Domestic Partner Age Difference

The following tables show the observed spouse's age for new retirees who elected to cover their spouse based on the actual experience over the past three years. Also shown are the current and proposed assumptions.

Covered Spouse/Domestic Partner's Age Compared to the Member's Age

	New Male Retiree	New Female Retiree
Current Assumption	4 years younger	2 years older
Actual Experience	4 years younger	2 years older
Proposed Assumption	**4 years younger**	**2 years older**

Based on the above, we recommend maintaining the current assumption.

5. Cost Impact

We have estimated the impact of all the recommended demographic and economic assumptions (including the refinement in the method used to allocate total present value of future benefits for actives between normal cost and actuarial accrued liability) as if they were applied to the June 30, 2022 actuarial valuations.

Retirement Plan

The table below shows the changes in the total normal cost and actuarial accrued liability for the Retirement Plan due to the proposed assumption changes, as if they were applied in the June 30, 2022 valuation. If all of the proposed assumption changes (both economic, as recommended in Section 3 of this report, and demographic, as recommended in Section 4 of this report), were implemented, the total normal cost for the Retirement Plan would have increased by about $11.7 million and the actuarial accrued liability would have decreased by about $142.7 million. The funded ratio would have increased from 73.3% to 73.7%, on a valuation value of assets basis.

Change in Plan Liabilities
Based on June 30, 2022 Actuarial Valuation

	Current Assumptions	Proposed Assumptions	Increase / (Decrease)
Total Normal Cost	$412,247,235	$423,981,661	$11,734,426
Actuarial Accrued Liability	$24,078,751,303	$23,936,079,207	$(142,672,096)

If all of the proposed assumption changes (both economic and demographic) were implemented, the aggregate beginning-of-the-year employer contribution rate would have increased by 0.09% of payroll.

Employer Contribution Rate Impact
Based on June 30, 2022 Actuarial Valuation
(% of Payroll at Beginning of the Year)

Contributions	Increase / (Decrease)
Normal Cost	0.34%
UAAL	(0.25)%
Total	**0.09%**

Health Plan

The table below shows the changes in the total normal cost and actuarial accrued liability for the Health Plan due to the proposed assumption changes, as if they were applied in the June 30, 2022 valuation. If all of the proposed assumption changes (both economic, as recommended in Section 3 of this report, and demographic, as recommended in Section 4 of this report), were implemented, the total normal cost for the Health Plan would have increased by about $12.7 million and the actuarial accrued liability would have decreased by about $52.4 million. The funded ratio would have increased from 97.0% to 98.4%, on a valuation value of assets basis.

Change in Plan Liabilities
Based on June 30, 2022 Actuarial Valuation

	Current Assumptions	Proposed Assumptions	Increase / (Decrease)
Total Normal Cost	$81,027,749	$93,699,705	$12,671,956
Actuarial Accrued Liability	$3,580,696,288	$3,528,279,417	($52,416,871)

If all of the proposed assumption changes (both economic and demographic) were implemented, the aggregate beginning-of-the-year employer contribution rate would have increased by 0.36% of payroll.

Employer Contribution Rate Impact
Based on June 30, 2022 Actuarial Valuation
(% of Payroll at Beginning of the Year)

Contributions	Increase / (Decrease)
Normal Cost	0.52%
UAAL	(0.16)%
Total	**0.36%**

Appendix A: Current Actuarial Assumptions

Economic Assumptions

Net Investment Return:	7.00%, net of administrative and investment expenses. Expected administrative and investment expenses represent about 0.40% of the Actuarial Value of Assets.
Member Contribution Crediting Rate:	Based on average of 5-year Treasury note rate. An assumption of 2.75% is used to approximate that crediting rate.
Cost of Living Adjustment (COLA):	Retiree COLA increases of 2.75% per year for Tier 1 and 2.00% per year for Tier 3. For Tier 1 members with COLA banks, withdrawals from the bank are assumed to increase the retiree COLA to 3.00% per year until their COLA banks are exhausted.
Payroll Growth:	Inflation of 2.75% per year plus real "across the board" salary increases of 0.50% per year, used to amortize the Unfunded Actuarial Accrued Liability as a level percentage of payroll.
Increases in Internal Revenue Code Section 401(a)(17) Compensation Limit:	Increase of 2.75% per year from the valuation date.
Salary Increases:	The annual rate of compensation increase includes: • Inflation at 2.75%, plus • "Across the board" salary increases of 0.50% per year, plus • The following merit and promotion increases:

Years of Service	Rate (%)
Less than 1	6.70
1 – 2	6.50
2 – 3	5.80
3 – 4	4.00
4 – 5	3.00
5 – 6	2.20
6 – 7	2.00
7 – 8	1.80
8 – 9	1.60
9 – 10	1.50
10 & Over	1.00

Demographic Assumptions

Post-Retirement Mortality Rates:	*Healthy* • **For the Retirement Plan:** Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males, projected generationally with the two-dimensional mortality improvement scale MP-2019. • **For the Health Plan:** Pub-2010 General Healthy Retiree Headcount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males, projected generationally with the two-dimensional mortality improvement scale MP-2019. *Disabled* • **For the Retirement Plan:** Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females), with rates increased by 10% for males and decreased by 5% for females, projected generationally with the two-dimensional mortality improvement scale MP-2019. • **For the Health Plan:** Pub-2010 Non-Safety Disabled Retiree Headcount-Weighted Mortality Table (separate tables for males and females), with rates increased by 10% for males and decreased by 5% for females, projected generationally with the two-dimensional mortality improvement scale MP-2019. *Beneficiary* • **For the Retirement Plan:** Pub-2010 Contingent Survivor Amount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2019. • **For the Health Plan:** Pub-2010 Contingent Survivor Headcount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2019. The Pub-2010 mortality tables and adjustments as shown above reasonably reflect the mortality experience as of the measurement date. These mortality tables were adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

Pre-Retirement Mortality Rates:

- **For the Retirement Plan:** Pub-2010 General Employee Amount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2019.

	Rate (%)	
Age	Male	Female
20	0.04	0.01
25	0.03	0.01
30	0.03	0.01
35	0.05	0.02
40	0.06	0.04
45	0.09	0.06
50	0.14	0.08
55	0.21	0.12
60	0.30	0.19
65	0.45	0.30

Note that generational projections beyond the base year (2010) are not reflected in the above mortality rates.

For Tier 1 Enhanced, 100% of pre-retirement death benefits are assumed to be service-connected.

- **For the Health Plan:** Pub-2010 General Employee Headcount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2019.

Disability Incidence:

Age	Rate (%)
25	0.01
30	0.02
35	0.04
40	0.06
45	0.12
50	0.16
55	0.18
60	0.18
65	0.22

For Tier 1 Enhanced, 90% of disability retirements are assumed to be service-connected with service-connected disability benefits based on years of service, as follows:

Years of Service	Benefit
Less than 20	55% of Final Average Monthly Compensation
20 - 30	65% of Final Average Monthly Compensation
More than 30	75% of Final Average Monthly Compensation

For Tier 1 Enhanced, 10% of disability retirements are assumed to be nonservice-connected with nonservice-connected disability benefits equal to 40% of Final Average Monthly Compensation.

Termination:

Less than Five Years of Service

Years of Service	Rate (%)
Less than 1	11.50
1 – 2	10.00
2 – 3	8.50
3 – 4	7.75
4 – 5	7.00

Five or More Years of Service

Age	Rate (%)
25	7.00
30	6.70
35	5.30
40	3.75
45	3.10
50	3.00
55	3.00
60	3.00

No termination is assumed after a member is eligible for retirement (as long as a retirement rate is present).

Retirement Rates:	(see table below)

Age	Tier 1 Non-55/30	Tier 1 55/30	Tier 1 Enhanced Non-55/30	Tier 1 Enhanced 55/30	Tier 3 Non-55/30	Tier 3 55/30
	Rate (%)					
50	5.0	0.0	7.0	0.0	5.0	0.0
51	3.0	0.0	5.0	0.0	3.0	0.0
52	3.0	0.0	5.0	0.0	3.0	0.0
53	3.0	0.0	5.0	0.0	3.0	0.0
54	18.0	0.0	20.0	0.0	17.0	0.0
55	6.0	27.0	8.0	30.0	0.0(1)	26.0
56	6.0	18.0	8.0	22.0	0.0(1)	17.0
57	6.0	18.0	8.0	22.0	0.0(1)	17.0
58	6.0	18.0	8.0	22.0	0.0(1)	17.0
59	6.0	18.0	8.0	22.0	0.0(1)	17.0
60	7.0	18.0	9.0	22.0	6.0	17.0
61	7.0	18.0	9.0	22.0	6.0	17.0
62	7.0	18.0	9.0	22.0	6.0	17.0
63	7.0	18.0	9.0	22.0	6.0	17.0
64	7.0	18.0	9.0	22.0	6.0	17.0
65	14.0	21.0	16.0	26.0	13.0	20.0
66	14.0	21.0	16.0	26.0	13.0	20.0
67	14.0	21.0	16.0	26.0	13.0	20.0
68	14.0	21.0	16.0	26.0	13.0	20.0
69	14.0	21.0	16.0	26.0	13.0	20.0
70 & Over	100.0	100.0	100.0	100.0	100.0	100.0

(1) Not eligible to retire under the provisions of the Tier 3 plan at these ages with less than 30 years of service. If a member has at least 30 years of service at these ages, they would be subject to the “55/30” rates.

Retirement Age and Benefit for Inactive Vested Members	Pension benefit paid at the later of age 59 or the current attained age. For reciprocals, 4.25% compensation increases per annum.
Other Reciprocal Service:	5% of future inactive vested members will work at a reciprocal system.
Service:	Employment service is used for eligibility determination purposes. Benefit service is used for benefit calculation purposes.
Future Benefit Accruals:	1.0 year of service credit per year.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Form of Payment:	All active and inactive Tier 1 and Tier 3 members who are assumed to be married or with domestic partners at retirement are assumed to elect the 50% Joint and Survivor Cash Refund Annuity. For Tier 1 Enhanced, the continuance percentage is 70% for service retirement and nonservice-connected disability, and 80% for service-connected disability. Those members who are assumed to be unmarried or without domestic partners are assumed to elect the Single Cash Refund Annuity.
Percent Married / Domestic Partner:	For all active and inactive members, 76% of male members and 52% of female members are assumed to be married or with domestic partner at pre-retirement death or retirement.
Age and Gender of Spouse:	For all active and inactive members, male members are assumed to have a female spouse who is 3 years younger than the member and female members are assumed to have a male spouse who is 2 years older than the member.

Retiree Health Assumptions

Participation

Service Range (Years)	Participation for Future Retirees Under 65
10–14	60%
15–19	80
20–24	90
25 and over	95

Age and Gender of Spouse/Domestic Partner: For all non-retired members, male members are assumed to have a female spouse or domestic partner who is 4 years younger than the member and female members are assumed to have a male spouse or domestic partner who is 2 years older than the member.

Spousal/Domestic Partner Coverage Of future retirees receiving a medical subsidy 60% of males and 35% of females are assumed to elect coverage for married and surviving spouses or domestic partners. For those retired on valuation date with a subsidy, spousal or domestic partner coverage is based on census data.

Appendix B: Proposed Actuarial Assumptions

Economic Assumptions

Net Investment Return:	7.00%, net of administrative and investment expenses. Expected administrative and investment expenses represent about 0.20% of the Actuarial Value of Assets.
Member Contribution Crediting Rate:	Based on average of 5-year Treasury note rate. An assumption of 2.50% is used to approximate that crediting rate.
Cost of Living Adjustment (COLA):	Retiree COLA increases of 2.75% per year for Tier 1 and 2.00% per year for Tier 3. For Tier 1 members with COLA banks, withdrawals from the bank are assumed to increase the retiree COLA to 3.00% per year until their COLA banks are exhausted.
Payroll Growth:	Inflation of 2.50% per year plus real "across the board" salary increases of 0.50% per year, used to amortize the Unfunded Actuarial Accrued Liability as a level percentage of payroll.
Increases in Internal Revenue Code Section 401(a)(17) Compensation Limit:	Increase of 2.50% per year from the valuation date.
Salary Increases:	The annual rate of compensation increase includes: • Inflation at 2.50%, plus • Real "across the board" salary increases of 0.50% per year, plus • The following merit and promotion increases:

Years of Service	Rate (%)
Less than 1	6.00
1 – 2	5.90
2 – 3	5.40
3 – 4	4.20
4 – 5	3.50
5 – 6	2.80
6 – 7	2.50
7 – 8	2.10
8 – 9	1.80
9 – 10	1.60
10 – 11	1.50
11 – 12	1.40
12 – 13	1.30
13 – 14	1.20
14 – 15	1.10
15 & Over	1.00

Demographic Assumptions

Post-Retirement Mortality Rates:	*Healthy* • **For the Retirement Plan:** Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males, projected generationally with the two-dimensional mortality improvement scale MP-2021. • **For the Health Plan:** Pub-2010 General Healthy Retiree Headcount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males, projected generationally with the two-dimensional mortality improvement scale MP-2021. *Disabled* • **For the Retirement Plan:** Pub-2010 Non-Safety Disabled Retiree Amount-Weighted Mortality Table (separate tables for males and females), with rates increased by 5% for males and decreased by 5% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021. • **For the Health Plan:** Pub-2010 Non-Safety Disabled Retiree Headcount-Weighted Mortality Table (separate tables for males and females), with rates increased by 5% for males and decreased by 5% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021. *Beneficiaries not Currently in Pay Status* • **For the Retirement Plan:** Pub-2010 General Healthy Retiree Amount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males, projected generationally with the two-dimensional mortality improvement scale MP-2021. • **For the Health Plan:** Pub-2010 General Healthy Retiree Headcount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males, projected generationally with the two-dimensional mortality improvement scale MP-2021. *Beneficiaries Currently in Pay Status* • **For the Retirement Plan:** Pub-2010 Contingent Survivor Amount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 5% for males and increased by 10% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021. • **For the Health Plan:** Pub-2010 Contingent Survivor Headcount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 5% for males and increased by 10% for females, projected generationally with the two-dimensional mortality improvement scale MP-2021. The Pub-2010 mortality tables and adjustments as shown above reasonably reflect the mortality experience as of the measurement date. These mortality tables were adjusted to future years using the generational projection to reflect future mortality improvement between the measurement date and those years.

Pre-Retirement Mortality Rates:

- **For the Retirement Plan:** Pub-2010 General Employee Amount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2021.

	Rate (%)	
Age	**Male**	**Female**
20	0.04	0.01
25	0.03	0.01
30	0.03	0.01
35	0.05	0.02
40	0.06	0.04
45	0.09	0.06
50	0.14	0.08
55	0.21	0.12
60	0.30	0.19
65	0.45	0.30

Note that generational projections beyond the base year (2010) are not reflected in the above mortality rates.

For Tier 1 Enhanced, 100% of pre-retirement death benefits are assumed to be service-connected.

- **For the Health Plan:** Pub-2010 General Employee Headcount-Weighted Above-Median Mortality Table (separate tables for males and females), with rates increased by 10% for males and females, projected generationally with the two-dimensional mortality improvement scale MP-2021.

Disability Incidence:

Age	Rate (%)
25	0.01
30	0.02
35	0.03
40	0.05
45	0.10
50	0.14
55	0.15
60	0.16
65	0.20

For Tier 1 Enhanced, 90% of disability retirements are assumed to be service-connected with service-connected disability benefits based on years of service, as follows:

Years of Service	Benefit
Less than 20	55% of Final Average Monthly Compensation
20 - 30	65% of Final Average Monthly Compensation
More than 30	75% of Final Average Monthly Compensation

For Tier 1 Enhanced, 10% of disability retirements are assumed to be nonservice-connected with nonservice-connected disability benefits equal to 40% of Final Average Monthly Compensation.

Termination:

Years of Service	Rate (%)
Less than 1	10.50%
1 – 2	10.00%
2 – 3	9.00%
3 – 4	7.75%
4 – 5	6.25%
5 – 6	5.25%
6 – 7	5.00%
7 – 8	4.75%
8 – 9	4.50%
9 – 10	4.25%
10 – 11	4.00%
11 – 12	3.75%
12 – 13	3.50%
13 – 14	3.00%
14 – 15	2.75%
15 and over	2.50%

No termination is assumed after a member is eligible for retirement (as long as a retirement rate is present).

Retirement Rates:

	Rate (%)					
	Tier 1		Tier 1 Enhanced		Tier 3	
Age	Non-55/30	55/30	Non-55/30	55/30	Non-55/30	55/30
50	5.0	0.0	6.0	0.0	5.0	0.0
51	3.0	0.0	5.0	0.0	3.0	0.0
52	3.0	0.0	5.0	0.0	3.0	0.0
53	3.0	0.0	5.0	0.0	3.0	0.0
54	18.0	0.0	18.0	0.0	17.0	0.0
55	6.0	27.0	10.0	30.0	0.0(1)	26.0
56	6.0	18.0	10.0	22.0	0.0(1)	17.0
57	6.0	18.0	10.0	22.0	0.0(1)	17.0
58	6.0	18.0	10.0	22.0	0.0(1)	17.0
59	6.0	18.0	10.0	22.0	0.0(1)	17.0
60	9.0	18.0	11.0	22.0	8.0	17.0
61	9.0	18.0	11.0	22.0	8.0	17.0
62	9.0	18.0	11.0	22.0	8.0	17.0
63	9.0	18.0	11.0	22.0	8.0	17.0
64	9.0	18.0	11.0	22.0	8.0	17.0
65	16.0	21.0	20.0	26.0	15.0	20.0
66	16.0	21.0	20.0	26.0	15.0	20.0
67	16.0	21.0	20.0	26.0	15.0	20.0
68	16.0	21.0	20.0	26.0	15.0	20.0
69	16.0	21.0	20.0	26.0	15.0	20.0
70 & Over	100.0	100.0	100.0	100.0	100.0	100.0

(1) Not eligible to retire under the provisions of the Tier 3 plan at these ages with less than 30 years of service. If a member has at least 30 years of service at these ages, they would be subject to the "55/30" rates.

Retirement Age and Benefit for Inactive Vested Members	Pension benefit paid at the later of age 60 or the current attained age for members retiring from deferred status and at the later of age 59 or the current attained age for members retiring from reciprocal status. For reciprocals, 4.00% compensation increases per annum.
Other Reciprocal Service:	5% of future inactive vested members will work at a reciprocal system.
Service:	Employment service is used for eligibility determination purposes. Benefit service is used for benefit calculation purposes.
Future Benefit Accruals:	1.0 year of service credit per year.
Unknown Data for Members:	Same as those exhibited by members with similar known characteristics. If not specified, members are assumed to be male.
Form of Payment:	All active and inactive Tier 1 and Tier 3 members who are assumed to be married or with domestic partners at retirement are assumed to elect the 50% Joint and Survivor Cash Refund Annuity. For Tier 1 Enhanced, the continuance percentage is 70% for service retirement and nonservice-connected disability, and 80% for service-connected disability. Those members who are assumed to be unmarried or without domestic partners are assumed to elect the Single Cash Refund Annuity.
Percent Married / Domestic Partner:	For all active and inactive members, 76% of male members and 52% of female members are assumed to be married or with domestic partner at pre-retirement death or retirement.
Age and Gender of Spouse:	For all active and inactive members, male members are assumed to have a female spouse who is 3 years younger than the member and female members are assumed to have a male spouse who is 2 years older than the member.

Retiree Health Assumptions

Participation	*(see table below)*

Service Range (Years)	Participation for Future Retirees Under 65
10–14	60%
15–19	80
20–24	90
25 and over	95

Age and Gender of Spouse/Domestic Partner:	For all non-retired members, male members are assumed to have a female spouse or domestic partner who is 4 years younger than the member and female members are assumed to have a male spouse or domestic partner who is 2 years older than the member.
Spousal/Domestic Partner Coverage	Of future retirees receiving a medical subsidy 60% of males and 35% of females are assumed to elect coverage for married and surviving spouses or domestic partners. For those retired on valuation date with a subsidy, spousal or domestic partner coverage is based on census data.

5763443v8/05806.136

LACERS
LA CITY EMPLOYEES' RETIREMENT SYSTEM

REPORT TO THE BOARD OF ADMINISTRATION **MEETING: June 27, 2023**
From: Neil M. Guglielmo, General Manager **ITEM: XI-B**

SUBJECT: **STATUS OF LACERS IMPLEMENTATION PLAN AS IT RELATES TO RECOMMENDATIONS PROVIDED IN THE CITY'S 2022 MANAGEMENT AUDIT AND POSSIBLE BOARD ACTION**

ACTION: ☒ CLOSED: ☐ CONSENT: ☐ RECEIVE & FILE: ☒

Recommendations

That the Board of Administration:

1. Consider and approve LACERS implementation plan status as it relates to recommendations provided in the City's 2022 Management Audit.

2. Receive and file LACERS implementation plan status, as noted under item 1 above.

Executive Summary

The Los Angeles City Charter (Section 1112) requires the City through the Mayor, Council and the Controller (Joint Administrators) to jointly conduct a Management Audit of LACERS every five years. The purpose of the Management Audit is to examine whether LACERS is operating in the most efficient and effective manner.

In July 2022, the City's Joint Administrators issued a LACERS Management Audit Report which covered the period 2013 through 2021. The audit found that LACERS was generally operating in an efficient and effective manner and highlighted many positive aspects relating to LACERS operations (*under Findings and Recommendations below*). It proposed a total of ten recommendations addressed to LACERS plus 2 recommendations addressed to the City, which was a significant improvement over the last two Management Audits.

The first City's LACERS Management Audit was issued in November 2007 with a total of 142 recommendations, followed in 2014 by its second Management Audit with a total of 41 recommendations.

Last year, a Board-approved Implementation Plan was submitted by LACERS to the City in response to its recently concluded 2022 Management Audit.

Annually thereafter, LACERS is required to submit a status update of its previously submitted Implementation Plan as part of the City's follow-up program. This requirement is due every end of June, or until all recommendations have been implemented.

The implementation status of the City's recommendations is shown in the table below. Details can be found in the Findings & Recommendations Section of this report.

AUDIT AREAS	RECOMMENDATION	IMPLEMENTED	IN PROGRESS	DIRECTED TO THE CITY
INVESTMENT	7	4	3	
GOVERNANCE	2		2	
ADMINISTRATION	1		1	
OTHER RECOMMENDATIONS	2			2
TOTAL FOR 2022 AUDIT	**12**	**4**	**6**	**2**
TOTAL FOR PRIOR 2014 AUDIT	**41**	**40**		**1**

Discussion

The City's 2022 Management Audit assessed LACERS in the following broad areas:

- Actuarial Methods, Assumptions, Funding, and Innovative Strategies
- Investment Performance/Asset Allocation
- Economy and Efficiency of Administration/Management of the System
- Governance
- Progress towards Prior Management Audit Recommendations

FINDINGS AND RECOMMENDATIONS

I. *Actuarial Methods, Assumptions, Funding, and Innovative Strategies*

The management audit found that:

- LACERS' annual actuarial valuation utilizes sound actuarial assumptions and methods and is refined through its regular process of actuarial experience studies every 3 years.

- LACERS has been prudently managing its cybersecurity risks and has recently initiated an independent review of its cybersecurity program to assess the maturity of its security controls.

Areas for improvement:

LACERS could benefit from a comprehensive Securities Lending Program and Agent Oversight service. The oversight service should detail how to best mitigate risks with a well-defined, customized program overseen to operate in accordance with the 'spirit' of the fund's appropriate guidelines.

Oversight should include several public pension fund specific topical reports performed over the course of a year including:

- A detailed annual agent due diligence,
- An analysis for performance optimization and risk mitigation enhancement,
- A performance and benchmarking analysis, and
- A quarterly evaluation of, and compliance with, detailed Key Performance Indicators (KPIs), that should cover the most detailed facets of a lender and the client's program,
- Periodic updates to a board or committee.

Oversight should analyse the risk/reward trade-offs between collateral options, structures, and guidelines for the assets while optimizing parameters that are in the client's, versus the lender's, best interest.

The Management Audit recommends to:

1. **Review whether securities lending and agent oversight could result in opportunity cost savings.**

LACERS implementation plan:

LACERS staff and its general investment fund consultant will conduct a review of the Securities Lending Program (SLP) and Policy, and the Program structure relying on recommendations provided by AON and other best industry practices to determine and implement improved oversight procedures of the Securities Lending Program and the SLP Agent in order to realize better performance, cost efficiencies, and risk mitigation.

Current Status: Implemented

"LACERS staff and consultant conducted thorough reviews of the Securities Lending Program (SLP) and LACERS' custom Cash Collateral Investment and Non-Cash Collateral Guidelines in 2020, 2021, and 2022. As a result, the SLP guidelines were revised to minimize risk in light of a volatile market environment and rising interest rates by emphasizing high quality, short duration securities, staff and consultant believe the current low risk-return profile of LACERS SLP continues to be appropriate in light of bearish market outlook. Staff also conducts quarterly due diligence reviews with the Northern Trust, the SLP agent, and reviews monthly reports on the program. Accordingly, staff believes that there would be minimal benefit from hiring an SLP oversight service. The SLP and agent will be reevaluated in the forthcoming Master Custody and Securities Lending RFP, which will be launched in early FY2023-24, subject to Board approval."

II. Investment Performance/Asset Allocation

The management audit found that:

- LACERS' investment portfolio is producing favorable risk adjusted returns (net of fee) relative to its peer public funds and its benchmark.
- Asset and Liability Management Process of balancing investment risks and returns relative to the allocation of Investment Assets is working effectively and well in-line with the best practice.
- LACERS has implemented passive investment mandates to a larger extent than its peers. It continuously looks for opportunities to shift more to passive management when and where appropriate.

Areas for improvement:

LACERS has formally performed cost benefit analysis of active vs. passive management during the scope period. However, they were not performed as frequently as required by the IPM. Ongoing reviews of active vs. passive are a component of good governance, but a review cycle does not have to be articulated in policy.

The Management Audit recommends to:

2. **Create a formal procedure to ensure governance processes articulated in the policy are completed on the mandated cycle.**

LACERS implementation plan:

Staff will review the Investment Policy Statement (IPS) to ensure that staff has included all pertinent IPS deadlines in the existing Investment Division Operational Planning Calendar.

Current Status: Implemented

"Staff has reviewed the IPS for date-driven policy items and has incorporated them in the existing Investment Division Operational Planning Calendar."

Areas for improvement:

LACERS is in compliance with the mandated statutory investment requirements regarding the IPS. However, based on a review of the most recent investment policy statement, dated May 25, 2021, it was determined that the Policy does not define applicable statutory requirements that are to be followed by the System.

The Management Audit recommends that:

3. **All federal, state, and local legal requirements be explicitly stated together with the IPS.**

LACERS implementation plan:

Staff will work with the City Attorney staff to ensure that all federal, state, and local laws applicable to LACERS are clearly stated and defined and consider consolidation of such laws in appropriate sections of the IPS.

Current Status: In-Progress

"Staff intends bringing forth proposed revisions, if any, to the Investment Committee as part of the annual policy review scheduled for the August 13, 2023 Investment Committee meeting."

Areas for improvement:

The audit finds the annual and ad hoc process used to adopt, monitor, periodically review, and update the IPS to be robust. The process includes numerous individuals inside the System and typically includes a review by counsel and the applicable investment consultant. The process could be enhanced by including a required review by external counsel and the applicable investment consultant.

The Management Audit recommends to:

4. **Add language to the IPS that states all modification to the document are to be reviewed by the applicable consultant as well as fiduciary counsel prior to being presented to the Board.**

LACERS implementation plan:

Staff can begin implementation of this recommendation immediately to ensure that the appropriate investment consultant and City Attorney have reviewed draft policy amendments prior to its presentation to the Investment Committee and Board. Staff will consider the appropriateness of attaching separate memos from the investment consultant and City Attorney depending on the nature, complexity, and gravity of the policy amendment.

Current Status: In-Progress

"Staff began implementing the practice of seeking appropriate investment consultant and City Attorney review of draft policy amendments in the third quarter of 2022 when the Unique Investment Opportunities Policy was presented and approved by the Board. Staff will propose policy language to codify this practice in the IPS as part of the annual policy review by the Investment Committee tentatively scheduled for the August 13, 2023 meeting.

5. **Consider including a memo from the applicable consultant and fiduciary counsel for all amendments of the IPS. The memo would articulate and document their agreement or disagreement with the proposed changes.**

LACERS implementation plan:

Closely related to Implementation Plan under Recommendation 4 above, staff can begin implementation of this recommendation immediately. However, staff will first consult with the City Attorney to conduct a legal assessment of substantial and material policy amendments and wait to be further directed for additional policy review by fiduciary counsel, as deemed appropriate.

Current Status: Implemented

"As discussed in the implementation plan for item 4, staff considered the appropriateness of attaching separate memos from the investment consultant and City Attorney on a case-by-case basis depending on the nature, complexity, and gravity of the proposed policy amendment."

Areas for improvement:

LACERS generally has appropriate controls and procedures in place to regularly review compliance with its policies. Having this function performed by the custodian and the applicable investment consultants is in-line with common practice. However, creation of a governance calendar could assist the Board and Staff in ensuring compliance with the policy.

The Management Audit recommends to:

6. **Consider the creation of a compliance calendar to facilitate the oversight of compliance with the governance items articulated within the IPS.**

LACERS implementation plan:

Staff will gather all time-sensitive compliance requirements and integrate such requirements into the existing Investment Division Operational Planning Calendar.

Current Status: Implemented

"As discussed in Item 2, staff has reviewed the IPS for date-driven policy items and has incorporated them in the existing Investment Division Operational Planning Calendar."

Areas for improvement:

The Audit finds the current policy and process of rebalancing followed by Staff to be in line with best practice. The use of the TAAP is less common in the industry, but given it is primarily intended to reduce active risk, the audit finds it acceptable for its use. The transparency to the Board provides adequate detail on the rationale for rebalancing and the actions taken. It is typical for institutional investors to include the detail within their IPS and as such, audit recommends LACERS to consider adding it to their IPS.

The Management Audit recommends to:

7. **Consider including policy targets and ranges within the IPS.**

LACERS implementation plan:

Staff and Board will review the appropriateness of including the current Asset Allocation Policy in the IPS versus referencing the current Asset Allocation Policy (which is subject to changes every several years), which is produced by the General Investment Fund Consultant.

Current Status: In-Progress

"The IPS currently includes asset allocation policy targets. Staff will propose incorporating policy target ranges in the IPS to the Investment Committee as part of the annual policy review scheduled for the August 13, 2023 Investment Committee meeting."

III. Administration/Management of the System

The management audit found that:

- Investment management expenses and administrative expenses are consistent with other Public Funds' expenses.
- Investment management expenses increase over the scope period was commensurate with the increase in Asset Under Management (AUM).
- Administrative expenses increase over the scope period was primarily driven by the beginning, in 2015, of required employer contributions shared by LACERS for its employees' retirement and postemployment health care benefits. While the increase in 2020 was brought about by building expenses related to LACERS newly acquired building and finally, the increase in 2021 was due to increase in personnel expenses related to implementing the City's separation incentive programs.

Areas for improvement:

A potential cost sharing opportunity could be explored through a group purchase of management liability insurance. By joining as a group through one broker, the Systems could contact the markets as a group, rather than individually, and obtain cheaper insurance rates. The management liability insurance could include primary and excess fiduciary liability, directors' and officers' liability, employment practices liability, cyber and crime as determined by each System. Each System would obtain its own policy with their own limits and the Systems would not pool or share risk. This arrangement has successfully been utilized by other retirement systems and has resulted in cost savings for each system that was part of the group.

The Management Audit recommends to:

8. **Explore additional cost sharing arrangements LAFPP and WPERP regarding management liablity insurance.**

LACERS implementation plan:

LACERS has already reached out to LAFPP and WPERP to share management liability insurance information and recommended to engage an insurance broker to review the Systems collective policies for cost-sharing opportunity.

Current Status: In Progress

"Since April 2022, LACERS and LAFPP have been in contact about cost-sharing for insurance, but WPERP has not participated in correspondence or meetings. LACERS and LAFPP have shared information about their respective organizations with LACERS insurance vendor, Allied Insurance Services. Some preliminary discussions have taken place, but further discussions will be necessary to work out details such as a mutual broker, costs, exposure to risk, liability coverage levels, and potentially timing of cutover. Although the organizations are similar in terms of function, there may be significant differences or other considerations that may not necessarily result in cost savings. Once staff review and analyze the various factors, LACERS and LAFPP will present their findings and potential arrangements to the respective Boards for review and approval."

IV. Governance

The management audit found that:

- LACERS has adhered to best practices by adopting a board governance manual.
- LACERS Board Governance Manual is thorough with clear delineation of roles and responsibilities and serves as an important source demonstrating the sound governance structure exercised by LACERS.
- LACERS follows best practice in transparency by posting the Board Governance Manual on its public website.

Areas for improvement:

LACERS has most of the policies in comparison with the industry standards. The chart below compares the LACERS policies with the best practice policies.

Best Practices Policies List	Policy Exists
1. Reference to governing laws and charters	√
2. Ethics policy	√
3. Conflicts of interest and disclosure policy	√
4. Board meeting protocol	√
5. Delegation policy	**Written Delegations of Authority**
a. Responsibilities of the Board	√
b. Responsibilities of the Executive Director/General Manager	√
6. Investment policy. Examples of key provisions	√
a. Investment goals and objectives	√
b. Identification of Roles and Responsibilities	√
c. Asset Allocation	√
d. Asset class guidelines and benchmarks	
e. Rebalancing policy	√
f. Monitoring and reporting	√
g. Securities litigation policy	√
h. Proxy policy	√
i. Insider trading policy	**Reference**
j. Personal trading policy	
k. Placement agent policy	√
7. Budget approval policy	**Reference**
8. Legislative policy	√
9. Customer service policy	**Reference**
10. Communication policy	√
11. Procurement policy	√
12. Audit policy	√
13. Board member education policy	√
14. Board travel policy, including approval process	√
15. Staff compensation policy	
16. Strategic planning and implementation policy	√
17. Succession planning policy	
18. Risk management policy	**Reference**
19. Whistleblower policy	**Reference**
20. Disaster recovery/Business continuity policy	√
21. Cybersecurity policy	**Information Security Policy**
22. Board self-evaluation policy	
23. Executive Director/General Manager evaluation policy	**Reference**
24. Service provider evaluation policy	
a. Investment consultant	
b. Legal counsel	
c. Actuary	
25. Reporting and monitoring policy	
26. List of routine reports provided to the Board	
27. Board Operating Policy and Procedures	√
a. Benefits Administration	√

b. Benefits Processing	√
c. Benefits hearing	√
28. Funding Policy	√
Schedule of Policy Review Frequency and Amendments	√

The Management Audit recommends to:

9. **Consider adoption of the best practice policies that have not been adopted listed in the chart above. Furthermore, LACERS should consider adding references to existing policies that are not contained in the Board Governance Manual itself.**

LACERS implementation plan:

LACERS will bring forward the recommended best practice policies and reference the associated policies, for consideration by the Board.

Current Status: In Progress

"LACERS is in process of conducting a comprehensive Board Governance Manual review with LACERS Board of Administration which is expected to span into Fall 2023. In that process, as appropriate, recommendations for Best Practices Policy List will be introduced. Policies not addressed directly in the course of this review will be subsequently brought to the Board. Some policy items may merit Board Governance consulting expertise. LACERS is currently seeking to establish a list of consultants to assist with Board Governance Consulting Services with a Request for Qualifications (RFQ). The deadline to submit proposals is May 29, 2023. With this RFQ, pending budget in FY25 and Board approval LACERS intends to issue task orders to obtain consultant assistance with further advising LACERS' Board as necessary."

Areas for improvement:

The Board and Staff are mindful of the board's oversight role and have adopted many prudent ways to enable the Board to exercise this role. To further enable the Board's oversight role, management audit recommends the adoption of a Reporting and Monitoring Policy that sets forth the Board's expectation of regular reporting, and a schedule of routine reports provided to the Board. It also recommends that LACERS do a Reporting and Monitoring verification process on an annual basis to ensure that the regular reporting has been completed. Many other public pension systems use these methods, such as sister system LAFPP.

The Management Audit recommends to:

10. **Adopt a Reporting and Monitoring Policy as described above and conduct an annual Reporting and Monitoring verification report to the Board.**

LACERS implementation plan:

LACERS will bring forward a Reporting and Monitoring Policy for consideration by the Board.

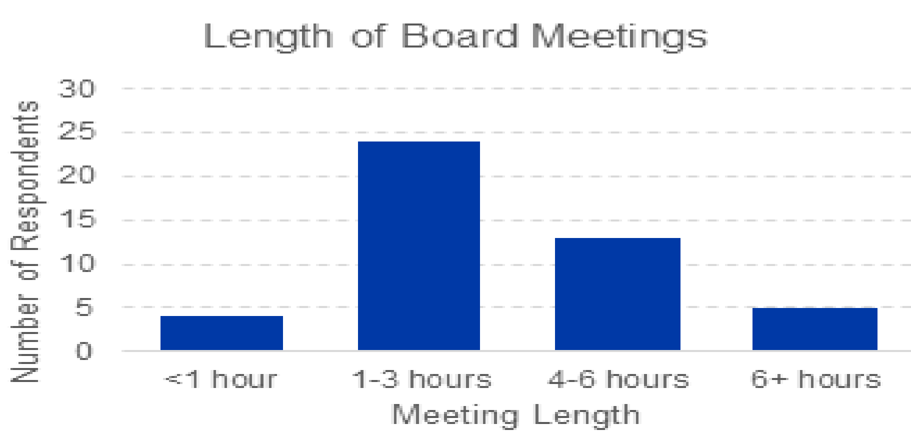
Current Status: In Progress

"LACERS currently uses various software solutions to track and monitor routine reports to the Board. Staff will prepare a list with timelines to track routine reports for usage by the Board to monitor the status of recurring items upon completion of the comprehensive Board Governance Manual review."

V. *Other Recommendations*

The management audit found that:

- LACERS does not have an ability to independently decide on the frequency and timing of its board meetings. Surveys conducted by the National Association of State Retirement Administrators (NASRA) wherein Forty-eight systems in a thirty-seven different states responded, showed that 14 systems reported that their governing boards meet monthly, 7 meet bimonthly, and 17 meet quarterly. Others meet between 5-10 times per calendar year. Also, surveys showed that the typical length of board meetings is as follows:



LACERS board is required to meet at least twice a month, pursuant to City Charter Section 503(b). This is not typical of current practices and trends. Meeting so often requires a significant amount of Board and staff time and resources. When interviewed, LACERS board members did not necessarily see a need to meet less often and did not want longer board meeting days either, as a result of cutting back on meeting twice a month.

The Management Audit Recommends that:

- The City consider changing the City Charter to permit LACERS independence to determine the frequency and timing of LACERS board meetings.

Current Status: Direct Recommendation to the City

"LACERS is proposing to direct this recommendation to the City."

The management audit found that:

- LACERS is subject to the City's classifications of positions and salary structure. Interviews of LACERS staff revealed that at times the classifications do not adequately cover the job being performed at the retirement system. Not having an independent salary compensation structure could cause problems with professional and investment staff being underpaid according to market, which can directly affect recruiting and retention efforts.

The Management Audit Recommends that:

- The City amend the City Charter to give LACERS independent authority regarding LACERS staff hiring and compensation.

Current Status: Direct Recommendaton to the City

"LACERS is proposing to direct this recommendation to the City."

VI. Progress towards Prior Management Audit Recommendations

The management audit found that:

- The LACERS Board promptly and thoroughly considered every recommendation provided in the 2014 Management Audit Report.

- Of the 41 Recommendations provided in the 2014 Management Audit Report, this recent management audit confirmed that 40 have been implemented (including 7 approved to maintain status quo). The remaining one recommendation was addressed to the City to amend the City Charter, details shown in the last bullet or recommendation #15.

- Recommendation #25- the Audit agrees in part. Recommendation #25 provides that LACERS establish a Monitoring and Reporting Policy, Strategic/Business Planning Policy, and a GM Performance Evaluation Policy. LACERS has adopted the Strategic Planning Policy and GM Performance Evaluation Policy but has not adopted a Monitoring and Reporting Policy. This is one of the 40 recommendations considered implemented under 2nd bullet above, with a portion of this recommendation re-introduced in the recent management audit under recommendation 10.

Current Status: Implemented

"LACERS management has adopted the Strategic Planning Policy and GM Performance Evaluation Policy. The portion related to adopting a Monitoring and Reporting Policy was re-introduced as a recommendation in the City's most recent management audit issued in 2022 under recommendation 10. That recommendation is in progress."

- Recommendation #21 recommended that the Board consider delegating the entire investment selection process to Staff, subject to Board-approved parameters, selection criteria, and relevant internal controls. There has been some delegation to Staff relative to private equity. This is one of the 40 implemented recommendations, specifically one of 7recommendations proposed for status quo, under 2nd bullet above.

Current Status: Implemented

"LACERS management has partially implemented this recommendation and is proposing to the Board to maintain the status quo or keep things the way they presently are."

- Recommendation #15 recommended that LACERS should propose to the City Council that the City Charter be amended to grant the Board full authority to administer the System subject to fiduciary standards relative to the System's own independence, including staff compensation and hiring policy, and setting the number and timing of board meetings. LACERS responded that the Recommendation is better directed to the City. This recommendation was re-introduced in the recent City's management audit under other recommendation.

Current Status: Direct Recommendation to the City

"LACERS is proposing to direct this recommendation to the City."

Follow-Up

As part of the Controller's follow-up program, Internal Audit will continue to track and periodically update the Audit Committee on the implementation status of each of the recommendations contained in the City's Management Audit Report dated July 20, 2022.

Prepared By: Maria Melani Rejuso, Departmental Audit Manager

NMG/MR

Attachment:

1. City's 2022 Management Audit Report of the Los Angeles City Employees' Retirement System (LACERS).

Attachment 1

Final Management Audit Report

Los Angeles City Employees' Retirement System

July 1, 2022

Empower Results®

Table of Contents

Background

Introduction

The Los Angeles City Employees' Retirement System (System or LACERS) was established by the City of Los Angeles (City) in 1937 and operates under the provisions of the Los Angeles City Charter and Administrative Code. The System is a single employer public employee retirement system whose main function is to provide retirement benefits to civilian employees of the City of Los Angeles. The City Charter grants authority to the Board of Administration, General Manager, and Staff to administer a multi-tiered defined benefit retirement plan for approximately 25,200 active and 22,000 retired City of Los Angeles employees. Benefits are based on the member's pension tier, age, years of service, and final average salary.

For the year ending June 30, 2021, LACERS paid approximately $1.2 billion in annual benefits to approximately 22,000 retirees and beneficiaries. The average monthly per retiree/beneficiary benefit amount paid was $4,304. As of June 30, 2021, plan tiers included Tier 1, Tier 1 Enhanced and Tier 3.

The LACERS portfolio of investments that provided support for these benefits payments was valued at approximately $22.2 billion as of June 30, 2021. Investment management expense was $100 million over this same period. LACERS has 173 positions, with an administrative expense of $34.3 million.

Section 1112 of the Los Angeles City Charter requires the City, through the Mayor, Council and Controller (Joint Administrators), to jointly conduct a Management Audit of LACERS every five years. The purpose of the Management Audit is to examine whether LACERS is operating in the most efficient and effective manner. The Management Audit also requires an evaluation of LACERS' allocation of assets.

Aon Investments USA Inc. (Aon) was retained by the City through a competitive bidding process to conduct the LACERS Management Audit. The Agreement between Aon and the City of Los Angeles establishes that the Management Audit covers the time period 2013 to September 30, 2021[1].

The full Scope of Work, including the specific methodology for each of these objectives, is defined by the Agreement between the City of Los Angeles and Aon.

The stages undertaken in developing this Report included document collection, analyses, interviews and discussions, research and report drafting. LACERS and the Joint Administrators provided comments on both our preliminary observations and draft version of the Report. This Final Report takes into account all relevant comments and represents Aon's independent full findings, analysis, conclusions, and recommendations for enhancements.

[1] September 20, 2021 is the contract attestation date.

Disclaimer

The findings in our Report are based upon the information we received, which we presumed to be accurate and could be relied upon. We sought to verify certain information among different interviewees and the documents reviewed, but the process of cross-checking and verification was limited. We were not retained to detect or investigate fraud, concealments, or misrepresentations, or to conduct a legal investigation or otherwise use judicial processes or evidentiary safeguards in developing the Report.

This Report does not, and is not intended to, provide legal advice. Although the Report considers various legal matters, Aon's findings and recommendations are not intended to provide legal interpretations, legal conclusions, or legal advice. For that reason, action upon legal matters should not be taken without obtaining legal advice addressing the appropriate statutory or regulatory interpretation regarding such matters.

Acknowledgements

Aon thanks the Joint Administrators for their time, diligence, and feedback throughout this project. We also thank the LACERS Board and Staff for their time, cooperation, feedback, and openness.

Executive Summary

This Executive Summary is an abridged version of the key findings and recommendations contained in the Report. It is a high-level summary and is not intended as a replacement for the full Report. We encourage readers to examine the full Report as it provides the technical support for the key findings and recommendations. A recommendation matrix, which aggregates all the recommendations that appear in the Report, can be found at the end of this Executive Summary, and in the Appendix.

An overview of key findings and recommendations for the main sections of the Report is highlighted below.

Actuarial Methods, Assumptions & Funding

Financial sustainability of the pension plan is rooted in three (3) primary drivers:

1. accurate calculations of plan liabilities;
2. thoughtful investment strategy; and
3. sound actuarial contribution policy along with a commitment to such funding.

Accurate Calculations of Plan Liabilities

To understand the numerical values associated with the pension plan (e.g., actuarial liability, funded ratio, contribution levels), one must first evaluate the assumptions and methods used to derive them.

Pension plans are subject to numerous assumptions, both economic and demographic, that impact the calculation of the liability and, by extension, the funding calculations. Optimal management of pension plans necessitates having defined procedures in place to determine if adjustments to those assumptions are needed. The goal is to increase the predictability of the calculations and, as best possible, avoid surprises.

We believe that the plan actuary is relying on actuarial standards of practice in setting assumptions for LACERS. Those assumptions, highlighted by the investment return assumption, are in-line with U.S. public pension peers. Additionally, the plan actuary conducts an actuarial experience study every three years to assess how actual plan experience has differed from assumptions and whether adjustments to those assumptions are needed in the actuarial valuations.

Thoughtful Investment Strategy

Overall, the System's assets and liabilities work in tandem with one another in determining future funded ratio calculations and contribution rates.

LACERS has conducted regular asset-liability studies – a comprehensive study that models the possible future results of different asset allocations under a variety of market conditions – to analyze the risk/reward merits of its investment strategy. Understanding how an asset allocation and its range of future outcomes will impact contribution rates, funded ratio, and net cash flows allows stakeholders to make informed decisions to set the Plan up for future success.

Aon's best practice is to conduct asset-liability studies every three to five years or as conditions warrant. We believe LACERS' policies have been adhering to a similar timeline and would not recommend any changes.

Sound Actuarial Contribution Policy Along with a Commitment to Such Funding

Over the last decade, the City has made contributions in-line with the calculated actuarial amounts. However, the System's funded ratio progression was slowed by a Board decision in 2012 to combine actuarial amortization bases and extend the payment period over which they would be made. This decision created a negative amortization impact over the last decade – i.e., interest on the liability outweighing the amortization payments.

The emphasis on this combined base is due to its relative size when compared with the total LACERS amortization payment. It should also be noted that while the negative amortization payment exists for this specific base created in 2012, subsequent amortization bases have adopted either 15- or 20-year payment periods, largely avoiding any negative amortization impact.

The LACERS plan will start moving beyond this negative amortization period soon, with amortization payments becoming greater than the interest on the liability thereby closing the funding shortfall. As the years progress, and the City stays committed to the existing contribution policy, more of the unfunded liability will be paid down which will improve the Plan's funded status.

Funded ratio progress can be due to a host of reasons, but one key reason is the commitment to the actuarial funding policy, and not deviating from it. The actuarial funding principles are designed to work by creating a laddered amortization approach to smooth out budgetary impacts with the eventual goal of closing the funding gap over time. We have found that plans that have stayed with their original amortization schedules, without making adjustments to refresh (or re-start) components of their amortization schedules, are more likely to be in healthier funded positions.

We also recognize that actuarial calculations can often be at odds with budget realities. We would caution against similar adjustments that were done in 2012, which created a negative amortization environment and extended the time period for paying down the unfunded liability. Avoiding instances like this in the future will allow the actuarial assumptions and methods for the LACERS plan to improve the overall funded ratio and financial stability.

Investment Performance/Asset Allocation

Use of Active and Passive Management

The LACERS portfolio has increased its use of passive investments over time and maintains a level of passive investment exposure greater than its peer public pension plan.

Passive % Total Portfolio (excluding cash investments)		
Asset Class	LACERS 9/30/2021	Peer Group (Public Funds +$5B)
U.S. Equity	19.7%	11.5%
Non-U.S. Equity	12.1%	4.1%
Core Fixed Income	5.0%	5.4%
Credit Opportunities	0%	0%
Private Equity	0%	0%
Real Assets	0%	0%
Other	0%	0%
TOTAL	**36.8%**	**21.0%**

LACERS has a robust and formal process for evaluating its use of passive investments documented in its Investment Policy Manual. This analysis was performed three times during the scope period but was not performed as frequently as required by the Investment Policy Manual (every three years). It is common practice in the industry for programs such as LACERS to perform active vs passive cost/benefit studies on an ad hoc basis. However, compliance with the documented policy is critical.

We recommend creating a formal procedure to ensure governance processes articulated in the policy are completed on the mandated cycle.

Impact of the Use of Active Management

The most efficient way to evaluate the impact of active investment management is through the review of investment results after the fees have been paid. The table below provides the impact to the Total Fund performance relative to the benchmark for each asset class where passive implementation is viable over the scope period. As shown, active implantation has added 0.32% (32 bps) annualized (every year on average) over the 8-year scope period.

Asset Class	Net of Fee Excess Return (8-Years ending 9/30/2021)
U.S. Equity	-6
Non-U.S. Equity	31
Core Fixed Income	7
Total	**+32 bps (0.32%)**

Aon's Advice on Passive Management Moving Forward

We believe some investors are well-suited for active management, and the body of the Report outlines some of the factors that make passive investing more desirable. For those institutional investors who are well equipped to incur active risk, and do so prudently, we believe they can achieve superior outcomes. Boards implementing actively managed investment strategies should be comfortable with:

- The level of active risk within the investment program – Achieved through active vs passive education and risk budgeting discussions – **Currently performed by LACERS every three years**
- The ability of its staff and consultant to identify alpha generating investment opportunities – Achieved through ongoing oversight
- Experiencing periods **(potentially long periods)** of underperformance relative to passive implementation – Achieved by understanding the potential of underperformance prior to implementation

If the Board is comfortable with these factors, Aon is supportive of active management within the investment program.

The Investment Policy Statement (IPS) and Associated Processes

The LACERS Board reviews the IPS on an annual basis. The purpose of the annual reviews is to ensure the document reflects desired long-term asset allocation, the evolving investment portfolio, legal and regulatory developments, and current best practices. We believe the review process could be enhanced by requiring all recommended changes to be reviewed by external counsel and the applicable investment consultant.

We recommend adding language to the IPS that states all modifications to the document are to be reviewed by the applicable consultant as well as fiduciary counsel prior to being presented to the Board. **We believe** the Board should consider requiring a memo from the applicable consultant and fiduciary counsel for all amendments of the IPS. The memo would articulate and document their agreement or disagreement with the proposed changes.

Aon evaluated the IPS relative to what we believe to be the key sections of policy and how we think about IPS development. The LACERS IPS includes all components that we believe a well-structured IPS should have. This includes documentation of the rebalancing process and articulation of the roles and responsibilities of the key parties involved in the investment program. The document does not explicitly outline the asset allocation policy targets and ranges.

We believe the Board should consider including the policy targets and ranges within the Policy.

Based on our interviews with Staff, and experience with other clients performing these functions, we believe that LACERS generally has appropriate controls and procedures in place to regularly review compliance with its policies.

We observed that LACERS is in compliance with the mandated statutory investment requirements regarding the IPS. However, the Policy does not define applicable statutory requirements that are to be followed by the System.

We recommend all federal, state, and local legal requirements be explicitly stated together within the IPS.

Compliance With Established Objectives in the Policy

There is no one true measurement to define the success of a retirement program. We believe the best process for evaluating the success of implementation is to review the results of the program relative to the objectives articulated in the investment policy statement. The policy articulates 7 investment objectives that we believe are in-line with best practice. Our Report provides analysis for the Objectives where quantitative or qualitative review is possible.

- The portfolio has produced net of fee returns that approximate the benchmark return over recent trailing periods
- The portfolio has produced meaningful returns over inflation over time
- The portfolio has produced favorable risk adjusted net of fee returns relative to peer public funds and its benchmark.
- As of September 30th, 2021, recent trailing performance was above the legacy actuarially stated rate of return of 8%, as well as the current 7% rate

Process to Derive Strategic Asset Allocation

Asset allocation is viewed by many as the single most important factor to a pension fund's investment success over the long-term. The primary importance of asset allocation over other investment decisions is a generally accepted concept in finance theory and practice. Aon finds the process followed by LACERS to be robust and in line with best practice. The Board is provided with ample information and analysis to more than adequately consider the risk/return/cost impacts of either staying with the current policy allocation or moving to an alternative asset allocation. The analysis also reviews the impact these changes will have on the overall funded status of the Plan.

Aon also evaluated the approach for deriving the forward-looking expected returns, volatility, and assumed correlation of returns. We found the process for deriving capital market assumptions, as well as the final assumptions themselves, to be reasonable.

Appropriateness and Suitability of the Adopted Asset Allocation

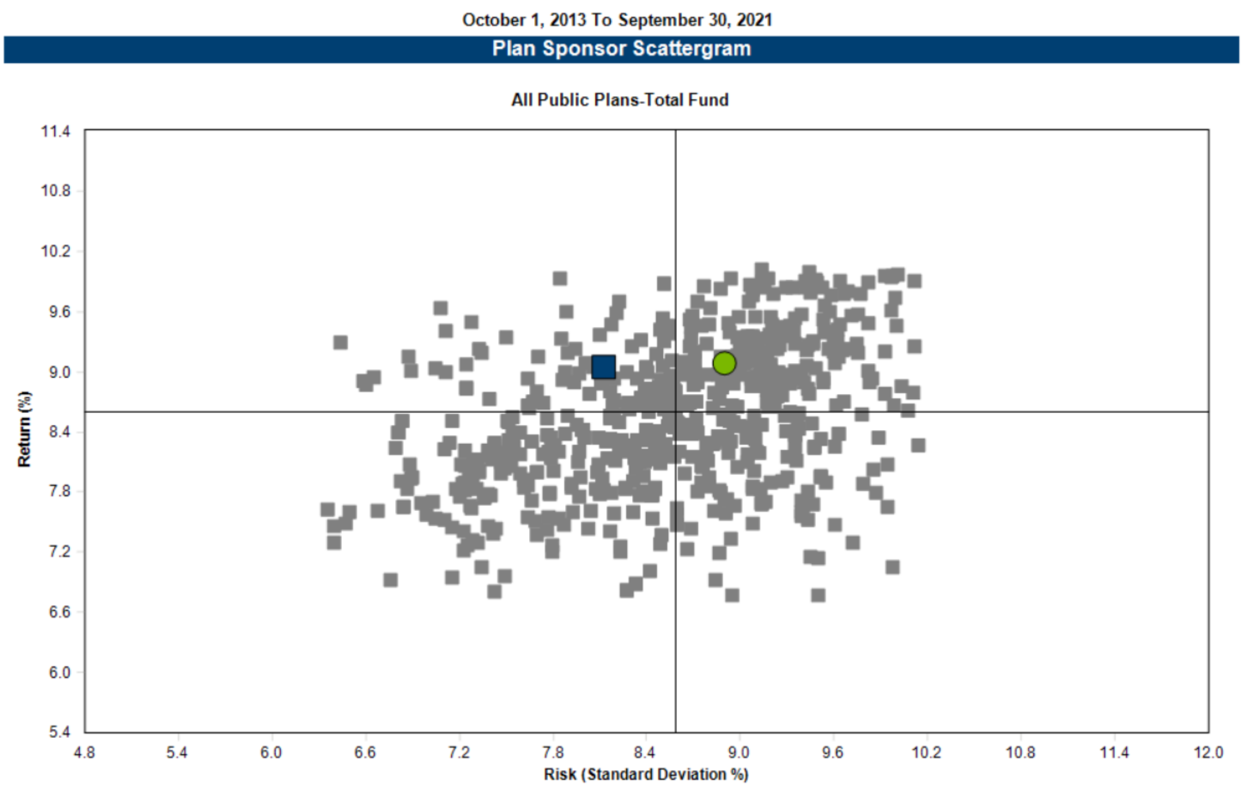
The asset allocation of an investment program should be derived through the asset-liability process (outlined above). However, Aon also evaluated the asset allocation of LACERS relative to peers and its projected ability to produce the actuarially assumed rate of return.

Asset Allocation relative to peers
The Plan's asset allocation is not materially different than that of other public fund peers. In review of the asset classes utilized by the System, Aon found that they are similar to those commonly utilized in the institutional investor market (i.e., public funds, corporate defined benefit plans, endowments, and foundations).

Ability to produce the actuarially assumed rate of return
Using Aon's 30-year capital market assumptions we expect the portfolio to earn 6.3% over time, with a 38% probability of achieving 7% over 30-years. It is important to note that our expected returns are updated on a quarterly basis. Given the recent decline in equity markets and rising interest rates, our forward-looking expected returns are now a bit higher than when the analysis was performed.

Investment Results, Benchmarks and Universe Comparisons

The body of the Report includes an evaluation of Total Fund and asset class performance relative to the primary benchmark and peer performance over various time periods. Additionally, detailed performance attribution for various time periods have been included as appendix E. Generally speaking, Total Fund investment performance has been in-line with the benchmark and greater than the median peer. Over the scope period the portfolio produced a return above the median peer with a lower standard deviation than the peer median. Additionally, the portfolio has produced a net of fee return commensurate with the benchmark at a lower level of risk (chart below on next page).



	Return	Standard Deviation
Total Fund Composite	9.04	8.12
Policy Benchmark	9.09	8.89
— Median	8.60	8.59

Aon reviewed the benchmarks and universes used throughout the LACERS performance reporting documents and have found that they adequately represent the Plan, asset class, and investment manager in which they are compared against.

Administration/Management of the System

The LACERS Board and Staff are legally required to discharge their duties solely in the interest of members and beneficiaries for the exclusive purpose of providing benefits to those members and beneficiaries, while defraying reasonable expenses of administering the System. In order to fulfill this duty, the System has a budgeting process to ensure it has the required resources and staffing necessary to the operation of the System. In reviewing the administrative and investment management expenses over the Scope period, we observed that these two expenses make up a small portion of overall expenditures. The majority of expenditures are for benefit payments. The broad drivers of costs are consistent with what we see represented in other public funds' expenses.

In reviewing actual v. budgeted administrative expenses over the Scope period, actual administrative expenses remained under budget for every year with the exception of FY 2020, which necessitated expenditures primarily related to the new LACERS headquarters building. Actual and budgeted investment management expenses increased over the Scope period in accordance with the increase of assets under management.

A 2018 CEM peer benchmarking study of LACERS pension administrative costs reflect that LACERS pension administrative costs per member were slightly above peer average to the identified peer group, and below the peer average for California pension systems. LACERS was also below the peer average when reviewing total administrative costs in relation to asset size. The CEM study also found that the number of administrative staff appears to be higher than the peer average. This was due to the complexity of the benefits and the transaction volume necessary to provide services the LACERS membership.

LACERS has a cost sharing arrangement with the Los Angeles Fire and Police Pensions (LAFPP) and Water and Power Employees' Retirement Plan (WPERP) relative to the City Attorney's Office's representation of the Systems. The three Systems also share legal costs related to investment fund documents when making the same investment. **Aon recommends** LACERS explore additional cost sharing/saving opportunities relative to a group purchase of management liability insurance.

Governance

We observed that LACERS exhibits best practices through the adoption of a thorough Board Governance Manual and transparency by posting the Manual on its public website. In comparing the content of the Board Governance Manual and related governance policies against a best practices policies list, we concluded that LACERS has adopted most of the policies we expect to find. **We do recommend** that LACERS consider the adoption of a Reporting and Monitoring Policy setting forth a schedule of the Board's expected reports, with an annual verification of compliance with such policy.

LACERS has a Board Education and Travel Policy with a required number of hours of education for Trustees, which is in line with best practices. The Policy also contains transparency reporting on board education and related travel to which LACERS adheres.

With respect to independence of the System, **we recommend** that the City consider a change in the City Charter to grant LACERS the ability to determine its own frequency and timing of its board meetings, and to be able to have independent authority regarding the hiring and compensation of its staff.

Progress towards prior Management Audit Recommendations

We independently confirmed that LACERS promptly considered all of the prior Management Audit Recommendations. We discuss our findings in the corresponding section of the Report, along with a matrix of each recommendation and conclusion.

Table of Recommendations

Red= high priority, Blue=medium priority, Green=lower priority

Number	LACERS Management Audit
	I. Actuarial Methods, Assumptions, Funding and Innovative Strategies
I.1.	**LACERS should review whether securities lending and agent oversight could result in opportunity cost savings/revenue enhancements or additional risk mitigation benefits.**
	II. Investment Performance/Asset Allocation
II.1.	**Aon recommends creating a formal procedure to ensure governance processes articulated in the policy are completed on the mandated cycle.**
II.2.	**Aon recommends all federal, state, and local legal requirements be explicitly stated together within the IPS.**
II.3.	**Aon recommends adding language to the IPS that states all modifications to the document are to be reviewed by the applicable consultant as well as fiduciary counsel prior to being presented to the Board.**
II.4.	**Consider including a memo from the applicable consultant and fiduciary counsel for all amendments of the IPS. The memo would articulate and document their agreement or disagreement with the proposed changes.**
II.5.	**Consider the creation of a compliance calendar to facilitate the oversight of compliance with the governance items articulated within the IPS.**
II.6.	**Consider including policy targets and ranges within the IPS.**
	III. Economy and Efficiency of Administration/Management of the System
III.1.	**Explore additional cost sharing arrangements with LAFPP and WPERP regarding management liability insurance.**
	IV. Governance
IV.1.	**We recommend that LACERS consider adoption of the best practices policies that have not been adopted. Furthermore, LACERS should consider adding references to existing policies that are not contained in the Board Governance Manual itself.**
IV.2.	**Adopt a Reporting and Monitoring Policy and conduct an annual Reporting and Monitoring verification report to the Board.**

IV.3.	**We recommend that the City consider changing the City Charter to grant LACERS independence to determine the frequency and timing of LACERS board meetings.**
IV.4.	**We recommend that the City amend the City Charter to give LACERS independent authority regarding LACERS staff hiring and compensation.**

I. Actuarial Methods, Assumptions, Funding, and Innovative Strategies

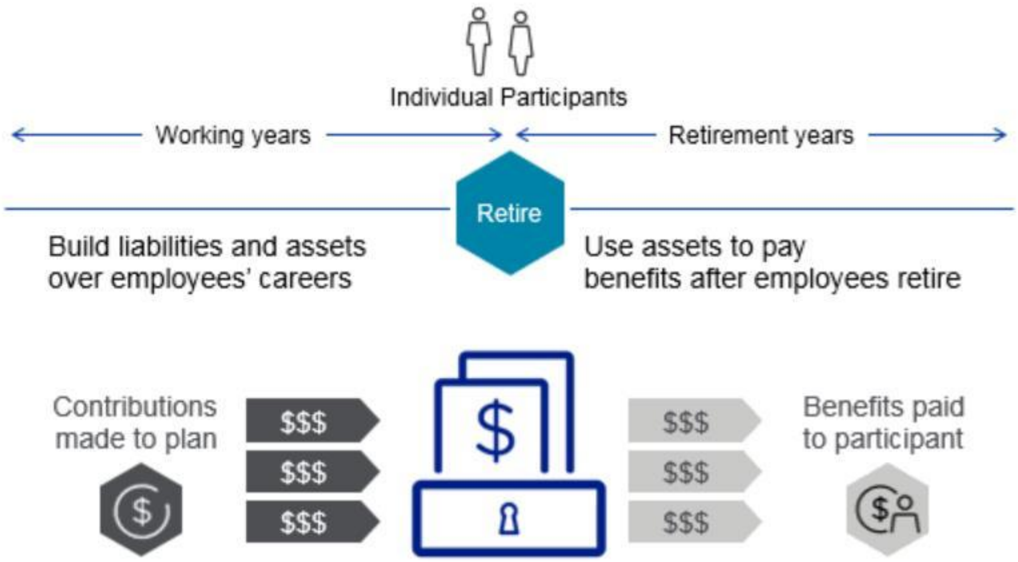
Background:
LACERS is responsible for ensuring the promise of future benefit payments to its plan participants. The expected future benefit payments of all plan participants are calculated annually by the plan actuary. These expected future payments are discounted based on an assumed interest rate to calculate the total pension liability. That liability is compared to the assets held in the plan trust in the annual actuarial valuation report. The plan assets will be used to pay for future benefit payments to plan participants and administrative expenses. Assets are expected to grow by a combination of contributions (from both the plan participants and the City) and investment returns. The cost ultimately borne by the System (and by extension, the City) will be represented by the financing equation shown below (Chart I-1.):

Chart I-1. Ultimate Retirement Benefit Cost Equation

Pension liability is calculated on an individual participant basis and then aggregated in total. To calculate this liability, the plan actuary makes assumptions about the future demographic behavior of each plan participant (e.g., turnover rates, retirement rates, and mortality rates) as well as overall economic assumptions (e.g., future expected asset return and salary growth). One key assumption for public pension plans is the future expected asset return as it also represents the discount rate used to convert the future expected benefit payments to today's dollars. When focusing only on the expected return assumption, a higher expected return will lead to a lower actuarial liability (and vice versa).

Once the total liability is determined and compared to the plan's assets, the actuarial valuation will also specify the annual contribution to be made to the pension plan. In general, the funding of the plan follows the graphic below (Chart I-2.) where contributions are made over a participant's working career, building up assets to match the participant's total liability with expected investment returns, and then paying down that liability in retirement years for the life of that participant.

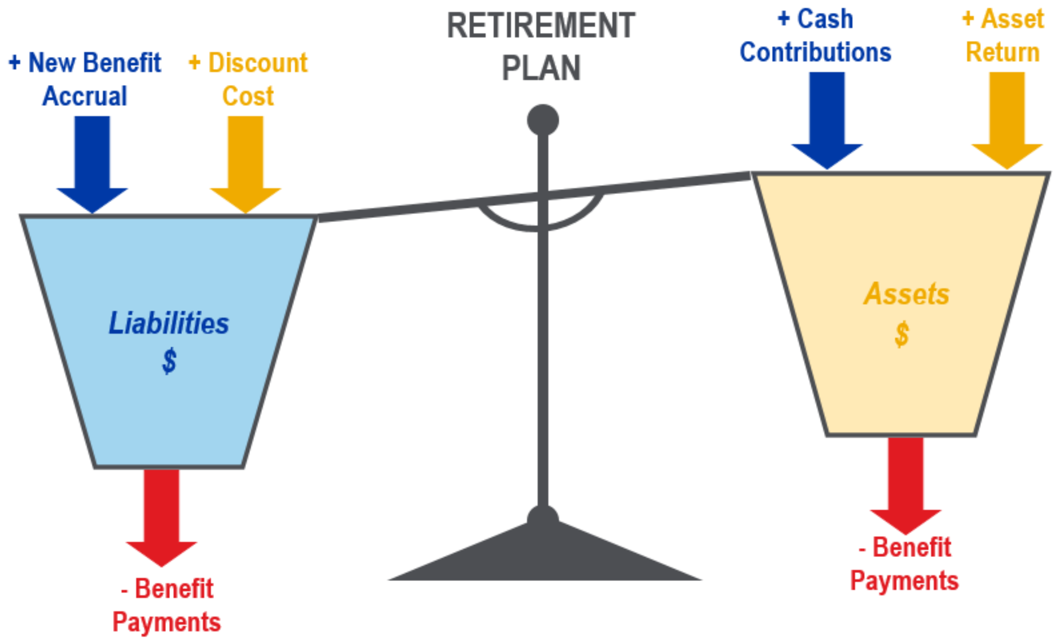
Chart I-2. Funding Cost Recognition



Economic and demographic assumptions are expectations which will differ from actual experience. These differences will impact the total plan liabilities in each successive actuarial valuation, which can also impact the funding calculations. For example, in its own silo, asset returns that are higher than expected in a given year will generally lead to lower contributions going forward (and vice versa). As differences occur over time, those differences are amortized (or smoothed) into the contribution calculations to create more stability in the rates themselves, as opposed to sharp increases/decreases.

Overall, the System's assets and liabilities work in tandem with one another in determining future funded ratio calculations and contribution rates. The illustration below (Chart I-3.) highlights the key factors that influence both the assets and liabilities, which will work overtime to balance one another.

Chart I-3. Balance of Assets and Liabilities



A. Performance of actuarial methods, adequacy and validity of actuarial assumptions and COVID-19 pandemic implications on the pension funds

Background:
Pension plans are subject to numerous assumptions, both economic and demographic, that impact the calculations of the liability and, by extension, the funding calculations. Optimal management of these plans necessitates having defined procedures in place to determine if adjustments to those assumptions are needed.

Specifically for LACERS, their actuary (Segal) conducts an actuarial experience study every three years to assess how actual plan experience has differed from assumptions and whether adjustments to those assumptions are needed in the actuarial valuations.

Conclusions:
The most recent actuarial experience study was completed by Segal on June 17, 2020. This study utilized the census data for the period July 1, 2016 to June 30, 2019 and proposed actuarial assumptions, both economic and demographic, to be used in the June 30, 2020 valuation. Per Segal's report, *"The study was performed in accordance with Actuarial Standard of Practice (ASOP) No. 27 "Selection of Economic Assumptions for Measuring Pension Obligations" and ASOP No. 35 "Selection of Demographic and Other Non-Economic Assumptions for Measuring Pension Obligations." These Standards of Practice provide*

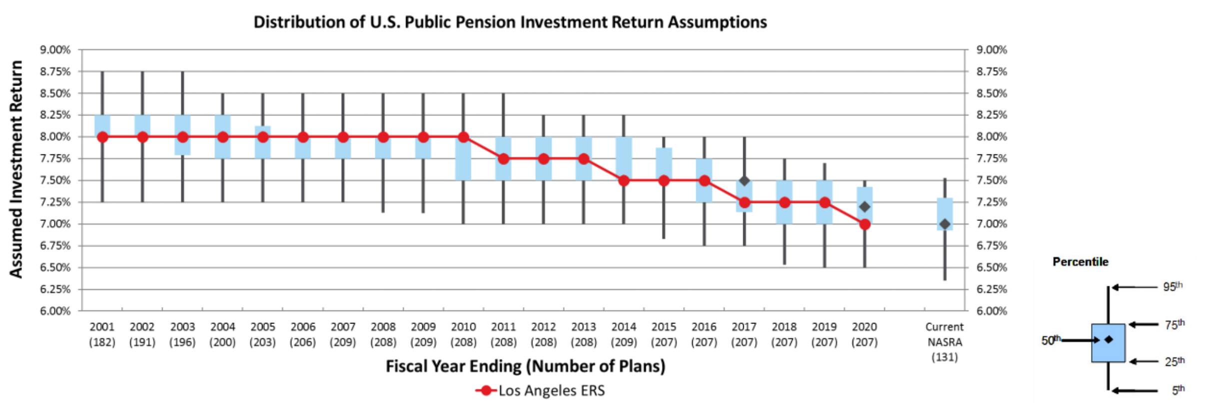
guidance for the selection of the various actuarial assumptions utilized in a pension plan actuarial valuation."

As a result of the actuarial experience study, recommendations were made by Segal to change the following assumptions:

- inflation,
- investment return,
- crediting rate for employee contributions,
- cost-of-living adjustments (COLA),
- merit and promotion salary increases,
- retirement from active employment,
- percentage of members with an eligible spouse or domestic partner,
- reciprocal salary increases,
- pre-retirement mortality,
- healthy life post-retirement mortality,
- beneficiary mortality,
- disabled life post-retirement mortality,
- termination, and
- disability incidence.

One of the most influential assumptions for a public pension fund is the expected return on plan assets. Historically, plans in California have been at the forefront of U.S. public pension plans in lowering their expected return assumption over the past decade. California plans have, on average, been quicker to reduce their expected return assumption with national peers following shortly thereafter. LACERS' assumption for FYE 2020 was 7.00%, which was slightly below the U.S. public pension median for FYE 2020 (using data from publicplansdata.org as of October 2021 as illustrated in Chart I-4.). Using more recent data tracked by NASRA (provided by NASRA as of October 2021), LACERS' return assumption is at the median relative to peers.

Chart I-4. U.S. Public Pension Investment Return Assumptions



Additional actuarial methods utilized by Segal are noted below. These methods are reasonable and common approaches for public sector pension plans.

- Actuarial Cost Method: the method used to determine the liability amount
  - Entry Age Cost Method, level percent of salary. Entry age is calculated as age on the valuation date minus years of employment service. Both the normal cost and the actuarial accrued liability are calculated on an individual basis.
- Actuarial Value of Assets (AVA): the method for smoothing asset returns over time
  - Market value of assets (MVA) less unrecognized returns in each of the last seven years. Unrecognized return is equal to the difference between the actual market return and the expected return on the market value and is recognized over a seven-year period. The actuarial value of assets (AVA) is limited by a 40% corridor; the AVA cannot be less than 60% of MVA, nor greater than 140% of MVA.
- Amortization Policy: the method for recognizing differences in actual versus expected results
  - The amortization method for the UAAL is a level percent of payroll, assuming annual increases in total covered payroll equal to inflation plus across the board increases (other than inflation). Changes in the UAAL due to actuarial gains/losses are amortized over separate 15-year periods. Changes in the UAAL due to assumption or method changes are amortized over separate 20-year periods. Plan changes, including the 2009 Early Retirement Incentive Program (ERIP), are amortized over separate 15-year periods. Future ERIPs will be amortized over 5 years. Any actuarial surplus is amortized over 30 years. All the bases on or before June 30, 2012, except those arising from the 2009 ERIP and the two (at that time) GASB 25/27 layers, were combined and amortized over 30 years effective June 30, 2012.

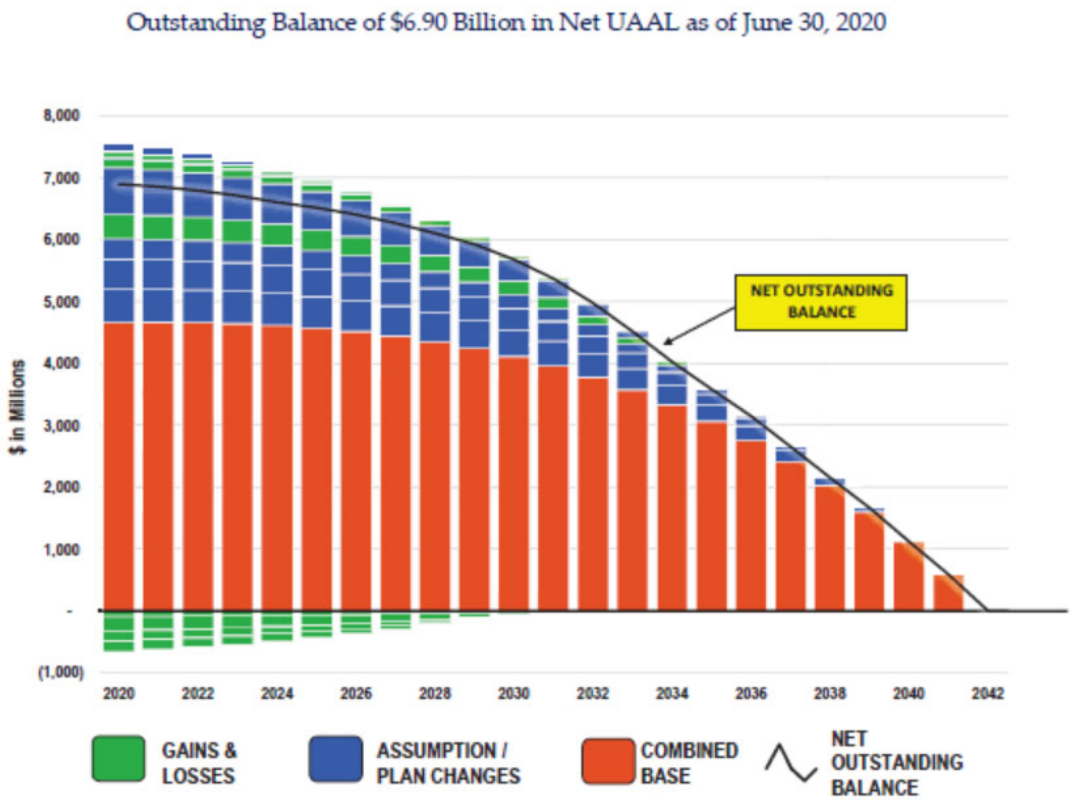
COVID Impact: The pandemic is going to have both short and long-term impacts on all pension plans. The magnitude of those impacts will vary by plan and specific circumstances. The actuarial valuation, which represents a snapshot in time of the LACERS plan, will self-correct annually with new demographic data changes. As experience differs from assumptions, adjustments will be made to the actuarial liabilities and, by extension, the contribution rates. An important note is that while there may be short-term deviations in actual experience, one year does not necessarily make a trend for future liability assumption purposes. **The next experience study conducted by the plan actuary will serve to determine if long-term assumption changes are warranted.**

Overall, the plan actuary is relying on actuarial standards of practice in setting assumptions for LACERS. Those assumptions, highlighted by the investment return assumption, are in-line with U.S. public pension peers. The policies and procedures are in place, through the triennial actuarial experience studies, to determine if changes to the actuarial assumptions brought on by the COVID pandemic will be needed.

B. Past performance and trajectory of LACERS investments, actuarial predictions, contributions and unfunded liabilities and comparative benchmarking

Background:
The exhibit below (Chart I-5.) was sourced from the June 30, 2020 actuarial valuation performed by Segal for LACERS. It illustrates that the projected schedule of actuarial contributions will fully fund LACERS over time.

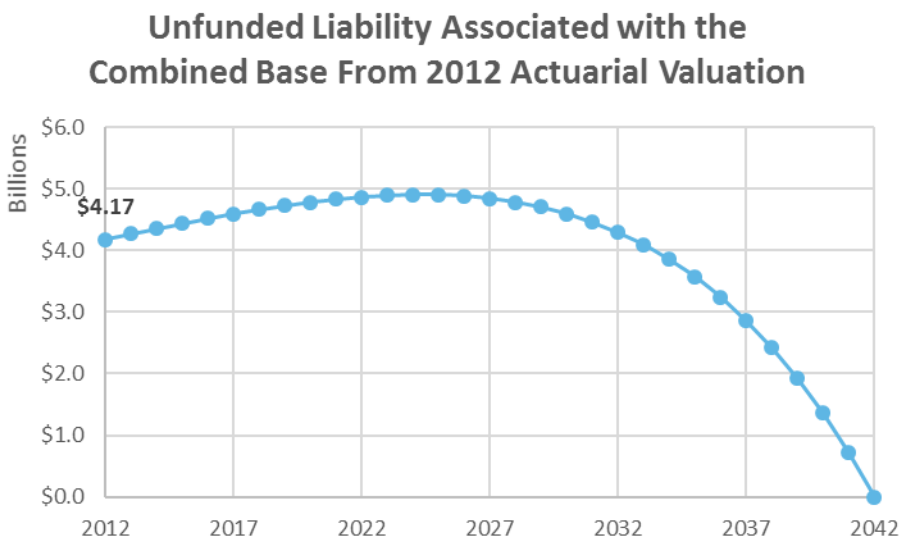
Chart I-5. Segal's Projected Schedule of Actuarial Contributions



An important aspect of the illustration above is the combined base. Per the documentation found in the June 30, 2012 actuarial valuation report (https://publicplansdata.org/reports/CA_LACITY-LACERS_AV_2012_139.pdf), *"On October 23, 2012, the Board elected to combine all amortization bases as of June 30, 2012, except for the basis associated with the 2009 ERIP and the two GASB 25/27 bases, which remain on their original schedules. In addition, the Board adopted an initial amortization period of 30 years for the combined bases as of June 30, 2012."*

Using assumptions as of the June 30, 2012 actuarial valuation (expected return on plan assets = 7.75%; expected payroll growth = 4.25%), this new combined base would have the following progression of unfunded actuarial liability (UAL) as shown in Chart I-6. The UAL associated with the combined base will increase in the first 12 years of the 30-year amortization period as interest on the UAL grows faster than the amortization payments being made, resulting in negative amortization over this time frame.

Chart I-6. Progression of Unfunded Actuarial Liability (Combined Base from 2012 Actuarial Valuation)



Note: the exhibit above shows only the figures based on the June 30, 2012 actuarial valuation report for illustrative purpose without adjustments for assumption changes that have occurred after that date.

Conclusions:

This period of negative amortization for the combined base is currently where LACERS finds itself and is a key reason that the funded ratio progression has slowed over recent years as this particular base represents most of the amortization payment made. It should also be noted that while the negative amortization payment exists for this specific base created in 2012 (originally using a 30-year amortization period), subsequent amortization bases have adopted either 15- or 20-year periods, largely avoiding any negative amortization impact.

Continuing to make the actuarial contributions that the City has been doing, with time moving LACERS past the period of negative amortization and into the period where the amortization payments outweigh interest on the liability, should see the funded ratio of the LACERS plan begin to improve.

Funded ratio progress can be due to a host of reasons, but one key reason is the commitment to the actuarial funding policy, and not deviating from it. The actuarial funding principles are designed to work by creating a laddered amortization approach to smooth out budgetary impacts with the eventual goal of closing the funding gap over time. We have found that plans that have stayed with their original amortization schedules, without making adjustments to refresh (or re-start) components of their amortization schedules, are more likely to be in healthier funded positions.

We also recognize that actuarial calculations can often be at odds to budget realities. We would caution against similar adjustments that were done in 2012, which created a negative amortization environment and extended the time period for paying down the unfunded liability. Avoiding instances like this in the future will allow the actuarial assumptions and methods for the LACERS plan to improve the overall funded ratio and financial stability.

C. Opportunities and risks of variances in actuarial assumptions.

Background:
Economic and demographic assumptions are expectations which will differ from actual experience. The key is whether policies and procedures are in place to learn from and adjust as deviations occur. LACERS' annual actuarial valuations along with the triennial actuarial experience studies performed will serve to self-correct assumptions over time as actual experience differs from expectations.

Conclusions:
Based on analysis provided by the plan actuary's annual valuation report, the unfunded liability is projected to be completely settled in the future based on the actuarial contribution policy in place. A headwind to LACERS is the combined amortization base which has exhibited negative amortization since its inception, slowing funded ratio progress. As years progress, and the City stays committed to the existing contribution policy, more of the unfunded liability will be paid down which will improve the Plan's funded status.

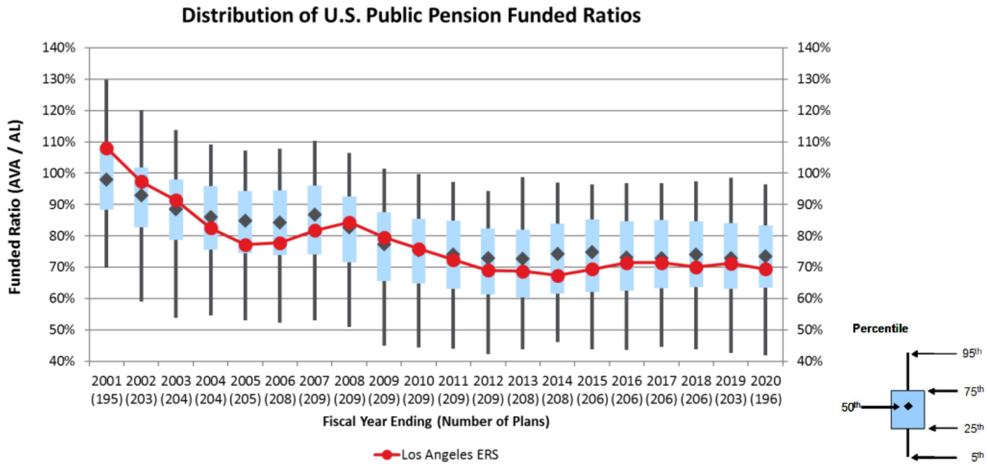
D. Funding ratios and Liabilities, employer/employee contributions, and projected pension benefits growth

Background:
For purposes of peer comparisons, the data is sourced from Public Plans Data (https://publicplansdata.org/) which is a collaborative Partnership between the Center for Retirement Research at Boston College (CRR), the MissionSquare Research Institute (formerly the Center for State and Local Government Excellence), National Association of State Retirement Administrators (NASRA), and Government Finance Officers Association (GFOA). The Public Plans Data contains detailed annual data on the largest state/local pension in the United States. The sample spans fiscal years 2001 to 2020 and includes 210 plans (119 state-run and 91 locally-run) which account for 95 percent of state/local pension assets and members in the U.S.

Conclusions:

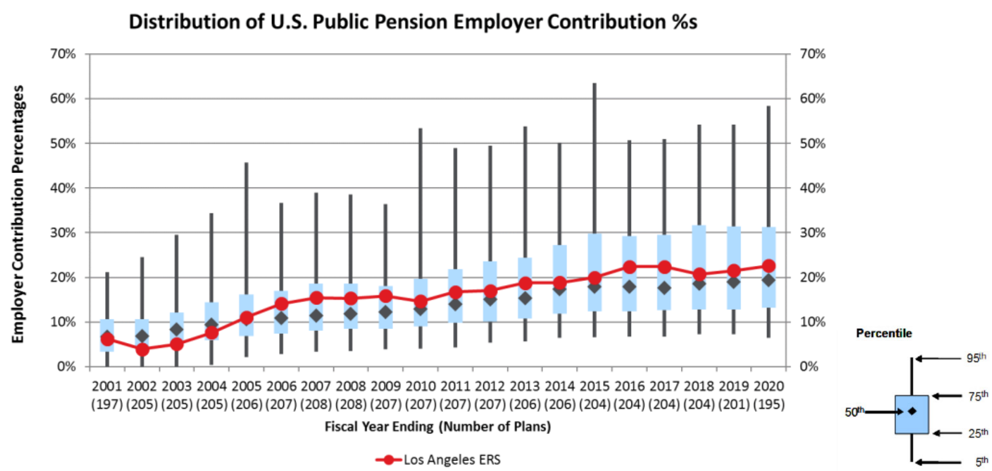
- *Funded Ratio (Chart I-7.):* LACERS' funded ratio as of 6/30/2020 (based on an actuarial value of plan assets) was slightly below the peer median (using data from publicplansdata.org as of October 2021). The funded ratio is an important data point as any unfunded liability will be systematically incorporated into future contribution amounts. As funded ratio moves lower, future contributions will need to increase (and vice versa).

Chart I-7. U.S. Public Pension Funded Ratios



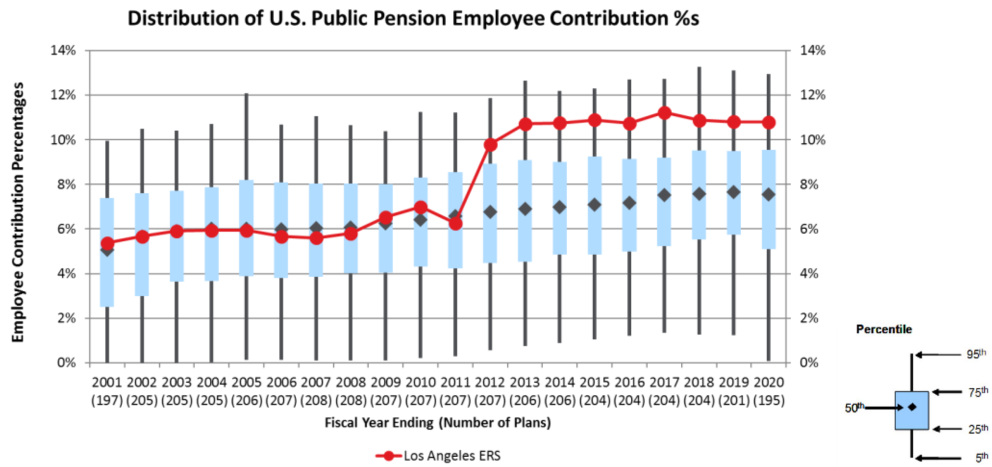
- *Employer Contribution Rate (Chart I-8.):* LACERS' aggregate employer contribution rate as of 6/30/2020 (as a percent of payroll) was slightly above the peer median (using data from publicplansdata.org as of October 2021). Employer contribution rates will be a byproduct of future performance. As funded ratio increases and less unfunded liability exists, contribution rates should tend to decline (and vice versa).

Chart I-8. U.S. Public Pension Employer Contribution Rates



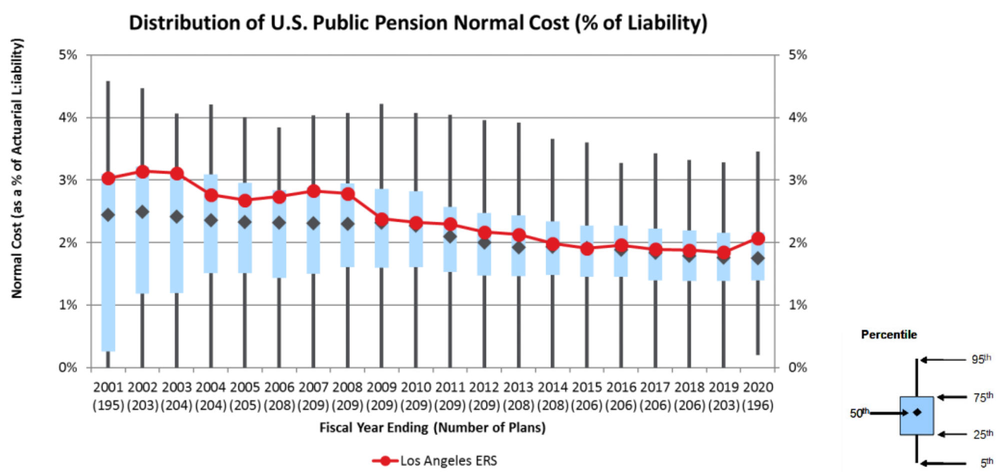
- *Employee Contribution Rate (Chart I-9.):* LACERS aggregate employee contribution rate as of 6/30/2020 (as a percent of payroll) was between the 75th and 95th percentile relative to peers (using data from publicplansdata.org as of October 2021).

Chart I-9. U.S. Public Pension Employee Contribution Rates



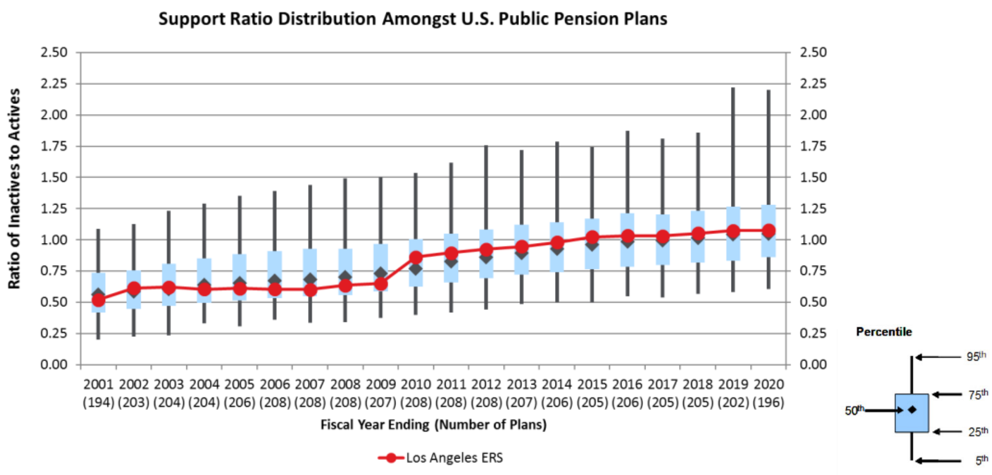
- *Future Benefit Accruals (Chart I-10.):* Future new benefit accruals for the LACERS plan can be thought of by measuring the level of normal cost (i.e., new benefit accruals) as a percent of the total pension liability. Using this measure as of 6/30/2020, LACERS' benefits were expected to grow slightly more than the peer median rate (using data from publicplansdata.org as of October 2021). Higher benefit accruals will be directly proportional to higher overall annual costs (and vice versa).

Chart I-10. U.S. Public Pension Future Benefit Accruals



- *Support Ratio (Chart I-11.):* Support ratio is defined as the ratio of inactive participants to active participants. This ratio is relevant when considering contribution percentages. A ratio above 1 implies that active participants support more than their number of inactives and that changes to the unfunded liability associated with all participants could result in sizable adjustments to the active payroll-based contributions. Over time, as seen in the illustration below, both LACERS and peers (using data from publicplansdata.org as of October 2021) have seen this ratio increase.

Chart I-11. U.S. Public Pension Plans Support Ratio



E. Innovative pension fund sustainability strategies

Background:
Financial sustainability of the pension plan is rooted in three primary drivers: 1) accurate calculations of plan liabilities; 2) thoughtful investment strategy; and 3) sound actuarial contribution policy along with a commitment to such funding.

Conclusions:

- *Accurate Plan Liabilities:* LACERS' annual actuarial valuation utilizes sound actuarial assumptions and methods which have been (and will continue to be) refined through its regular process of actuarial experience studies every three years.

- *Thoughtful Investment Strategy:* LACERS has conducted regular asset-liability studies to analyze the risk/reward merits of its investment strategy. Understanding how an asset allocation and its range of future outcomes will impact contribution rates, funded ratio, and net cash flows will allow stakeholders to make informed decisions to set the Plan up for future success.

- *Commitment to Funding:* Over the last decade, the City has made contributions in-line with the calculated actuarial amounts. Continuing to do so without deviating from the future actuarial contribution schedule will lead to a sustainable pension plan.

As it relates to LACERS' funding and the slow progression to date of the funded ratio, a key item was the creation of the combined amortization base in the June 30, 2012 actuarial valuation which used a 30-year amortization period. Since that base was established, LACERS has been in the period of negative amortization with interest on the liability outweighing the amortization payments. The LACERS plan will start moving beyond this negative amortization period soon, with amortization payments becoming greater than the interest on the liability thereby closing the funding shortfall.

The emphasis on the combined base is due to its relative size when compared with the total LACERS amortization payment. It should also be noted that while the negative amortization payment exists for this specific base created in 2012, subsequent amortization bases have adopted either 15- or 20-year payment periods, largely avoiding any negative amortization impact.

We would caution against similar adjustments that were done in 2012, which created a negative amortization environment and extended the time period for paying down the unfunded liability. Avoiding instances like this in the future will allow the actuarial assumptions and methods for the LACERS plan to improve the overall funded ratio and financial stability.

Other Innovative Strategies

F. Cybersecurity

Background:
Cybersecurity has always been an important component of protecting member data and is a critical risk that must be properly managed by retirement systems. The Employee Retirement Income Security Act of 1974 (ERISA) governs private pension plans and is administered and enforced by the U.S. Department of Labor (DOL) Employee Benefits Security Administration. ERISA is very influential for public pension funds as it sets forth fiduciary duties and standards, is often modeled by state laws, and serves as guidance in the absence of state precedent with respect to fiduciary matters.

On April 13, 2021, the DOL issued guidance for protecting plan data from internal and external cybersecurity threats. The guidance focuses on cybersecurity obligations in the contact of fiduciary obligations and makes it clear that responsible plan fiduciaries have an obligation to ensure proper mitigation of cybersecurity risks to protect participant data. The guidance was issued in three parts and is good guidance for public pension systems: 1) cybersecurity best practices for plan fiduciaries and record keepers; 2) tips for plan sponsors and fiduciaries in prudently selecting a service provider with strong cybersecurity practices and monitoring their activities; and 3) online security tips for plan participants and beneficiaries who access their accounts online.

The cybersecurity best practices include having a formal, well documented cybersecurity program, conducting risk assessments and annual third-party audits of security controls, having strong access control procedures, and conducting periodic cybersecurity awareness training.

Through our review of documentation and our interviews, it is clear that LACERS has recognized the need to prudently manage cybersecurity risks. The current LACERS Strategic

Plan and Business Plan Initiatives include adopting a cybersecurity risk management framework. Additionally, LACERS secured cyber liability insurance in 2021. At its January 25, 2022 Board meeting, the Board reviewed a Cybersecurity Controls Audit Report issued by LACERS internal audit in conjunction with outside consultant Grant Thornton. The audit consisted of a review of LACERS information technology system controls, with detailed recommendations for enhancements. LACERS will implement these recommendations during the 2022-2023 fiscal year.

LACERS should continue its ongoing oversight and management of cybersecurity risks for the foreseeable future.

G. Securities Lending Program and Agent Oversight

Why Lend

Assets sitting in an institutional investor's portfolio, such as LACERS, may have incremental revenue potential beyond dividend payments and market value appreciation. As a beneficial owner, by lending out those assets institutional investors like LACERS can unlock that potential by collecting fee income from a borrower that wishes to temporarily obtain securities owned by the institutional investor.

Basic parties that are involved with a securities lending transaction:

- **Beneficial Owner/Lender:** Institutional investors, e.g., retirement plans like LACERS, endowments, foundations, insurance companies, investment managers, etc.
- **Securities Lending Agent:** Typically, the custodian and securities lending agent are one in the same, however, beneficial owners can also utilize a 3rd party to lend their assets. The securities lending agent acts on the beneficial owner's behalf to lend their assets.
- **Borrower:** Generally, a broker, dealer or bank that borrows securities from the beneficial owner to engage in a hedging, arbitrage or other investment strategy.

A securities lending transaction is simply a temporary loan of securities in exchange for acceptable (cash or securities) collateral between a lender and an approved borrower, and one that meets certain requirements that make it unique from a sale. Due to the high volume of loans, collateral and entitlement tracking, the transaction is most typically facilitated by a lending agent.

Securities lending offers a viable way to enhance returns and generate incremental return/alpha. Asset owners consider it a low-risk way to offset pension obligations or custodian fees. Securities lending also plays a significant role in today's capital markets. In general, securities lending is believed to improve overall market efficiency and liquidity. In addition, securities lending plays a critical role in certain hedging strategies, acts as a useful tool in risk management and helps facilitate the timely settlement of securities trades.

Regulators, academia, lenders and borrowers empirically recognize that lending improves market liquidity and price transparency. Some view it as an astute investment management technique to further mitigate downside portfolio risk.

Sizing the Securities Lending Market

Globally, at the end of 2021, there was estimated to be approximately $37 Trillion of client securities enrolled in lending programs approaching $3 Trillion on loan. The largest lenders are asset owners (e.g., corporate and government retirement plans and other governmental entities) comprising about 70%, and asset managers (insurance companies, investment managers, and central banks) comprising another 30% of transactions.

*Source: ISLA March 2022.

2021 marked the highest recorded revenue generating year for securities lending across the industry approaching $11 Billion dollars in revenue and almost $3 Trillion on loan, both driven largely by equities that typically derive the higher returns.

Securities that are Lendable

There are a limited number of lendable securities - global equities (including exchange-traded funds), corporate bonds, sovereign and supranational debt.

Non-Lendable Securities

Many securities are not lendable due to tax or other issues such as municipal bonds, commercial paper, money market instruments, comingled funds & other line Items, real estate, and alternative investments.

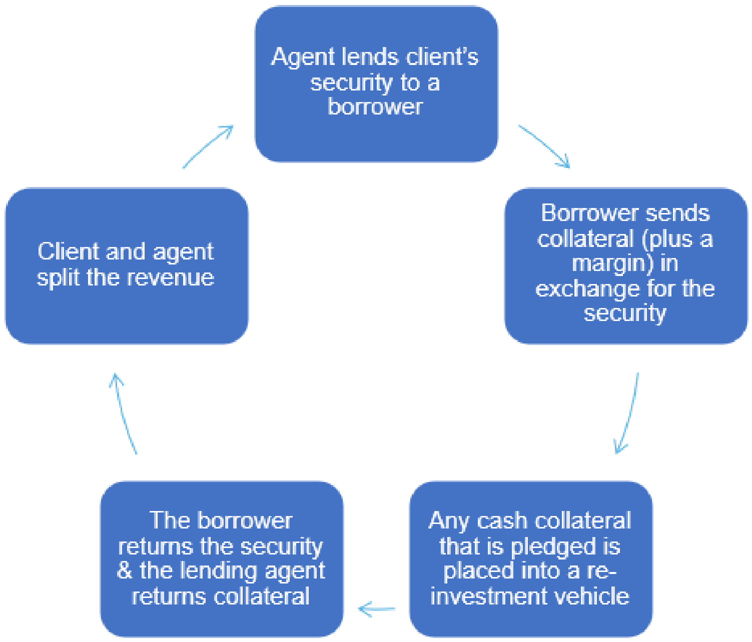
The Mechanics of Securities Lending

Virtually any long-term, beneficial owner of securities can lend. Owners of securities have an incentive to lend securities as the fees received in return for lending can boost portfolio performance or otherwise offset costs of managing a portfolio. These lenders of securities earn a return in two complementary ways – from fees often received in connection with lending securities, particularly those that are in high demand, and from the investment return on cash collateral received in return for a loan.

Securities lending is, most fundamentally, a collateralized transaction that takes place between two parties. In a loan of securities, the beneficial owner of those securities (the “lender”) temporarily transfers title to a security as well as the associated rights and privileges of ownership to a borrower. While the borrower receives all interest, dividends and corporate action rights on the security, the borrower is required to repay the economic value of these benefits back to the lender. The borrower also holds any voting rights attached to the security while the loan.

In return for lending the security, the lender receives collateral from the borrower. The value of the collateral typically exceeds the value of the lent security. This collateral typically takes the form of cash or other highly liquid securities such as short-term government bonds or equities. The typical market practice for the collateral value is 102% (same currency loans and collateral) or 105% (different currency loans and collateral) of the value of the lent security. The margin levels are "marked-to-market," or valued, on a daily basis to ensure that the loan is sufficiently collateralized at all times.

Securities Lending Process



Institutional Investor's Role in Securities Lending
As a beneficial owner lender, the institutional investor (often times in conjunction with a securities lending consultant) stipulates the securities in their portfolio they are willing to lend, identify the types of borrowers to whom they are willing to lend to and the types of acceptable non-cash collateral, and the guidelines that instruct how any cash collateral is reinvested. This cash is invested in short-term money market instruments for the duration of the loan. A borrower instructs the agent that they wish to borrow a lendable asset, posting cash collateral or non-cash collateral against the loan in excess of 100% of the market value of the borrowed securities.

Oversight of Securities Lending Programs
Those responsible for approving and overseeing their securities lending service providers will play a role in defining the parameters of the program and overseeing it on an ongoing basis. The beneficial owner should be satisfied that full due diligence has been undertaken at the commencement of a securities lending arrangement, and that compliance and due diligence are regularly performed as the program continues. On an ongoing basis, the beneficial owner should employ its business judgment to evaluate the nature and quality of the services provided by the securities lending agent, as well as the competitiveness of the fees charged by the agent.

As an institutional investor, a public pension fund's securities lending cash collateral portfolio often becomes its largest, single investment by assets under management. The fund is responsible for overseeing this cash, along with the non-cash collateral, so it is critical for public pension funds to complete daily, monthly and quarterly compliance monitoring on the lending program. Many institutional investment programs, including public funds, often do not have the expertise and holistic view of the lending industry to thoroughly oversee a program. If this is the case, they should employ an independent expert that specializes in securities lending oversight.

Due to the growing complexities and considerations of the securities lending industry and the level of knowledge required to oversee a securities lending program, a recent trend has occurred where beneficial owners are outsourcing the oversight responsibilities of securities lending programs to an independent 3rd party securities lending consultant.

Oversight should include performing an in-depth due diligence on the agent's capabilities and capacities to assess alignment with industry best practices. It should examine a program from a number of perspectives including:

- Contractual provisions to mitigate risk
- Technology systems
- Trading competitiveness
- Risk oversight
- Collateral capabilities and practices
- Applicable benchmarking
- Optimization of portfolio risk-adjusted performance

Regarding risk, the reinvestment of cash collateral introduces a combination of risks including interest rate, credit, market, liquidity, legal, tax, regulatory, and country risk. It is important to have a clear understanding of the risks and the wherewithal of the lender to effectively manage and mitigate those risks through experience, technology, procedural expertise, compliance and control systems.

There are often wide disparities of performance and risk management capabilities and expertise among lending providers. This can lead to significant opportunity costs from lending programs that are implemented without appropriate oversight.

Analysis performed to differentiate lenders is often based on revenue estimates and fee splits. While revenue and fees are important, there should be a thorough review of how the revenue is generated (i.e., risk-adjusted returns) and the detailed practices used to mitigate the risks inherent in any program.

A comprehensive Securities Lending Program and Agent Oversight service would enhance the lending program for many public funds. In Aon's experience of overseeing multiple securities lending programs, there are opportunities to strengthen the contractual risk of loss provisions, and collateral and program guidelines. This mitigates risks for the beneficial owner while increasing revenue earning potential. Through annual oversight, Aon has frequently found a significant increase to securities lending revenue earning potential through program and guideline adjustments.

The value of 3rd party oversight and possible revenue enhancements have the ability to offset securities lending consulting fees. The oversight service should detail how to best mitigate risks with a well-defined, customized program overseen to operate in accordance with the 'spirit' of the fund's appropriate guidelines.

Oversight should include several public pension fund specific reports and compliance checks performed over the course of a year including:

- A detailed annual agent due diligence,
- An analysis for performance optimization and risk mitigation enhancement,
- A performance and benchmarking analysis, and
- A quarterly evaluation of, and compliance with, detailed Key Performance Indicators (KPIs), that should cover the most detailed facets of a lender and the clients program,
- Periodic updates to a board or committee.

Oversight should analyse the risk/reward trade-offs between collateral options, structures, and guidelines for the assets while optimizing parameters that are in the public pension fund's best interest.

Recommendation I.1.:

High Priority	Medium Priority	Low Priority
		X

- LACERS should review whether securities lending and agent oversight could result in opportunity cost savings/revenue enhancements or additional risk mitigation benefits.

II. Investment Performance/Asset allocation

Active and passive management

- ***LACERS use of active and passive management of the funds***

Background:
As has been pointed out many times over the years, given an investment universe, active investment management is a zero-sum game. Within any time period an active investment manager is only able to outperform their peers if there are other investment managers who underperform. On an asset weighted basis the average gross of fee performance of all investment managers has to be the same as that of the market in which they are active. While we acknowledge the average active manager is likely to underperform after fees, we also believe that actively managed, long-only public equities are likely to add value for skilled investors willing to employ well diligenced investment strategies and stick with them over the long-term.

The decision on how much to invest actively and passively in each asset class can be very client specific. The optimal mix depends on factors such as risk control preferences, desired number of managers, level of confidence in active management, propensity to deal with active manager underperformance over short term periods, and sensitivity to investment manager fees. The key is to determine the approach that will maximize the success of the investment program maximizing the net of fee investment return over time.

The key to success is to identify truly skilled investment managers and invest with them. The challenge is to identify such managers on a forward-looking basis. It is not enough that a manager has a proven track record. They have to show that their superior performance came from a solid investment process instead of luck, and that they are able to keep adding value in the future, even as their performance attracts more assets. An investment manager can only identify a finite number of investable opportunities and it may be very difficult to scale up some opportunities and strategies as assets under management grow.

After an active investment manager has been hired, they must be carefully monitored on several dimensions. If they experience personnel changes, the continued integrity of their investment process must be verified. If performance is below expectations for a longer period of time, the validity of their investment process must be reassessed. They may also engage in style creep where, e.g., a small-cap value manager starts investing in large-cap growth stocks, or they may engage in market timing by moving in and out of cash. If serious enough, any of these events should lead to replacement of the manager, which necessitates a costly and time-consuming search process. Passive management, on the other hand, is a relatively more simple mandate that requires much less use of resources to diligence.

Background on LACERS' use of passive investments

The following data on aggregate and asset class level use of passive investments, were extracted from LACERS' quarterly performance reports as of 9/30/2013 and 9/30/2021. Cash holdings represents a de minimis portion of most investment programs and are excluded from the Total Fund analysis (far right column) to allow for more direct comparability among portfolios.

Table 2-1. LACERS Asset Class Weights (9/30/2013 Quarterly Performance Report)

Asset Class	Weight	Policy	Active Share of Asset Class	Passive Share of Asset Class	Passive % of Total Fund ex. Cash
U.S. Equity	38.2%	24.0%	35.2%	64.8%	25.6%
Non-U.S. Equity	21.7%	29.0%	53.4%	46.6%	10.5%
Developed Ex-U.S.	*19.4%*	*21.8%*	*47.8%*	*52.2%*	*10.5%*
Emerging Markets	*2.3%*	*7.2%*	*100%*	*0%*	*0%*
Core Fixed Income	21.2%	19.0%	100%	0%	0%
Credit Opportunities	0.8%	5.0%	100%	0%	0%
Real Assets	5.3%	10.0%	100%	0%	0%
Private Equity	9.3%	12.0%	100%	0%	0%
Cash	3.5%	1.0%			
Total Fund (cash excluded)			**63.9%**	**36.1%**	**36.1%**

Table 2-2. LACERS Asset Class Weights (9/30/2021 Quarterly Performance Report)

Asset Class	Weight	Policy	Active Share of Asset Class	Passive Share of Asset Class	Passive % of Total Fund ex. Cash
U.S. Equity	23.4%	22.5%	16.0%	84.0%	19.7%
Non-U.S. Equity	26.0%	27.0%	53.9%	46.1%	12.1%
Developed Ex-U.S.	*19.3%*		*46.0%*	*54.0%*	*10.5%*
Emerging Markets	*6.7%*		*76.4%*	*23.6%*	*1.6%*
Core Fixed Income	16.1%	16.7%	69.2%	30.8%	5.0%
Credit Opportunities	8.1%	7.3%	100%	0%	0%
Real Assets	11.5%	12.0%	100%	0%	0%
Private Equity	14.5%	13.5%	100%	0%	0%
Cash	0.4%	1.0%			
Total Fund (cash excluded)			**63.2%**	**36.8%**	**36.8%**

The LACERS portfolio has increased the weighting of passive investments very slightly during the review period, going from 36.1% to 36.8%, when excluding cash. U.S. Equity, Developed Ex-U.S., Emerging Markets, and Core Fixed Income increased their use of passive investments, as seen in the table below. This shift was offset by an increased allocation to Credit Opportunities, Real Assets, and Private Equity. Passive investing is not as common within these asset classes, and not an option at all within some sub-asset classes.

Table 2-3. Passive Share of Portfolio as of 3/31/2013 and 9/30/2021

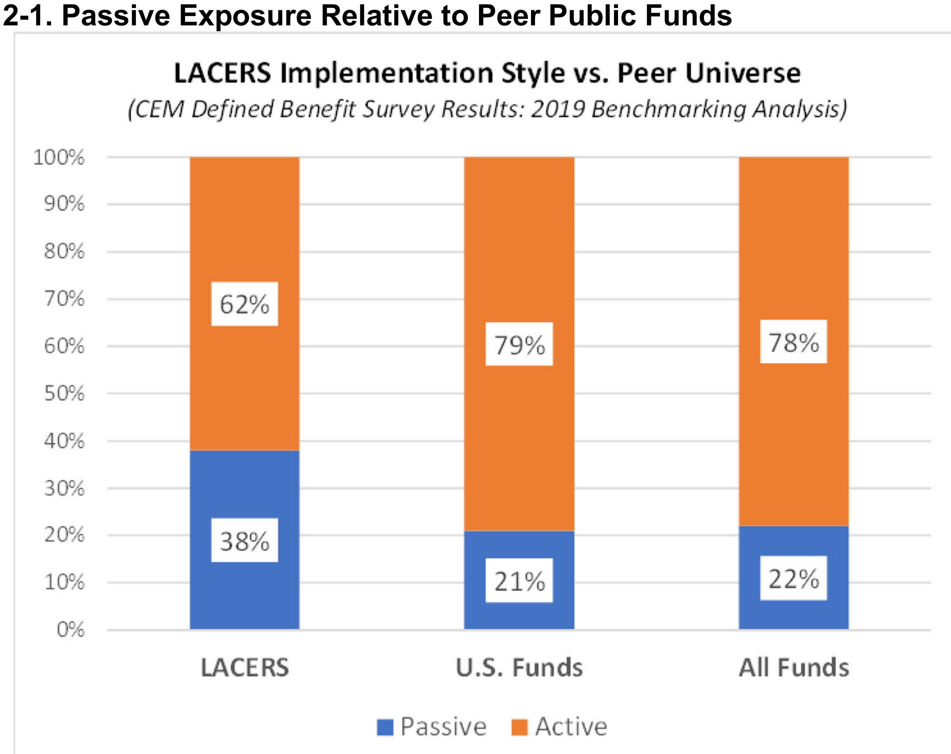
Asset Class	Passive Share of Asset Class 3/31/2013	Passive Share of Asset Class 9/30/2021
U.S. Equity	64.8%	84.0%
Developed Ex-U.S.	52.2%	54.0%
Emerging Markets Equity	0%	23.6%
Core Fixed Income	0%	30.8%

Conclusion:
LACERS has increased its use of passive investments within asset classes where it is possible to do so. Due to the independent decision to increase allocations to asset classes that do not lend themselves to passive investing, the aggregate level of passive exposure increased slightly.

- ***Benchmark and comparison of LACERS' use of passive management***

Background:
In the Implementation Style section of the CEM Defined Benefit Survey Results: 2019 Benchmarking Analysis (most recent benchmarking analysis LACERS performed) LACERS' use of active and passive investment managers is compared to a peer universe of U.S. funds.

Chart 2-1. Passive Exposure Relative to Peer Public Funds



According to this benchmarking analysis (shown above), the peer universe of U.S. Funds averaged 79% active management and 21% passive management. LACERS had 62% active and 38% passive management. This is consistent with the ~37% weight in passive management, from the 9/30/2021 performance report.

In 2019 LACERS had a 17% higher allocation to passive management than its peer universe reported in the CEM Defined Benefit Survey Results.

Additionally, we used the Greenwich Associates 2020 Market Trend Data Tables for U.S. Institutional Investors to compare LACERS' implementation style against a peer group of public funds greater than $5B. (The Greenwich Associates data is not part of the documentation provided by LACERS, but was independently sourced)

When excluding cash, we get the following average portfolio allocation to passive investments.

Table 2-4. Total and by Asset Class Passive Exposure for LACERS and Public Fund Peers

Passive % Total Portfolio ex. Cash		
Asset Class	**LACERS** 9/30/2021	**Peer Group** (Public Funds +$5B)
U.S. Equity	19.7%	11.5%
Non-U.S. Equity	12.1%	4.1%
Core Fixed Income	5.0%	5.4%
Credit Opportunities	0%	0%
Private Equity	0%	0%
Real Assets	0%	0%
Other	0%	0%
TOTAL	**36.8%**	**21.0%**

LACERS 37% allocation to passive investments was ~16% higher than the peer group's 21% allocation. The difference is primarily due to LACERS' higher passive portfolio weight in U.S. Equity (19.7% vs. 11.5%) and Non-U.S. Equity (12.1% vs. 4.1%).

Conclusion:
LACERS has implemented passive investment mandates to a larger extent than its peers. This move has been consistent with consultant recommendations and its risk budgeting process. For more detail concerning LACERS' risk-budgeting process, please refer to the section below.

- ***LACERS' cost benefit analysis of active vs. passive management***

Background:
LACERS performed cost-benefit analysis of active vs. passive investment management three times during the scope period (2013, 2018, and 2021). LACERS has a formal risk budgeting process documented in its Investment Policy Manual (IPM). The risk budgeting process provides a framework for deriving the allocation between passive and active investments of a given asset class, where applicable, as articulated on pages 199-200 of the IPM:

Asset Class Risk Budgets
The next greatest driver of the System's return and risk is the asset class structure. Asset class structure decisions involve determining which strategies will be included within the asset class, the allocations to these strategies, and ***setting the active versus passive exposure****.*

A "risk budget" represents the amount of active risk the Board is willing to assume for each asset class. The Board adopts a risk budgeting approach to construct, measure, and monitor asset classes that include active and passive strategies. The Board believes that this approach provides an objective and systematic yet flexible means of constructing asset classes in a way which will maximize the probability of meeting long term asset class objectives while managing the risk of its public markets asset classes in a proactive manner.

LACERS' Risk Budgeting Process

In order to arrive at the optimal risk budget objective for each asset class, the Board engages in an objective, disciplined process that will be uniformly ***applied to all asset classes that include active and passive strategies****. This process involves a mean variance optimization approach which employs the following inputs for each strategy under consideration by the Board:*

1. *Expected excess return over the asset class benchmark*
2. *Expected excess risk over the asset class benchmark*
3. *Expected correlations between strategy excess returns*
4. *Constraints to ensure prudent exposures to strategies and risk factors*

The objective of this mean variance optimization exercise is to arrive at an excess risk target (i.e., the risk budget) which maximizes the excess return desired by the Board. The risk budget reflects the amount of excess risk the Board is willing to take for that desired excess return.

<u>Framework for Policy Implementation</u>
The risk budgeting process outlined above will be conducted in conjunction with the Board's asset-liability valuation process. ***The frequency of this process will be at least every three years or sooner if warranted*** *based upon changes in market conditions or benefits to plan participants. The Board may choose at that time to revise or retain its existing risk budget as a result of this process.*

The IPM articulates that an active vs. passive review will be performed at least every three years, as part of the asset allocation process. During the scope period there was a five-year gap between the 2013 and the 2018 reviews.

Conclusion:
LACERS has formally performed cost benefit analysis of active vs. passive management during

the scope period. However, they were not performed as frequently as required by the IPM. We believe ongoing reviews of active vs. passive are a component of good governance, but do not believe a review cycle needs to be articulated in policy.

Recommendation II.1.:

High Priority	Medium Priority	Low Priority
X		

- Aon recommends creating a formal procedure to ensure governance processes articulated in the policy are completed on the mandated cycle.

- ***Adequacy of the active vs passive analysis performed***

Background:
The primary analysis performed by LACERS which drives the level of active vs passive management within the portfolio is its "Risk Budgeting Process". Within this section of our report we have reviewed the adequacy of the risk budgeting analysis performed during the scope period, and its role in selecting the desired level of passive investments. The Risk Policy in the IPM outlines a number of steps that are required for the Risk Budgeting Process. It appears that the 2013, 2018, and 2021 reviews performed all the steps outlined, as summarized in the table below.

Table 2-5. Risk Budgeting Process Documented in IPM

Required by Policy	2013 Review	2018 Review	2021 Review
Update expected excess net return over the asset class benchmark, for active strategies	X	X	X
Update expected excess risk over the asset class benchmark, for active strategies	X	X	X
Update expected correlations between strategy excess returns, for active strategies	X	X	X
Update constraints to ensure prudent exposures to strategies and risk factors	X	X	X
Perform mean variance optimization with the updated inputs	X	X	X

The risk budgeting process also included additional analysis beyond what was required by the IPM, but noteworthy with regards to our review.

Table 2-6. Additional Applicable Analysis Included within the Risk Budgeting Process

Additional analysis performed in reviews	2013 Review	2018 Review	2021 Review
Analysis of expected asset class returns	X	X	O

Analysis of beta risk of asset classes	X	X	O
Review of how best to pursue active management	X	X	X
Review of asset classes with best opportunities for excess returns through active management	X	X	X
Review of active fees by asset class	X	X	O
Analysis of LACERS use of passive investments	X	X	O
Comparison against other pensions funds' use of passive investments	O	X	O

The complete risk budgeting process has two components. The first component is the allocation of absolute risk to the various asset classes in the portfolio. The second component is the active risk budgeting process to determine how much active risk (difference in return between the portfolio and the benchmark) the Board is willing to accept within each asset class.

Active risk (or tracking error) measures the amount of deviation between the return of the portfolio and the benchmark. Lower active risk implies that differences relative to the benchmark are expected to be small and is typically associated with larger allocations to passive investments or lower risk active mandates. Larger active risk implies that differences relative to the benchmark will be more meaningful and is typically associated with smaller allocations to passive investment management or higher risk active mandates. As of 9/30/2021, LACERS had the following active risk budget.

Table 2-7. Active Risk Relative to the Risk Budget and Peers (9/30/2021)

Public Markets Asset Class	Previous Target Risk Budget	Current Target Risk Budget	Actual 3-Yr Tracking Error	Peer Group 5-Yr Active Risk
U.S. Equity	0.50%	1.25%	0.93%	1.34%
Non-U.S. Equity	1.20%	1.75%	1.71%	1.81%
Core Fixed Income	1.00%	1.75%	0.60%	1.01%
Credit Opportunities	1.50%	3.50%	1.87%	
Public Real Assets	3.00%	1.25%	4.14%	

(Peer Group 5-Yr Active Risk sourced from Aon's Client Universe Risk Data)

The current active risk targets for U.S. Equity and non-U.S. Equity are both relatively close to their peer group values and the actual tracking errors. The current risk target for Core Fixed Income is a bit higher than the peer group level, but the actual tracking error is well below. It is expected that actual tracking errors will deviate from the targets over time. The current targets were approved on 6/22/2021, according to the performance report, and will not yet be fully reflected in the 3-year tracking error. Additionally, risk budgeting is in some ways more of an art than a science and realized tracking error is not expected to exactly track the budgeted amount.

Conclusion:
The primary analysis performed by LACERS which drives the level of active vs passive management within the portfolio is its "Risk Budgeting Process". This analysis was performed in 2013, 2018, and 2021.

As outlined above, we consider the risk budgeting process used to derive the level of passive management to be in-line with best practice.

- ***Recommended frequency of cost/benefit studies***

Conclusion:
It is common practice in the industry to perform active vs passive cost/benefit studies on an ad hoc basis. We would consider it best practice to review the implementation of active vs passive whenever asset allocation is reviewed, so in many scenarios annually. However, we see these annual reviews more as an opportunity to re-affirm the previous decision and ensure that the exposures continue to be in-line with expectations. We do not expect clients to make material changes to their active vs passive implementation on a frequent basis. Furthermore, we believe that the active vs passive decision should be predicated on forward looking expectations and not recent performance.

- ***LACERS' response to studies***

Conclusion:
As shown in the analysis above, the Board has been significantly increasing its exposure to passive investment management during the scope period in asset classes where passive investment management is most common. Additionally, the portfolio has a larger allocation to passive investment than peers.

- ***Advantages/Disadvantages relative to passive management***

Conclusion:
We believe that actively managed equities are likely to add value for skilled investors who have performed robust diligence and do not over-emphasize short-term performance. However, these characteristics are rare, so most of the world's investors are better off investing equities passively. We apply these views to several specific situations:

Investment committees with turnover: Investors need to remember why they hired each manager and how they expect them to perform in various markets over different time periods. This is especially important for high-conviction managers, whose performance can have large swings. Institutional memory can be short when committees turn over frequently, and committee members may be less knowledgeable about, or patient with underperformance from investment managers they did not select. For investment committees with significant turnover, we suggest possible options to manage this risk:

- Develop a written set of investment beliefs, including the role and expectation for each manager. When a high-conviction equity manager is experiencing bumpy performance, this could be resurfaced to remind the committee that it was aware such an experience was likely and help them keep a steady hand.
- Delegate the investment decision to the CIO or consultant. In this approach, the CIO monitors performance and the committee will be less focused on hiring and firing decisions for individual managers.

Investors with external pressures: Most institutional investors have external pressures. For example, it is common to be reviewed by a board, and chief investment officers may have career risk associated with their investment decisions. Public pension plans are often subject to scrutiny from taxpayers, legislators, and the media. These influences can be both good and bad; most notably, it often makes it difficult for investors to be different from the norm. We have seen some investors hire (what we believe are) good investment managers, experience short-term underperformance, then be pressured to terminate the managers. “Know thyself” is key; investors should only pursue strategies that they can implement successfully.

Investors with high return needs: It is tempting to say that investors needing high returns should use active management. It is critical to start by asking whether the investor is likely to add value with active management—active management used poorly is worse than passive management. Is the investor well-suited for active management, including being comfortable with active risk? If not, passive management may be preferable, and the investor may need to find another way to address its return needs.

We believe that actively managed fixed income is likely to add value for skilled investors or strong fee negotiators willing to employ loosely constrained or unconstrained strategies. However, active management is more complex and less liquid, so investors looking for simplicity or liquidity may be better served by investing passively. The primary reason we would consider passive fixed income as a viable alternative is if the client is particularly fee sensitive.

Investors who are particularly fee-sensitive: All investors should be fee-sensitive, as fees erode performance and net-of-fee performance is what truly matters.

- ***Potential cost savings***

Conclusion:
Increased exposure to passive investment management could be utilized to negotiate lower investment consulting, custody, and potentially lower staff costs. However, we believe these gains would be relatively modest and not a compelling rationale for increasing passive investment management. We believe increased exposure to passive investment management would be based on the Board’s views on the topics outlined below in our recommendations going forward on the next page of this Report.

- ***Impacts***

Conclusion:
The most efficient way to evaluate the impact of active investment management is through the review of net of fee performance attribution for the applicable period. Aon performed net of fee performance attribution for the scope period. The table below provides the impact to the Total Fund performance relative to the benchmark for each asset class where passive implementation is viable over the scope period. As shown, active implantation has added 0.32% (32 bps) annualized over the period. This represents an economic gain vs choosing to passively invest over the period evaluated.

Table 2-8. Excess Returns Achieved By Active Management During Scope Period

Asset Class	Net of Fee Excess Return (8-Years ending 9/30/2021)
U.S. Equity	-6
Non-U.S. Equity	31
Core Fixed Income	7
Total	**+32 bps (0.32%)**

- ### ***Performance of passively v. actively managed assets***

Conclusion:
Passive investment management represents an elegant, efficient, and low-cost implementation of market exposure. Over long and short periods of time the exposure can typically replicate the investment results of the market. However, there is often modest underperformance associated with fees and transactions costs. This tracking tends to be small (a few bps), but boards need to understand that the decision to passively implement does not equate to a complete elimination of underperformance. Furthermore, it likely guarantees a very small level of underperformance over time (due to fees and transaction cost; potentially partially offset by securities lending income). The comparison of the success of passively managed assets measured against actively managed assets in the same classes is best articulated in the table in the previous response. Asset classes with a positive value represent areas where active investment decisions have added value, and asset classes with a negative value represent areas where active investment decisions have detracted value. As shown, these exposures added ~0.32% annualized over the scope period, as opposed to a small level of underperformance that would likely be associated with a passive implementation. Another method for evaluating this information is by reviewing the asset class attribution provided in Appendix E of this Report.

- ### ***Our recommendations going forward***

Background:
We have provided an overview of our views of active vs passive below. For a more thorough articulation of our views, we have attached our white paper “Debating Active vs. Passive” as Appendix D.

Aon’s Active vs. Passive Views
The active versus passive management debate is both nuanced and rich. There are good reasons why this is a hotly-debated topic, and reasonable people fall on both ends of the spectrum. Our views are not rigid or ideological: they are based on research, the details of which are contained in several of our white papers we have published and are referenced within our white paper included as an appendix.

We believe some investors are well-suited for active management, while others are likely to perform best with passive investments. Suitability will vary based on both investor circumstance and asset class. While we acknowledge the average active manager is likely to underperform after fees, we also believe that actively managed, long-only public equities are likely to add value for skilled investors willing to employ well diligenced investment strategies and stick with them over the long-term. However, conviction in active equity investment management is challenging to maintain, so most of the world's investors are better off investing equities passively.

Active management in fixed income has higher odds of success than equities, especially for broad, multi-sector mandates. Passive mandates may make sense for those needing a high level of simplicity or liquidity, or those investors who are cost sensitive.

Conclusion:
We believe some investors are well-suited for active management, while others are likely to perform best with passive investments. We have highlighted some of the factors that make passive investing more desirable above. For those institutional investors who are well equipped to incur active risk, and do so prudently, we believe they can achieve incremental return over a passive benchmark over long periods of time. Boards implementing actively managed investment strategies should be comfortable with:

- The level of active risk within the investment program – Achieved through active vs passive education and risk budgeting discussions – Currently performed by LACERS
- The ability of its staff and consultant to identify alpha generating investment opportunities – Achieved through ongoing oversight
- Experiencing periods (potentially long periods) of underperformance relative to passive implementation – Achieved by understanding the potential of underperformance prior to implementation

If the Board is comfortable with these factors, Aon is supportive of active management within the investment program.

- ## *Mandated statutory investment requirements*

Background:
The City Charter requires that LACERS adopt an Investment Policy Statement (IPS) with the desired rate of return and acceptable levels of risk for each asset class, asset allocation goals, guidelines for the delegation of authority, and information on the types of reports used to evaluate investment performance. LACERS is required to conduct an annual IPS review and subsequently share with the Mayor and City Council. Furthermore, the Plan is required to disclose fees for all alternative investment vehicles entered into on or after January 1st, 2017.

Conclusion:
We observed that LACERS is in compliance with the mandated statutory investment requirements regarding the IPS. However, based on a review of the most recent Investment Policy Statement, dated May 25, 2021, Aon determined that the Policy does not define applicable statutory requirements that are to be followed by the System.

Recommendation II.2.:

High Priority	Medium Priority	Low Priority
	X	

- Aon recommends all federal, state, and local legal requirements be explicitly stated together within the IPS.

- ***The Investment Policy Statement ("IPS") and associated processes***

Background:
The IPS outlines various objectives in section I.II titled "Investment Goal Statement". Below we have included a list of each objective (bullets A-G), as well as analysis on the objectives where quantitative or qualitative review is possible.

A. The overall goal of the System's investment assets is to provide plan participants with postretirement benefits as set forth in the System documents. This will be accomplished through a carefully planned and executed investment program.

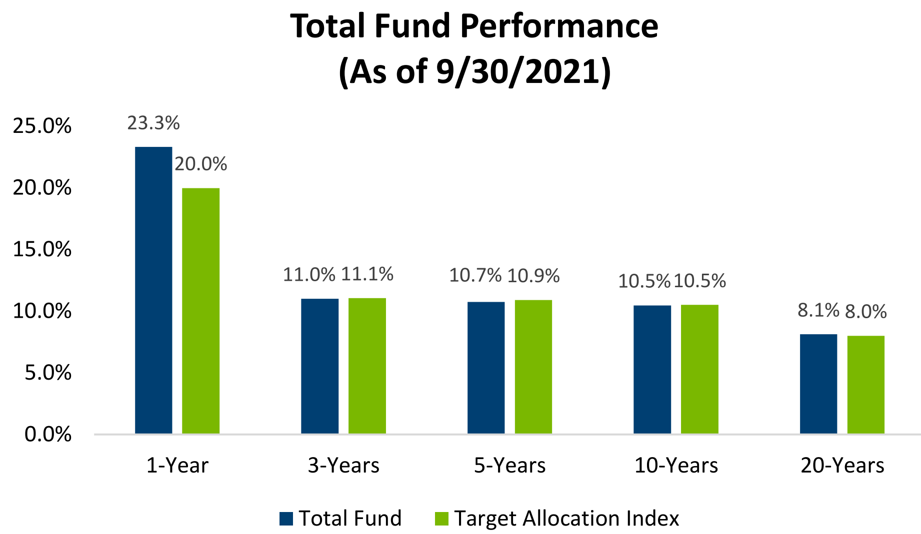
   a. We believe this objective could be best measured in two ways:

      i. The adequacy of the Asset-Liability/Asset Allocation process - Reviewed later in this section of the report.

      ii. Ability to produce investment results commensurate with the strategic asset allocation derived by during the Asset-Liability/Asset Allocation process.

         1. The chart below illustrates the performance of the Total Fund relative to the policy benchmark as of September 30th, 2021. Over long-term trailing periods, the Fund, on a net of fees basis, has been able to produce results generally in-line with the policy allocation.

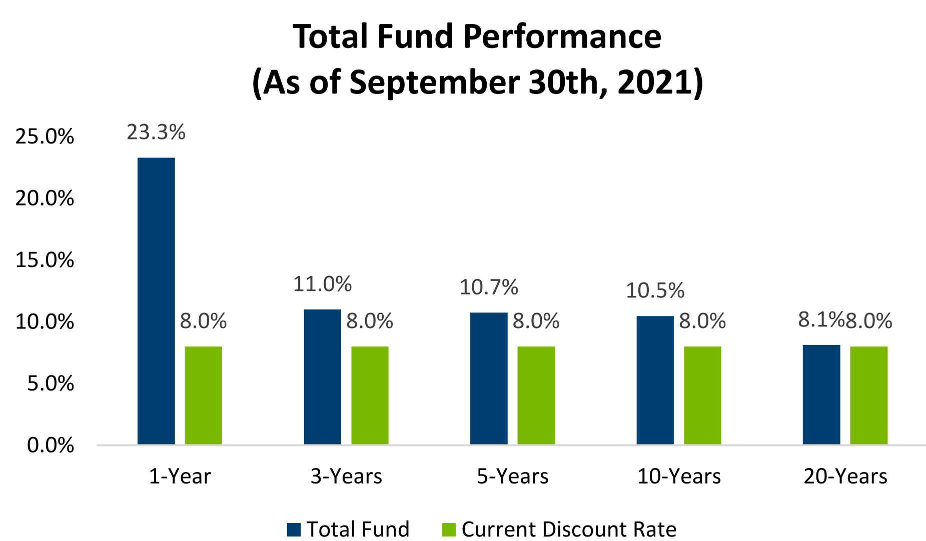
Chart 2-2. Total Fund Performance Relative to the Primary Benchmark



B. A secondary objective is to achieve an investment return that will allow the percentage of covered payroll the City must contribute to the System to be maintained or reduced and will provide for an increased funding of the System's liabilities.

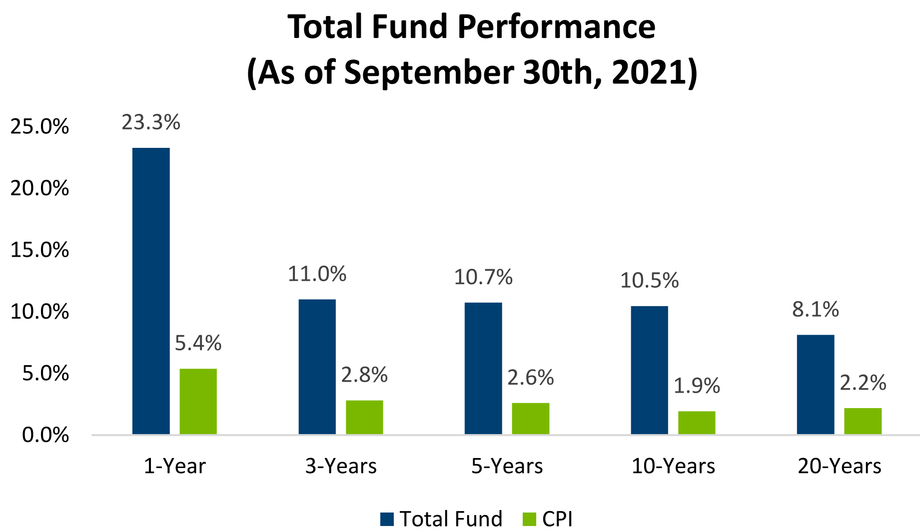
a. We believe this objective is best evaluated by comparing the investment performance of the Plan relative to the actuarially stated rate of return or discount rate. During the scope period the expected return ranged between 7% and 8%. As shown in the table below, the Plan has produced investment returns in excess of the 8% discount rate, as well as the current 7% target.

Chart 2-3. Total Fund Performance Relative to the Higher of the Recent Discount Rates



b. This objective can also be evaluated by comparing the trailing investment results to inflation. The table below reviews the trailing returns of the portfolio against the Consumer Price Index (CPI or inflation). As shown, the portfolio has generated meaningful real rates of return over time (i.e., returns greater than inflation).

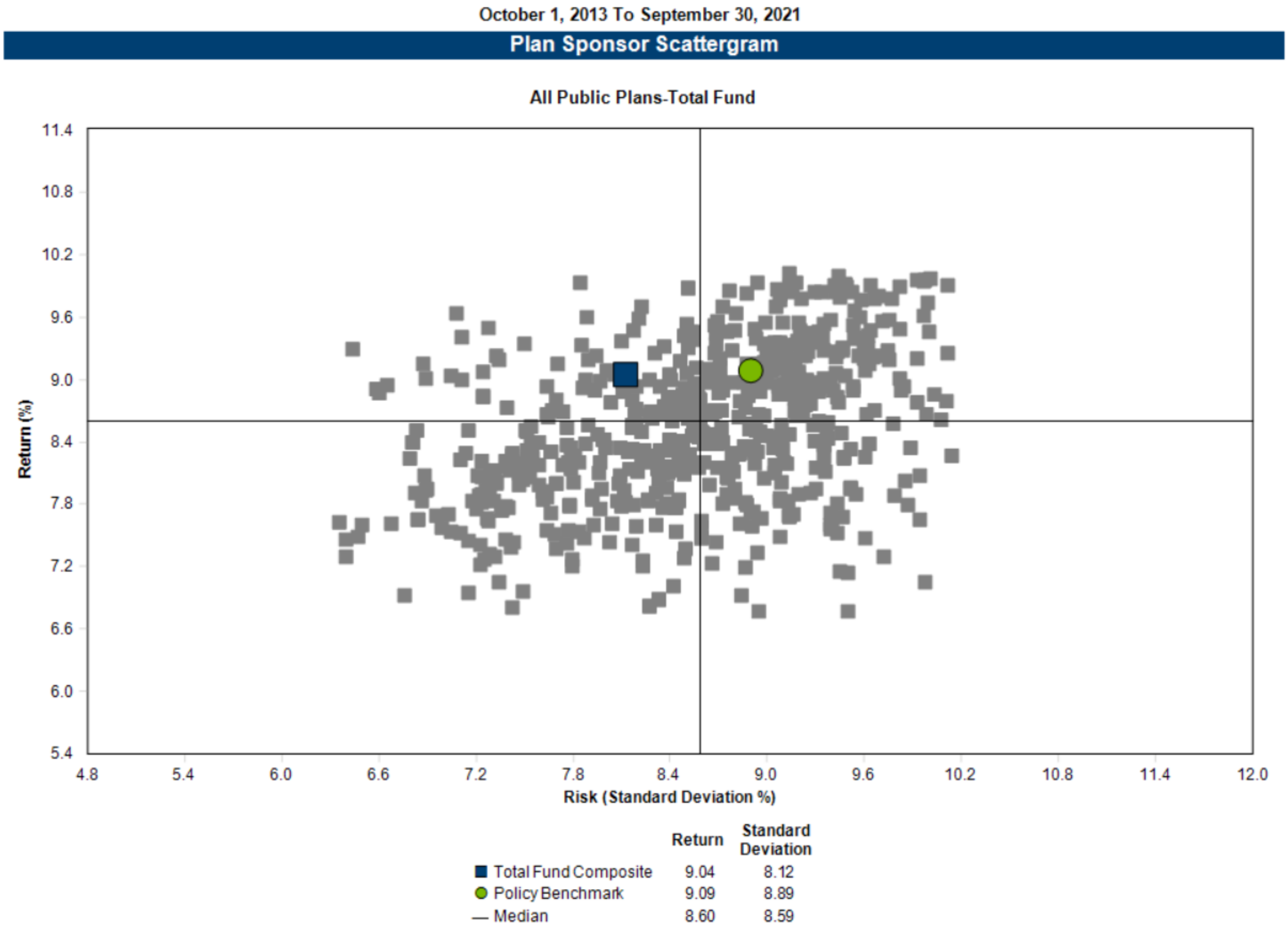
Chart 2-4. Total Fund Performance Relative to Inflation



C. The System's assets will be managed on a total return basis. While the System recognizes the importance of the preservation of capital, it also adheres to the principle that varying degrees of investment risk are generally rewarded with compensating returns. The Board's investment policy has been designed to produce a total portfolio, long-term real (above inflation) positive return above the Policy benchmark on a net-of-fee basis as referenced in the quarterly Portfolio Performance Review ("PPR"). Consequently, prudent risk-taking is warranted within the context of overall portfolio diversification. As a result, investment strategies are considered primarily in light of their impacts on total plan assets subject to the provisions set forth in Section 1106 of the City Charter with consideration of the Board's responsibility and authority as established by Article 16, Section 17 of the California State Constitution.

   a. We believe this objective is best evaluated by comparing the risk adjusted investment results of the Plan relative to the primary benchmark and peers. The chart below plots the net-of-fees risk/return characteristics of the System and Policy Custom Index against a peer universe of other public funds. As shown, the portfolio has produced a return which is above median from a return perspective, as well as a lower standard deviation than the peer median. Additionally, the portfolio has produced a net of fee return commensurate with the benchmark at a lower level of risk.

Chart 2-5. Risk Adjusted Total Fund Performance Relative the Benchmark and Peers During the Scope Period



b. Section XII "Risk Management Policy" of the IPS provides an overview of the System's policy regarding how risk should be evaluated in the asset allocation process and liquidity considerations. The consultant's quarterly investment performance review provides various measures of risk at the Total Fund level for the Board to evaluate, as shown below (this data is provided on a gross of fee basis). The rank information represents the percentile ranking relative to peer public funds with assets of $5-$50 billion, with 1 representing the best and 100 representing the worst.

Table 2-9. Risk Analysis from Quarterly Performance Report

5 Years Ending September 30, 2021								
	Annualized Return (%)	Rank	Annualized Standard Deviation	Rank	Sharpe Ratio	Rank	Sortino Ratio RF	Rank
LACERS Master Trust	10.93%	41	8.83%	74	1.11	70	1.23	67
Policy Index	10.90%	44	10.01%	99	0.98	94	1.09	81
InvMetrics Public DB $5-50B Gross Median	10.75%	--	7.86%	--	1.17	--	1.27	--

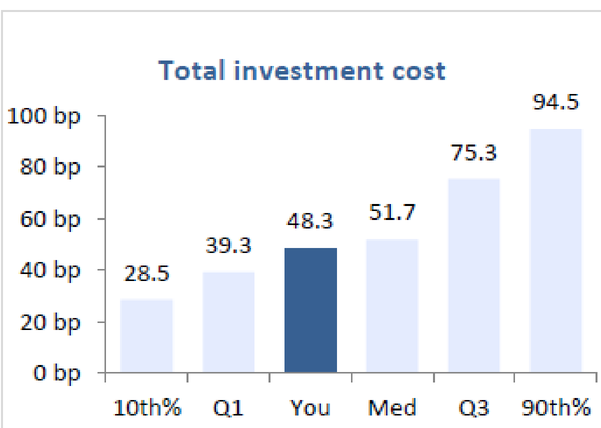
D. The System's investment program shall, at all times, comply with existing applicable local, state, and federal regulations.
   a. See above for review of compliance with statutory requirements

E. All transactions undertaken will be for the sole benefit of the System's participants and beneficiaries and for the exclusive purpose of providing benefits to them and defraying reasonable administrative expenses associated with the System.

   a. LACERS participates in various CEM benchmarking studies that evaluate the cost of administration as well as the cost of investment management. These studies provide a great source for understanding the relative cost of implementation from an administrative and investment perspective. We more fully discuss the CEM administration expense benchmarking report later in this Report in Section III.
      i. Investment Cost Findings – CEM Defined Benefit Survey Results 2019 Investment Benchmarking Analysis

Total investment cost

Your plan's total investment cost, excluding transaction costs and private asset performance fees, was $84.9 million or 48.3 bps. This was below the U.S. median of 51.7 bps.



Your total investment cost consists of asset management costs and oversight, custodial and other costs. A breakdown of these costs can be found on page 17.

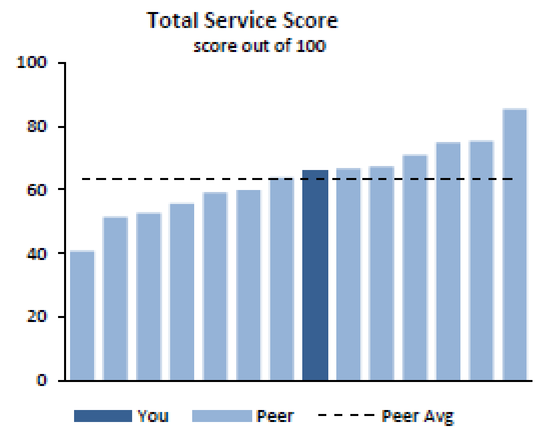
Total investment cost excludes transaction costs, private asset performance fees and actuarial costs.

Comparisons of total investment cost must be interpreted with caution because differences are often due to differences in size and asset mix. Therefore, CEM calculates a benchmark cost for each fund to help them understand whether they are high or low cost after adjusting for differences in size and asset mix. The benchmark cost is determined using regression analysis on all participating funds in the CEM database.

      ii. Administrative Cost Findings – CEM Benchmarking 2018

Benchmarking Analysis

Key Takeaways:



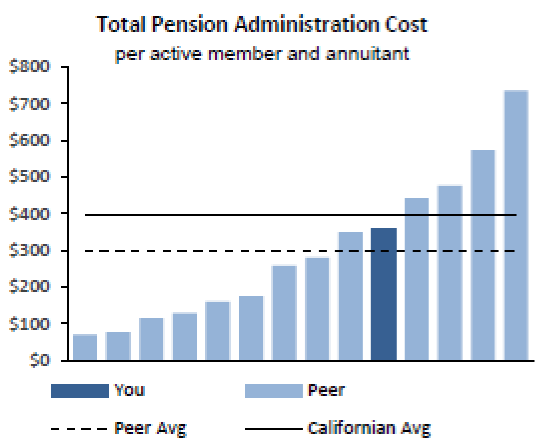
Your total service score was above the peer average.

The activities with the biggest positive impact on your service score were:

- Website: You offer 8 online transaction tools versus 6 for your peers.
- Written estimates: Your turnaround time was 1 day versus a peer average of 20 days.

This was offset by:

- Disability: Your turnaround was 11 months (versus 10 month peer average).
- Member contacts: Your call wait time was 217 seconds versus 96 seconds for your peers.



Your pension administration cost was $61 above the peer average and $35 below the Californian peer average.

The main reason why was that you used more FTEs per 10,000 members to serve your members.

Your total complexity score was 42. This was above the peer average of 37.

F. The System has a long-term investment horizon and uses an asset allocation, which encompasses a strategic, long-run perspective of capital markets. It is recognized that a strategic long-run asset allocation plan implemented in a consistent and disciplined manner will be the major determinant of the System's investment performance.
    a. Performance based components of this objective are evaluated in our review of Investment Objectives A, B, and C above.

G. Investment actions are expected to comply with "prudent expert" standards as described:

"…with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims."

The "standard of care" will encompass investment and management decisions evaluated not in isolation but in the context of the portfolio as a whole and as part of an overall investment strategy having risk and return objectives reasonably assigned. The circumstances that the System may consider in investing and managing the investment assets include any of the following:

1. General economic conditions;
2. The possible effect of inflation or deflation;
3. The role that each investment or course of actions plays within the overall portfolio;
4. The expected total return from income and the appreciation of capital;
5. Needs for liquidity, regularity of income, and preservation or appreciation of capital;
6. A reasonable effort to verify facts relevant to the investment and management of assets.

Conclusion:

There is no one true measurement to define the success of a retirement program. We believe the best process for evaluating the success of implementation is to review the results of the program relative to the objectives articulated in the investment policy statement. The IPM articulates 7 investment objectives (Investment Objectives A-G) that we believe are in-line with best practice. Our review above provides analysis for the Objectives where quantitative or qualitative review is possible.

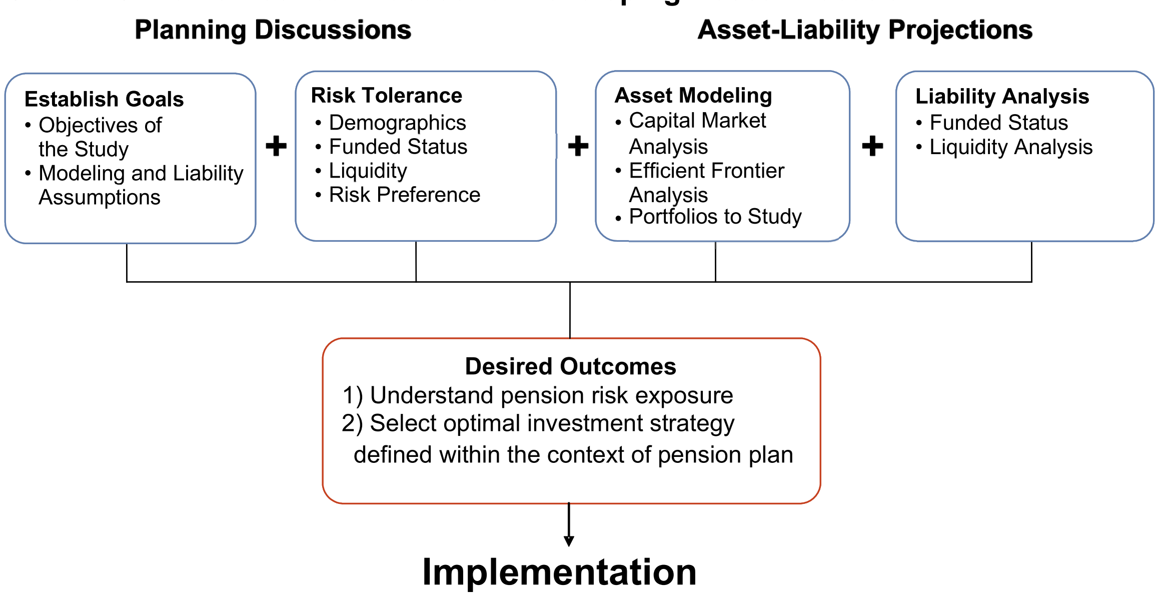
- The portfolio has produced net of fee returns that approximate the benchmark return over recent trailing periods
- The portfolio has produced meaningful returns over inflation over time
- The portfolio has produced favorable risk adjusted net of fee returns relative to peer public funds and its benchmark.
- As of September 30th, 2021, recent trailing performance was above the legacy actuarially stated rate of return of 8%, as well as the current 7% rate

- ***The most recent asset allocation study***

Background:
An asset-liability study is a comprehensive study that models the possible future results of different asset allocations under a variety of market conditions. The modeling of asset allocations does not assume the same conditions during the entire time period but allows for changes in market conditions over the modelled period. Examples of “conditions” include periods of good equity markets, poor equity markets, high inflation, low inflation, and other similar topics. The results are the costs that could be expected to be generated by a specific asset allocation. The study provides information which allows for a more informed discussion about the appropriate asset allocation for an investment program and helps decision-makers understand the worst possible outcomes of a particular asset allocation so they can determine if changes to the current asset allocation are appropriate for the risk exposure. Asset-liability modeling also provides a unique perspective since it incorporates the characteristics of the plan’s cash flows (i.e., cash contributions and benefit payments). If the nature of cash flows for the pension plan is ignored, the review of the plan’s asset allocation would only address risk versus return of the individual asset classes and how they are correlated.

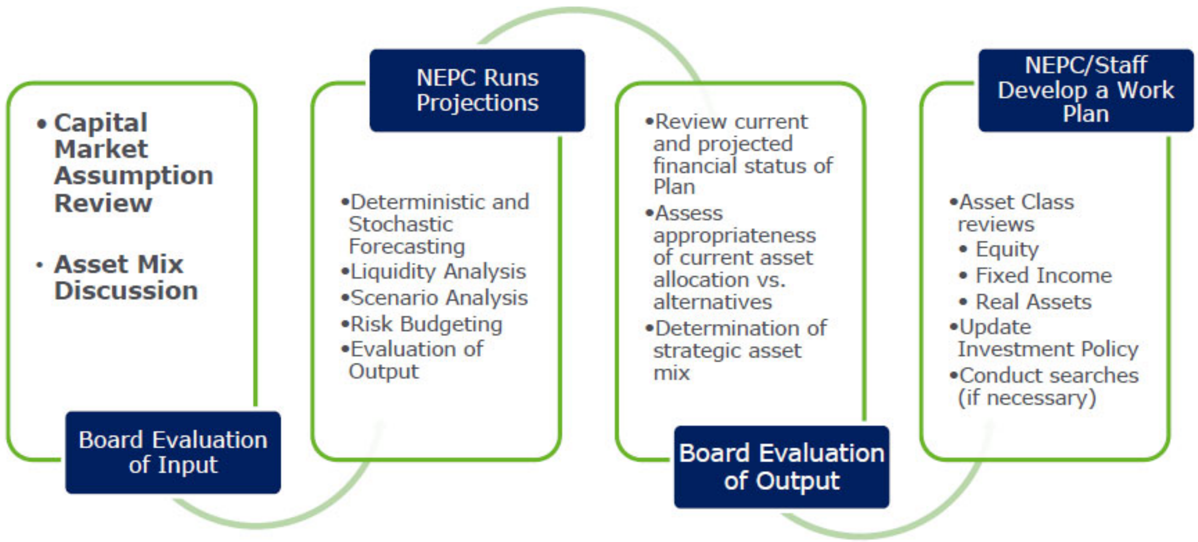
The chart below illustrates the steps in the development of an asset allocation which considers both assets and plan liabilities. This integrated approach provides a more holistic view. In Aon’s experience, asset-liability modeling and a formal asset allocation study are typically performed every three to five years with the best practice being a study done every three years or when material changes are made to the investment program or projected liabilities.

Chart 2-6. Aon’s Desired Process for Developing Asset Allocation



Based on the documentation provided to Aon, the System's investment consultant has performed an asset-liability study every three years (2012, 2015, 2018, and 2021) which is in line with best practice. The below table provides an overview of the analysis provided to the Board by the investment consultant:

Chart 2-7. Asset Allocation Process Followed by LACERS



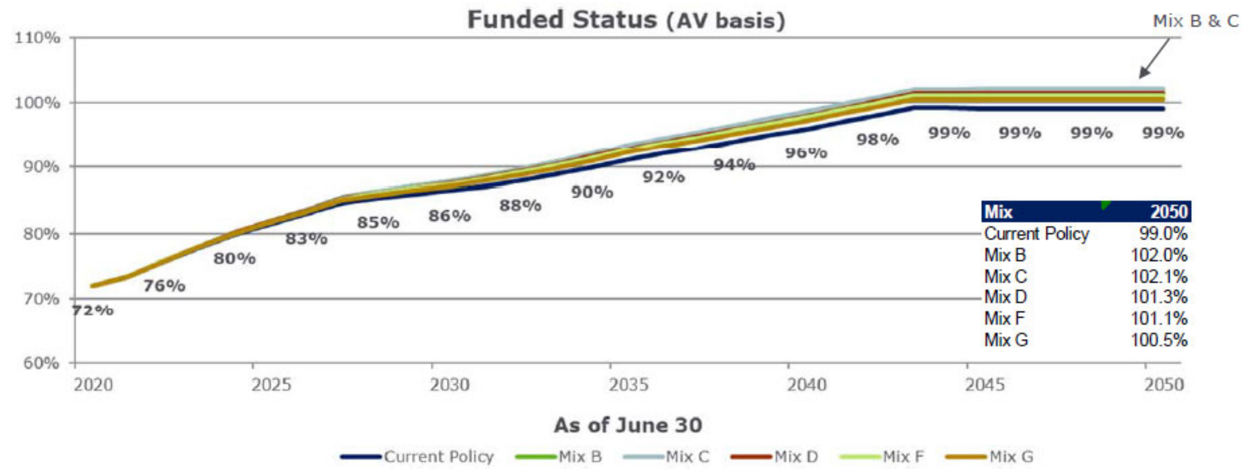
Aon finds the process followed by the investment consultant to be robust and in line with best practice. The Board is provided with ample information and analysis to more than adequately consider the risk/return/cost impacts of either staying with the current policy allocation or moving to an alternative asset allocation. The analysis also reviews the impact these changes will have on the overall funded status of the Plan. The table below, from the consultant's analysis, compares the current policy targets relative to various alternatives. The table also includes the probability of each mix's ability to achieve the targeted 7% discount rate.

Table 2-10. LACERS Expected Return Analysis From the Most Recent Asset Allocation Review

	Current Policy	Mix A	Mix B	Mix C
Cash	1.0%	1.0%	1.0%	1.0%
Total Cash	**1.0%**	**1.0%**	**1.0%**	**1.0%**
US Large-Cap Equity	14.0%	16.2%	15.0%	16.0%
US Small/Mid-Cap Equity	5.0%	7.0%	6.0%	7.0%
Non-US Developed Equity	17.0%	15.0%	15.0%	17.0%
Non-US Developed Small-Cap Equity	3.0%	3.0%	3.0%	3.0%
Emerging Market Equity	5.67%	5.67%	6.67%	6.67%
Emerging Market Small-Cap Equity	1.33%	1.33%	1.33%	1.33%
Private Equity	14.0%	14.0%	16.0%	14.0%
Total Equity	**60.0%**	**62.2%**	**63.0%**	**65.0%**
Core Bonds	13.75%	13.75%	11.25%	13.75%
High Yield	2.0%	2.0%	1.5%	2.0%
Bank Loans	2.0%	2.0%	1.5%	2.0%
EMD (External Currency)	2.25%	2.25%	2.00%	2.25%
EMD (Local Currency)	2.25%	2.25%	2.00%	2.25%
Private Debt	3.75%	3.75%	5.75%	3.75%
Total Fixed Income	**26.0%**	**26.0%**	**24.0%**	**26.0%**
TIPS	3.6%	2.6%	3.6%	3.6%
Commodities	1.2%	0.0%	0.0%	0.0%
REITS	1.2%	1.2%	1.4%	2.4%
Core Real Estate	4.2%	4.2%	4.2%	4.2%
Non-Core Real Estate	2.8%	2.8%	2.8%	2.8%
Total Real Assets	**13.0%**	**10.8%**	**12.0%**	**13.0%**
Expected Return 10 yrs	**5.8%**	**5.9%**	**6.1%**	**6.1%**
Expected Return 30 yrs	**6.8%**	**6.9%**	**7.1%**	**7.1%**
Standard Dev	**13.9%**	**14.1%**	**14.5%**	**14.9%**
Sharpe Ratio (10 years)	**0.36**	**0.36**	**0.37**	**0.36**
Sharpe Ratio (30 years)	**0.36**	**0.35**	**0.36**	**0.35**
Probability of Reaching 7.0% (1 year)	**46.7%**	**46.9%**	**47.6%**	**47.7%**
Probability of Reaching 7.0% (10 years)	**39.5%**	**40.4%**	**42.3%**	**42.6%**
Probability of Reaching 7.0% (30 years)	**47.3%**	**48.3%**	**51.3%**	**51.4%**

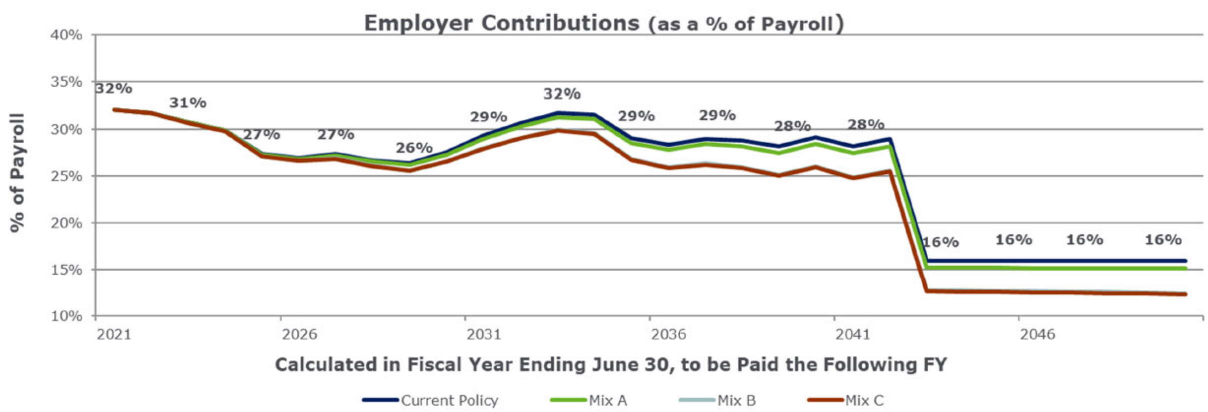
The chart below was provided to the Board in the most recent asset-liability study. This chart outlines how the alternative asset allocations will alter the anticipated funded status trajectory.

Chart 2-8. LACERS Projected Funded Ratio From the Most Recent Asset Allocation Review



The discussion also included analysis on the long term expected employer contributions under each allocation.

Chart 2-9. LACERS Projected Employer Contributions From the Most Recent Asset Allocation Review



Conclusion:
The System has performed an asset-liability study every three years (2012, 2015, 2018, and 2021) which is in line with best practice. The process and type of analysis performed during the study was also in line with best practice.

- ***IPS-comprehensiveness and compliance process***

Background:
There is no uniform standard for the content and no absolute model to follow when drafting an IPS. The IPS should ideally be a highly customized document that is uniquely tailored to the preferences, attitudes, and situation of the Plan. At LACERS, the Board reviews the IPS on an

annual basis. Staff has the ability to review and recommend changes on an ad-hoc basis. The purpose of such reviews is to ensure the document reflects desired long-term asset allocation, the evolving investment portfolio, legal and regulatory developments, and current best practices. It is up to Staff's discretion to solicit feedback and input from external fiduciary counsel and the Board's investment consultant when proposing changes to the document.

To facilitate our review of the IPS, we have included a table outlining what we believe to be the key sections of an IPS and how we think about IPS development. The table includes a broad title of each section type, the type of information we expect to be included in each section, and any comments on the LACERS IPS. As shown in the table, the IPS includes all components that we believe a well-structured IPS should have.

Table 2-11. LACERS Inclusion of Key IPS Components

Section	Purpose of Section	Comments
Introduction	- Reference to the purpose and benefit to be provided by the Trust	No Comment
	- Intended beneficiaries of the Trust	No Comment
	- Overview of fiduciary obligation	No Comment
Statement of Purpose	- Investments made for the exclusive purpose of providing benefits to participants	No Comment
	- Plan fiduciaries must act in the sole interest of plan participants and beneficiaries and for the exclusive purpose of providing benefits	No Comment
Investment Goals or Objectives	- To preserve the actuarial soundness of the Trust in order to meet benefit obligations	No Comment
	- To obtain a long-term rate of return, net of fees, equal to or in excess of the policy benchmark	No Comment
	- The policy benchmark and asset allocation targets should be defined	No Comment
Asset Allocation	- Purpose is to provide an optimal mix of investments to produce desired returns and meet current and future liabilities, with minimal volatility	No Comment
	- Frequency and methodology of asset-liability modeling and resetting allocation	No Comment
	- Describe permissible asset classes as well as minimum, maximum, and target ranges	No Comment
Identification of Roles and Responsibility	- Board of Trustees – general and investment related duties	No Comment
	- External investment consultants – advise on best practices, trends and support staff and Board/Investment Committee with fiduciary responsibilities	No Comment
	- Other external providers' duties, expectations and fiduciary responsibilities	No Comment
Asset Class Guidelines / Benchmarks	- Benchmarks – who sets them and how often they are revisited, and their rationale	No Comment
	- Diversification - Provide an overview on the importance of diversification and how it is achieved in the Trust	No Comment
Rebalancing Policy	- Purpose of rebalancing – to ensure that the investment program adheres to its strategic asset allocation	No Comment
	- Describe how often the portfolio will be reviewed for rebalancing and whether a fixed threshold or proportional threshold will be used	No Comment

Risk Management	- Acknowledgement and definition of risk to be managed in investment portfolio (active risk, credit risk, counterparty risk, market risk, operational risk, etc.) - Define parameters for risk management (what does success look like)	No Comment No Comment
Monitoring and Reporting	- Describe monthly, quarterly and annual reporting - Outline monitoring and reporting process	No Comment No Comment
Shareholder Activity	- Proxy positions − describe the policy and how votes are cast and recorded - Identify core principals of the Board (Board independence, Board management, shareholder rights) and communicate importance of fiduciary duty, integrity, and transparency	No Comment No Comment
Governance	- Identify obligations to the Trust are consistent with the fiduciary obligations of ERISA - Require ongoing review of investment policy statement	No Comment No Comment

Conclusion:
We believe the IPS is robust and follows best practice. The IPS includes sufficient detail on all items we desire in a well-structured IPS, as outlined above.

- ***Processes used to adopt, monitor, periodically review, and update the IPS***

Background:
Within the IPS, section V.I titled “Evaluation of Policy” outlines that the Investment Policy Statement shall be reviewed by the Board at least annually, with the assistance of the Staff and investment consultant(s) and be revised when necessary.

Conclusion:
After discussion with Staff and a review of the supporting documents, Aon determined that the stated policy within the IPS to review on an annual basis is followed, which includes the following process:

- The full review process is started by the CIO, but the Board can also request an ad-hoc review if they feel it is prudent.
- Asset class heads will then review their respective sections for areas of improvement or look for items that might be outdated.
- Once Staff has formulated recommended changes, those changes are sent to the consultant for their review and input. Internal counsel may also review recommended changes based on the magnitude of the changes.
- Changes are approved by the Board
- The revised IPS is provided to the City Attorney

Aon finds the annual and ad hoc process used to adopt, monitor, periodically review, and update the IPS to be robust. The process includes numerous individuals inside the System and typically includes a review by counsel and the applicable investment consultant. We believe the process could be enhanced by including a required review by external counsel and the applicable investment consultant.

Recommendation II.3.:

High Priority	Medium Priority	Low Priority
	X	

- Aon recommends adding language to the IPS that states all modifications to the document are to be reviewed by the applicable consultant as well as fiduciary counsel prior to being presented to the Board.

Recommendation II.4.:

High Priority	Medium Priority	Low Priority
		X

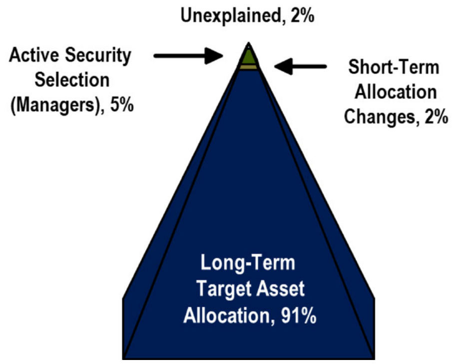
- Consider including a memo from the applicable consultant and fiduciary counsel for all amendments of the IPS. The memo would articulate and document their agreement or disagreement with the proposed changes.

- ***Process used to set, monitor, and revise the asset allocation, including the need for the retirement system to conduct an asset-liability study***

Background

Asset allocation is viewed by many as the single most important factor to a fund's success over the long-term. The primary importance of asset allocation over other investment decisions is a generally accepted concept in finance theory and practice. Several well-known industry research papers have documented that asset allocation is the primary driver of the level of investment returns, and volatility of investment returns from year to year.

Chart 2-10. Primary Drivers of Difference in Investment Results Among Investors



The above chart outlines research done by Brinson, Singer and Beebower in their 1991 research paper "Determinants of Portfolio Performance II: An Update" which outlines that 91% of the difference in returns among investors is driven by differences in the long-term target asset allocation, or said differently, strategic asset allocation differences drive 91% of the difference in returns across investors.

Conclusion:
The IPS sets the policy for conducting an asset-liability study every three years in section IV "Asset Allocation Policy". As noted earlier in our report, the last asset-liability study was performed in 2021. Aon believes that an asset-liability study is the best practice in setting, monitoring, and revising asset allocation.

- ***Due diligence processes including controls and reporting to ensure adherence to the IPS***

Background:
Maintaining proper compliance controls and monitoring processes are critical components of good governance and effective implementation of the IPS. It is critical that processes are in place to ensure that guidelines that are documented in the IPS and manager agreements are monitored on a regular basis to ensure ongoing compliance. Within many sophisticated investment programs this function is largely performed by the custodian and reviewed by internal investment compliance personnel.

Additionally, there are other important functions that require ongoing monitoring for compliance that are typically outside the scope of the custody relationship. This includes, but is not limited to, ensuring compliance to:

- All applicable federal, state, and local laws
- Internal trading policy
- Internal checklist and requirements for cash movement
- Ethics policy
- Proxy policy
- Soft dollar usage

The LACERS Investment Policy includes significant detail on the general investment guidelines, manager selection, manager oversight, as well as policies for various investment management and governance items, including:

1. Emerging Investment Manager Policy
2. Private Equity Investment Policy
3. Private Real Estate Investment Policy
4. Risk Management Policy
5. Geopolitical Risk Investment Policy
6. Proxy Voting Policy
7. Securities Lending Policy
8. Securities Litigation Policy

Based on our interviews with Staff we understand that the monitoring of the various policies and guidelines is performed by the custodian as well as the applicable investment consultant. LACERS provides the investment guidelines to its custodian, Northern Trust, who tracks compliance with the applicable trading and holdings guidelines on a daily basis. Additionally, the manager monitoring policy is monitored by the investment consultant and included in the quarterly performance report. The monitoring of private markets falls upon the private market consultant to ensure the program falls within the documented guidelines.

In addition to the monitoring of investment managers, their compliance with their guidelines, and their reporting requirements, the IPS includes numerous governance processes that are required to be performed over various time periods. Examples of these processes include.

1. The review of strategic asset allocation every three years
2. Reporting on commission recapturing annually
3. Approval of a new TAAP annually
4. CIO delivery of an annual report of all Tactical Rebalance Proposals
5. Annual review of the Board’s Investment Policy and investment structure, asset allocation, and financial performance
6. Perform an active vs. passive review every three years

In the active vs passive section of our review, Aon recommended the creation of a formal procedure to ensure governance processes articulated in the policy (like those outlined above) are completed within the required timeline. Board oversight of these processes could be facilitated through the creation of a governance calendar which outlines each process included in the IPS, the timing requirement, when it was last performed, and when it is expected to be performed next.

Conclusion:
Based on our interviews with Staff, and experience with other clients performing these functions, we believe that LACERS generally has appropriate controls and procedures in place to regularly review compliance with its policies. Having this function performed by the custodian and the applicable investment consultants is in-line with common practice. However, we believe the

creation of a governance calendar (recommended in the active vs passive section of our review) could assist the Board and Staff in ensuring compliance with the policy.

Recommendation II.5.:

High Priority	Medium Priority	Low Priority
		X

- Consider the creation of a compliance calendar to facilitate the oversight of compliance with the governance items articulated within the IPS.

- ***Rebalancing processes, including controls and reporting to ensure adherence to the IPS***

Background:
It is expected that over time, changes in capital markets will cause the actual mix of portfolio assets to diverge from target allocations and the need to rebalance the portfolio will occur. Rebalancing is an important tool for controlling the risk of a diversified investment program. The goal of a rebalancing program is to balance tracking risks against rebalancing costs while keeping the administration of the process manageable. Rebalancing may be necessary when the actual allocation falls outside a pre-determined range (e.g., +/-5%). There are two common ways to rebalance:

1. Rebalancing to policy target or to policy bands once a breach of an upper or lower limit occurs
2. Periodically rebalance the portfolio based on a specific schedule

Standard institutional best practice is to rebalance when actual allocations deviate materially from target allocations (#1 above), rather than rebalancing at specified time intervals (#2 above). If available, monitoring the portfolio's actual allocation daily for breaches of policy limits is preferred but reviews of actual allocations should be examined monthly or quarterly at a minimum. Having stated policy ranges within the IPS sets the framework for when a rebalancing action is needed. Having narrow ranges (+/-3%) is generally acceptable for publicly traded asset classes while wider ranges (+/-5%) for illiquid asset classes is often necessary.

The IPS in section V.G (Rebalancing Policy) provides an outline of the process in which Staff should follow for the rebalancing of the Plan's assets, which includes rebalancing within the policy target ranges if the actual allocation falls outside the predetermined range. The Board has delegated the responsibility of rebalancing to the Chief Investment Officer. The CIO is required to seek the concurrence of the general fund consultant prior to rebalancing. It is also the responsibility of the CIO to report all rebalancing activities to the Board in a timely manner.

The table below outlines the current policy target and allowable ranges for each asset class.

The investment policy requires that these targets be monitored on a monthly basis, but Staff currently reviews these exposures on a weekly to daily basis. This detail is typically included within the IPS of institutional investors, but it is not currently included within the LACERS IPS. The Board also receives asset allocation relative to the policy targets on a quarterly basis within its performance reports, these serve as a key tool in the Board's ability to oversee the rebalancing process and ensuring compliance with its policy.

Table 2-12. LACERS Policy Allocation and Rebalancing Guidelines

	Policy Allocation	Lower Limit	Upper Limit	Nominal Range
U.S. Equity	22.50%	16.50%	28.50%	+ or – 6.00%
Non-U.S. Equity	27.00%	21.00%	33.00%	+ or – 6.00%
Core Fixed Income	16.75%	13.25%	20.00%	+ or – 3.25%
Credit Opportunities	7.25	7.25%	12.75%	+ or – 5.50%
Private Equity	13.59%	--	--	--
Real Assets	12.00%	--	--	--
Cash	1.00%	0.00%	2.00%	+ or – 1.00%
Total Fund	**100.00%**			

In addition to the rebalancing guidelines, LACERS also has a Tactical Asset Allocation Plan (TAAP) documented in the IPS. The TAAP allows greater discretion to the CIO, with the concurrence of the investment consultant, to implement rebalancing procedures prior to the ranges outline above being broken. Once the asset allocation of the portfolio is within 30% of the upper or lower limit, a tactical rebalance could occur to move the portfolio halfway back to the policy target. The intent of the TAAP is to allow the CIO (with agreement of the investment consultant) the ability to reduce the active risk of the portfolio if it is expected to achieve at least one of the following objectives:

1. Enhance Total Fund value
2. Protect Total Fund value
3. Enhance the risk/return profile of the Total Fund pursuant to the Asset Allocation Policy and Risk Budget

Conclusion:

Aon finds the current policy and process of rebalancing followed by Staff to be in line with best practice. The use of the TAAP is less common in the industry, but given it is primarily intended to reduce active risk, we are comfortable with its use. We believe the transparency to the Board provides adequate detail on the rationale for rebalancing and the actions taken. It is typical for institutional investors to include the detail within the table above in their IPS and believe LACERS should consider adding it to their IPS.

Recommendation II.6.:

High Priority	Medium Priority	Low Priority
		X

- Consider including policy targets and ranges within the IPS.

- ***IPS-delineation of roles and responsibilities, due diligence and monitoring***

Background:

The IPS includes section III.0 “Duties of Responsible Parties”, this section of the IPS outlines the roles and responsibilities of the:

1. The Board or its Designate(s)
2. Staff
3. Investment Managers
4. Master Custodian
5. General Investment Consultant
6. Duties of Parties Involved in LACERS’ Matters

Further defined within section of III.0, each party's role and responsibilities for the following topics are outlined as:

<u>Investment Program</u>:

– The Board or its Designate(s)
  - The Board develops and approves policies for the execution of the investment program
  - The Board will conduct a formal review of the Investment Policy and investment structure, asset allocation and financial performance
  - The Board shall review investments quarterly, or as needed, to ensure that policy guidelines are met
  - The Board may retain investment consultants to provide services in aide of managing the investment program
  - The Board shall expect Staff to administer the Plan’s investments in a cost-effective manner
  - The Board may delegate certain duties of the Board to the Investment Committee

– Staff
  - Invest the Fund’s cash without requiring Board’s permission
  - Oversee and direct the implementation of Board policies and manage the

Fund on a day-to-day basis
- Organize and/or participate in any special research for the Board
- Advise and apprise the Board of any other events of investment significance

– Investment Managers
  - Contract by written agreement with the Board to invest within approved guidelines
  - Provide the Board with proof of liability and fiduciary insurance coverage
  - Be a registered SEC investment advisor under 1940 Act or authorized bank or trust
  - Adhere to investment management style concepts and principles
  - Obtain best execution for all transaction

– Master Custodian
  - Provide complete global custody and depository services
  - Manage Short-Term Investment Fund for investment of any uninvested cash
  - Assist the System to complete annual audit, transaction verification, or other unique issues
  - Manage a security lending program
  - Maintain frequent and open communication with the Board and Staff

– General Investment Consultant
  - Make recommendations for Board presentation regarding investment policy and strategic asset allocation
  - Provide topical research and education on investment topics
  - Communicate information that concerns the Board

<u>The Selection Process</u>:

– The Board or its Designate(s)
  - The Board shall be responsible for selecting qualified investment managers, consultants, and custodian

– General Investment Consultant
  - Assist the Board in the selection of qualified investment managers and a qualified custodian

<u>The Due Diligence Process</u>:

– Staff
  - Provide analysis and recommendation to the Board on a wide variety of investments and investment related matters
  - Conduct the manager search process, as approved by the Board

<u>The Monitoring Process</u>:

- The Board or its Designate(s)
  - Voting of proxies in stocks held by the System according to policy
- Staff
  - Monitor investment managers for adherence to polices and guidelines
  - Evaluate and manage the relationships with brokers, managers, and custodians
  - Manage portfolio restricting resulting from rebalancing or terminations with assistance of consultant and managers, as needed
  - Ensure that managers conform to the terms of their contracts and that performance-monitoring systems are sufficient to provide the Board with timely, and accurate information
- Investment Managers
  - Reconcile monthly accounting, performance, transaction and asset summary data with custodian
- Master Custodian
  - Provide in a timely and effective manner a monthly report of investment activities
  - Provide monthly and fiscal year-end accounting statements
  - Report situations where accurate security pricing, valuation, and accrued income are either not possible or subject to uncertainty
- General Investment Consultant
  - Review quarterly performance, including performance attribution

Conclusion:
Section III.0 of the IPS provides a thorough, yet succinct overview of the roles and responsibilities for each applicable group associated with investment decisions and oversight in a level of detail that is appropriate for an investment policy statement. Roles are also further defined throughout the document. We find the IPS documentation of the roles and responsibilities of the key parties involved in the investment program, the selection process, the due diligence process, and the monitoring processes used for purpose of the investment program to be in-line with common practice.

Asset Allocation

- ***Process used to establish the inputs used in the most recent asset allocation study and asset-liability modeling***

Background:
In evaluation component 2, Aon reviewed the process that established the current asset allocation. The following analysis focuses on reviewing the process to establish the inputs that serve as the base for the performed asset allocation reviews and asset-liability modeling.

An asset-liability study stands as the current process for setting the Plan's long-term asset allocation. An asset-liability study is a comprehensive toolkit for making decisions on a Plan's asset allocation and investment risk that align with the liabilities those funds support. The intent of the study is to:

- Provide fiduciaries with an understanding of the dynamic relationship between plan assets and liabilities over time
- Illustrate the impact of various asset allocations on key financial metrics, such as required contributions and funded status, under a range of different macro-economic scenarios
- Identify future trends in the financial health of the fund based on economic uncertainties that may not be evident from an actuarial valuation, which provides only a snapshot at a point in time
- Help determine the level of risk that is appropriate in the context of the Plan's liabilities

At the core of the analysis are the capital market assumptions that make up the long-term outlook for various asset classes currently in the Plan and those for consideration. The evaluation on how a firm develops their capital market assumptions is equally as important as the evaluation of the assumptions themselves.

Across the investment industry there are various ways to approach the development of capital market assumptions. These include the capital asset pricing model (CAPM), historical investment performance, survey data, and the building block approach. The Board's investment consultant develops proprietary capital market assumptions using a building block approach. A building block approach represents a forward-looking estimate of market returns based on the applicable observable components that are believed to drive future investment results. This approach is consistent with Aon's approach, and we believe it to be in-line with best practice.

The consultant's capital market assumptions include assumptions on returns, volatilities (standard deviations), and correlations. They are updated on an annual basis by the Firm's research team and represent the Firm's long-term capital market outlook (>10 years).

The tables below provide additional detail on the building blocks utilized by LACERS' investment consultant. Additional detail on these building blocks can be found in the investment consultant's asset allocation presentation presented to the Board on 1/26/2021.

Chart 2-11. Primary Drivers of Expected Return by Asset Type

Fixed Income Building Blocks	
Illiquidity Premium	The return expected for investments with illiquidity risk
Government Rates Price Change	Valuation change due to shifts in the current yield curve to forecasted rates
Credit Deterioration	The average loss for credit assets due to defaults and recovery rates
Spread Price Change	Valuation change due to shifts in credit spreads over the duration of the investment
Credit Spread	Yield premium provided by securities with credit risk
Government Rates	The yield attributed to sovereign bonds that do not have credit risk

Equity Building Blocks	
Illiquidity Premium	The return expected for investments with illiquidity risk
Valuation	Represents P/E multiple contraction or expansion relative to long-term trend
Inflation	Market-specific inflation based on country revenue and region-specific inflation
Real Earnings Growth	Market-specific real growth based on a weighted-average derived from country revenue contribution and GDP growth
Dividend Yield	Income distributed to shareholders adjusted to reflect market trends

Real Assets Building Blocks	
Illiquidity Premium	The return expected for investments with illiquidity risk
Valuation	The change in price of the asset moving to a terminal value or real average level
Inflation	Based on the inflation paths as defined by TIPS breakeven and NEPC assumptions
Growth	Market-specific real growth based on a weighted-average derived from country revenue contribution and GDP growth
Real Income	The inflation-adjusted income produced by the underlying tangible or physical asset

Conclusion:
We find the building block approach utilized by the investment consultant to derive its capital market assumptions to be in-line with best practice. The investment consultant utilized various inputs for determining the expected return of the various asset classes. These methodologies incorporate both quantitative and quantitative inputs. The assumptions reflect current market valuations and future prospects rather than relying solely on historical averages, a particularly important feature when markets move to extremes as they have done over the past few years.

- ***Thoroughness of the asset allocation***

Conclusion:
The primary tool for reviewing funding targets, time horizon, demographics, cash flow needs, near-term volatility tolerance levels, as well as statutory mandates (which address minimizing contributions) is an asset-liability study. An asset-liability study will elegantly consider each of these items in a presentation format which is digestible to stakeholders. An asset-liability study was last performed in 2021, and that analysis is expected to be updated in three years. A review of the analysis performed in 2021 is provided in scope area II.

We believe the asset allocation process performed by LACERS took into consideration the retirement system's distinct circumstances articulated in the scope area.

- ***LACERS' asset allocation***

Conclusion:
The table below shows the current asset allocation of the Plan, relative to a peer group of public funds with assets greater than $5 billion, represented in the 2019 Greenwich Institutional Market Trends Survey. Relative to peers, the Plan has a slightly higher allocation to equities (public & private) and a lower allocation to more stable allocations such as core fixed income. The Plan also has no exposure to hedge funds, which differentiates it from peers.

Table 2-13. Asset Allocation Relative to Peer Public Funds

	Policy Allocation (%)	Greenwich 2019 U.S. Institutional Markets Trends Survey
U.S. Equity	22.50%	20.8%
Non-U.S. Equity	27.00%	25.1%
Core Fixed Income	16.75%	22.4%
Opportunistic Credit	7.25%	2.9%
Private Equity	13.50%	11.1%
Real Assets	12.00%	9.7%
Other (Hedge Funds, etc.)	0.00%	6.4%
Cash	1.00%	1.6%
Total Fund	**100.0%**	**100.0%**

- ***Overall returns of the investment portfolio relative to risk***

Conclusion:
The table below represents performance for the Total Fund, on a net of fee basis, relative to the policy benchmark, a peer universe of other public plans, and the Plan's discount rate. On a net of fee basis, the Fund has been able to successfully produce a return commensurate with the benchmark, outperform the median public fund peer, and outperform the actuarial discount rate.

Table 2-14. Investment Returns Relative to the Benchmark, Peer Public Funds, and the Current Assumed Rate of Return

As of 9/30/2021	1-Year	3-Year	5-Year
Total Fund	23.3%	11.0%	10.7%
Policy Benchmark	*19.7*	*10.7*	*10.7*
All Public Plans -Median	19.8	10.7	10.4
Rank	*13*	*40*	*34*
Actuarial Discount Rate	7.0	7.0	7.0

We have also reviewed risk adjusted returns of the investment program. On a risk adjusted basis, the Plan has been able to deliver superior risk-adjusted returns relative to the benchmark and peers (i.e., has produced a higher Sharpe ratio). The below table illustrates the Plan's 5-year Sharpe ratio, which is a measure of risk adjusted returns, relative to the policy benchmark and peer universe.

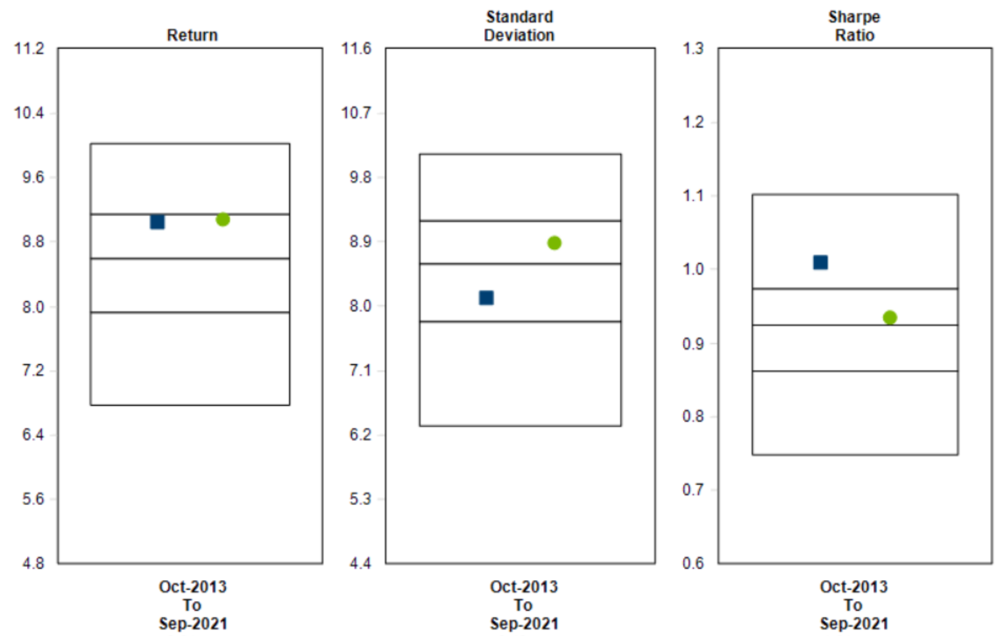
Table 2-15. Risk Adjusted Investment Returns Relative to the Benchmark and Peers

Sharpe ratio As of 9/30/2021	5-Year
Total Fund	1.06

Policy Benchmark	0.98
All Public Plans -Median	0.96

The chart below outlines the trailing return, standard deviation, and Sharpe ratio of the portfolio relative to the benchmark as well as the rank within the public fund peer group during the scope period. Again, the portfolio has produced strong risk adjust performance relative to the benchmark and peers on a net of fee basis.

Chart 2-12. Nominal Investment Return, Risk, and Risk Adjusted Returns Relative to the Benchmark and Peers



	Oct-2013 To Sep-2021	Oct-2013 To Sep-2021	Oct-2013 To Sep-2021
Total Fund Composite	9.04 (29)	8.12 (69)	1.01 (15)
Policy Benchmark	9.09 (28)	8.89 (40)	0.93 (44)
5th Percentile	10.03	10.14	1.10
1st Quartile	9.15	9.21	0.97
Median	8.60	8.59	0.92
3rd Quartile	7.93	7.78	0.86
95th Percentile	6.77	6.32	0.75

- ***Reasonableness of the estimates of expected return, volatility, and assumed correlation of returns among included asset classes and subclasses***

Conclusion:
Capital market assumptions are a critical input to the process of setting the asset allocation. There is not a single established methodology to develop capital market assumptions. Different firms may use different approaches to derive their expectations – all of which may be based on capital market theory and practice. Given the importance of capital market assumptions in setting the asset allocation, it is useful to review the assumptions used and compare them to

those of others to ensure a degree of reasonableness.

The table below compares the NEPC 10-year capital market assumptions relative to Aon and the 2021 Horizon Study Average, which is a collection of capital market assumptions from investment firms to aid in determining reasonable assumptions used by plan's expected return on assets. NEPC's assumptions relative to the study's average, in which there is a like-for-like comparison, had the majority of assumptions within the 25% and 75% percentile and only a few asset classes fell within the 5% through 25% and 75% through 95% percentile range. As shown in the table below, the NEPC assumptions are generally within the 25%-75% percentile of peers. We consider the estimates of expected return, volatility, and assumed correlation to be well within the range of reasonableness, and comparable to both Aon's capital market assumptions and peer averages. In general, the NEPC assumptions tend to be slightly lower than the Aon assumptions as well as the peer group.

Table 2-15. Capital Market Assumptions Utilized by LACERS (NEPC) Relative to the Aon Assumptions and Peers (2021 Horizon Study Average)

	Policy Allocation 12/31/2020 (%)	NEPC		Aon Investments USA		2021 Horizon Study Average	
		10-Yr. Expected Return	Expected Volatility	10-Yr. Expected Return	Expected Volatility	10-Yr. Expected Return	Expected Volatility
Cash	1.00%	0.8%	0.6%	0.6%	1.0%	1.1%	1.3%
Total Cash	**1.00%**						
U.S. Large Cap Equity	14.00%	5.4%	16.6%	5.8%	17.0%	5.8%	16.4%
U.S. Small/Mid-Cap Equity	5.00%	5.7%	20.7%	6.0%	23.0%	6.3%	20.2%
Non-U.S. Developed Equity	17.00%	5.9%	19.7%	7.1%	20.0%	6.4%	18.3%
Non-U.S. Developed Small Cap	3.00%	6.1%	22.5%	--	--	--	--
Emerging Markets Equity	5.67%	7.5%	28.7%	6.9%	27.0%	7.2%	24.3%
Emerging Markets Small Cap	1.33%	8.1%	31.5%	--	--	--	--
Private Equity	14.00%	9.3%	24.8%	8.2%	25.0%	8.8%	22.3%
Total Equity	**60.00%**						
Core Bonds	13.75%	1.4%	5.7%	1.3%	4.0%	2.1%	5.5%
High Yield	2.00%	2.9%	11.5%	3.3%	12.0%	3.8%	9.9%
Bank Loans	2.00%	3.9%	9.2%	3.7%	7.0%	--	--
EMD (External Currency)	2.25%	3.0%	13.0%	3.7%	13.0%	4.4%	11.3%
EMD (Local Currency)	2.25%	5.0%	13.0%	3.6%	14.0%	--	--
Private Debt	3.75%	6.1%	11.9%	6.3%	16.0%	6.5%	11.4%
Total Fixed Income	**26.00%**						
TIPS	3.60%	1.0%	5.8%	1.1%	3.5%	1.6%	5.6%
Commodities	1.20%	0.9%	18.5%	2.9%	17.0%	3.1%	17.3%
REITS	1.20%	5.5%	21.4%	6.1%	18.5%	-	--
Core Real Estate	4.20%	4.4%	15.0%	5.6%	15.0%	5.5%	17.6%

Non-Core Real Estate	2.80%	5.5%	21.0%	7.4%	25.0%	--	--
Total Real Assets	**13.00%**						
Expected Return 10yrs	**--**	**5.83%**		**6.29%**			
Standard Deviation	**--**	**13.89%**		**12.93%**			
Sharpe Ratio 10yrs	**--**	**0.36**		**0.44**			

25% - 75% Percentile	
5% - 25% and 75% - 95%	
>5% and >95%	

- ***Process used for adjusting the asset allocation (e.g., portfolio rebalancing***

Conclusion:
Earlier in this Report, we reviewed the rebalancing policy utilized by the System. The authority to conduct a rebalance has been delegated by the Board to the Chief Investment Officer with the concurrence of the general fund consultant. The portfolio is monitored on a weekly/daily basis in order to determine whether any public market asset classes are near breaching stated policy bands. Private market asset classes are generally not considered for rebalancing due to their illiquid nature. The following process is followed by the CIO and Staff:

- An analyst will produce an asset allocation report in which the CIO/COO and director of private markets review and discuss rebalancing on a weekly basis.
- If the group determines a rebalancing should be initiated, the COO with direct the Investment Officer responsible for rebalancing implementation to develop a rebalancing plan.
- The Investment Officer will distribute the plan to Staff for review and feedback.
- Upon agreement, the Investment Officer will submit the plan to the General Fund Consultant for review.
- Once reviewed, the Consultant, Investment Officer, and COO will seek formal approval from the CIO.
- Upon completion of the rebalancing, the CIO will notify the Board of the rebalance.

The below screenshot provides an example of previously communicated rebalancing actions taken.

We believe the process in place is in-line with common practice.

Background

On March 11, 2021, the U.S. Equities asset class breached its 26% upper threshold, triggering a rebalancing event pursuant to the LACERS Asset Allocation Policy and Rebalancing Policy. With concurrence from NEPC, LLC, LACERS' General Fund Consultant, LACERS staff initiated a rebalancing to pare U.S. Equities to approximately 21.5% of the total fund portfolio (19% target allocation to U.S. Equities plus the approximate 2.5% underweight to Private Equity). Assets were reallocated to two underweight asset classes, Credit Opportunities and Real Assets, and to Cash, as detailed in the table below. The market value of assets involved in this rebalancing amounted to approximately $1.045 billion.

Withdrawals		
Asset Class/Strategy	***Manager***	***Amount (mil)***
U.S. Equities		
Large-Cap	Rhumbline Advisors S&P 500	$ 750
Mid-Cap	Principal Global Advisors	55
Small-Cap	Rhumbline Advisors Russell 2000	50
	Rhumbline Advisors Russell 2000 Value	45
	Copeland Capital Management	45
	EAM Investors	50
	Granahan Investment Management	20
	Segall, Bryant & Hamill	30
Total		**$ 1,045**

- ***Appropriateness and suitability of the adopted asset allocation and overall investment strategies***

Background:
The below table outlines the broad strategic asset allocation of the Plan, as outlined in the IPS, and compares the allocation to a peer universe of public funds with asset greater than $5 billion in total assets. Previously in this Report, Aon evaluated the appropriateness of the Plan's asset allocation to achieve the System's stated performance objectives.

Table 2-17. Asset Allocation Relative to Peer Public Funds

	Policy Allocation (%)	Greenwich 2019 U.S. Institutional Markets Trends Survey
U.S. Equity	22.50%	20.8%
Non-U.S. Equity	27.00%	25.1%
Core Fixed Income	16.75%	22.4%
Opportunistic Credit	7.25%	2.9%
Private Equity	13.50%	11.1%
Real Assets	12.00%	9.7%

Other (Hedge Funds, etc.)	0.00%	6.4%
Cash	1.00%	1.6%
Total Fund	**100.0%**	**100.0%**

Additionally, we have evaluated the ability of the current strategic asset allocation to produce a 7.0% return into the future. The chart below shows our expected return of the portfolio (6.3%) as well as the range of potential outcomes. The table below the chart outlines the probability of the portfolio achieving a 7% in each period using the Aon 30-year capital market assumptions. These projections were created using Aon's 12/31/2021 capital market assumptions. Given the rise in interest rates experienced in 2022, our forward-looking expected returns are likely slightly higher.

Chart 2-13. Expected (forward looking) Return of the Current Strategic Asset Allocation

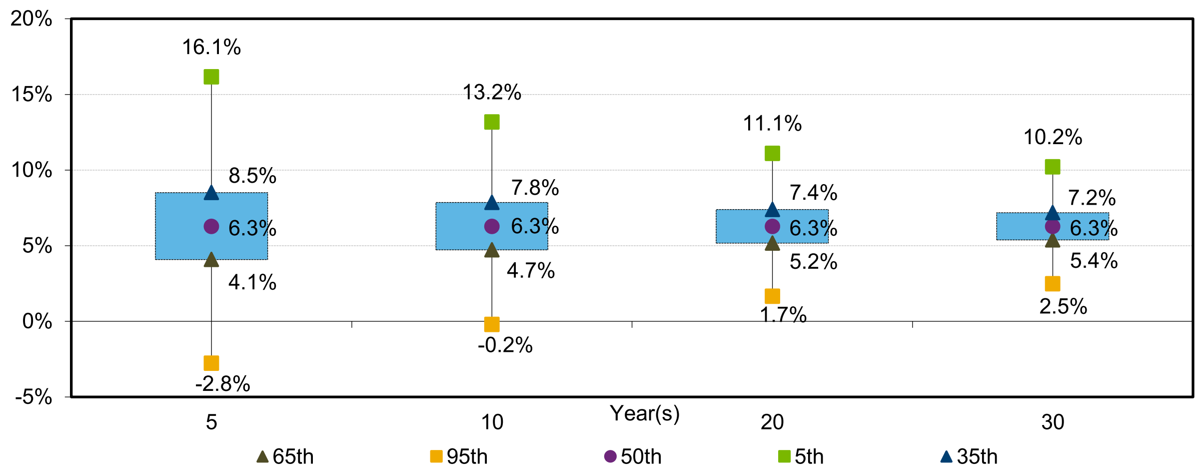


Table 2-18. Probability of Achieving a 7% Rate of Return over Various Time Periods

Probability of Achieving a 7% Rate of Return			
5-Years	**10-Years**	**20-Years**	**30-Years**
45%	43%	40%	38%

Conclusion:
Ultimately, the asset allocation of an investment program should be derived through the asset-liability process. We also evaluated the portfolios:

1. Asset Allocation relative to peers
2. Ability to produce the actuarially assumed rate of return

Asset Allocation relative to peers
The Plan's asset allocation is not materially different than that of other public fund peers. In review of the asset classes utilized by the System, Aon found that they are similar to those commonly utilized in the institutional investor market (i.e., public funds, corporate defined benefit

plans, endowments, and foundations).

Ability to produce the actuarially assumed rate of return
Using Aon's 30-year capital market assumptions we expect the portfolio to earn 6.3% over time, with a 38% probability of achieving 7% over 30-years. These projections were created using Aon's 12/31/2021 capital market assumptions. Given the rise in interest rates experienced in 2022, our forward-looking expected returns are likely slightly higher.

- ***Staffing resource considerations***

Background:
Staffing levels of a fund should be commensurate with the structural complexity and needs of the investment program. The number and proficiency of staff required to oversee an institutional investment program is a function of many variables. Some critical factors include:

1. The complexity of the investment program, including:
    a. The number of investment mandates
    b. The use of active versus passive management
    c. The inclusion and level of sophistication of alternative asset classes
    d. Direct vs fund of fund investment exposure
    e. Whether internal asset management is utilized
2. The level of non-investment related administrative functions performed by staff
3. The number of investment meetings held per period
4. The use and reliance on external service providers, including the level of due diligence and selection performed by third-party vendors (i.e., investment consultants) versus those performed by staff
5. The use of software to evaluate compliance and risk levels

If the factors above are adjusted, positively or negatively, the level of staff required to implement and oversee an investment program can be materially impacted. The structure of the organization should match the goals and policies adopted by the Board. For example – If the Board believes better net of fee risk adjusted returns can be achieved by allowing staff to identify active investment strategies, then using passive investments strictly because of staffing constraints may not be viewed as prudent.

Conclusion:
Under the current implementation structure LACERS Investment Staff is not directly managing the assets of the investment program (i.e., they are not buying and selling individual stocks and bonds). However, they play the primary role, in consultation with the Board's consultants, in the selection of third-party investment firms who will manage the assets of the Fund. Staff plays a meaningful role in the selection of third-party vendors (i.e., the general consultant, asset class consultants, custodian, etc.). They also play a major role in the day-to-day operations of the Fund as well as creating the materials for meetings with the Board.

It is critically important for minimizing operational risk and consistent with good governance that the level of investment staff is commensurate with the complexities of the investment program. Their scope of work should reflect the goals of the Board and be consistent with the Board's view on what implementation structure will enhance investment results. We believe that LACERS would benefit from undertaking an evaluation of the level and type of staffing resources needed to effectively and efficiently run the investment program.

Based on our interviews with Staff, there is a perception that the development of mandated reporting requirements has created the need for additional resources. These mandated reporting requirements include:

- Diversity, Equity, and Inclusion (DEI) reporting
- Environmental, Social, and Governance (ESG) investment mandate requirements
- Responding to questions received from stakeholders

Overall, we found that LACERS currently employs an investment staff of skilled professionals. Although our assessment is limited primarily to empirical information obtained during the interview process and documents produced by investment staff, we found the LACERS investment staff to be knowledgeable, insightful, candid, and well equipped to implement the current investment mandate.

In addition to having the skill set, we believe they also have the conventional resources that they need to implement the LACERS Investment Policy under the current governance structure. Finally, we believe the level of autonomy held by Staff is conducive to the efficient implementation of the investment policy, this does not, however, reduce the need for good governance and prudent oversight of the process.

- ***Comparison of LACERS' investment performance for the overall plans, as well as that of each underlying asset class, against the Total Fund and asset class benchmarks, as well as peers***

Conclusion:
The table below outlines the investment performance for the overall Plan and each asset class relative to the applicable benchmark and peer group.

Table 2-19. Portfolio Investment Results Relative to the Applicable Benchmark and Peer Group

As of 9/30/2021	1-Year	3-Years	5-Years	10-Years	20-Years
Total Fund	23.3%	11.0%	10.7%	10.5%	8.1%
Policy Benchmark	*20.0*	*11.1*	*10.9*	*10.5*	*8.0*
IM – All Public Fund	*19.8*	*10.7*	*10.4*	*9.8*	*7.1*
U.S. Equity.	33.0%	15.2%	16.4%	16.5%	10.0%

U.S. Equity Blend	*31.9*	*16.0*	*16.9*	*16.6*	*9.9*
IM – All Public Funds U.S. Equity	*33.1*	*15.0*	*16.2*	*16.2*	*10.0*
Non-U.S. Equity	28.5%	10.0%	10.5%	9.1%	8.0%
MSCI ACWI ex-US	*23.9*	*8.0*	*8.9*	*7.5*	*7.2*
IM – All Public Funds Non-U.S. Equity	*27.2*	*10.3*	*10.7*	*9.2*	*8.3*
Core Fixed Income	0.1%	6.0%	3.4%	--	--
Core F.I. Blend	*-0.9*	*5.4*	*2.9*	--	--
IM – All Public Funds U.S> Fixed Income	*1.7*	*6.1*	*4.0*	*4.0*	*5.0*
Credit Opportunities	6.8%	5.4%	5.0%	--	--
Custom Index	*7.8*	*6.2*	*5.4*	--	--
Real Assets	11.9%	6.4%	5.6%	7.3%	5.1%
Custom Index	*11.7*	*8.3*	*7.9*	*7.3*	--
Public Real Assets	14.8%	8.4%	5.1%	--	--
Custom Index	*20.7*	*7.6*	*4.8*	--	--
Private Equity	56.8%	21.7%	19.3%	14.8%	12.1%
Custom Index	*35.7*	*19.4*	*20.3*	*20.1*	*13.7*

- ***Appropriateness of the benchmarks and universe comparisons used by LACERS and their suitability at the Total Fund level, for each asset class, and for the individual managers***

Background:
Benchmarks are used to measure the performance of the Total Fund, asset classes, and individual managers over various time periods and across methodologies to determine the effectiveness of implementation of an investment program. The table below outlines the CFA Institutes “SAMURAI” characteristics which are often used to evaluate benchmarks:

Table 2-20. Characteristics of an Appropriate Benchmark

Specified in Advance

- Specified prior to the start of an evaluation period

Appropriate

- Consistent with the investment

Measurable

- Return is readily calculable on a frequent basis

Unambiguous

- Identity and weight of securities are clearly defined

Reflective of Current Investment Opinions

- Knowledge of the securities or factor exposures

Accountable

- Manager accepts accountability for the benchmark

Investable

- It is possible to invest in the benchmark

Unlike public market asset classes, benchmarking for private market asset classes provides unique challenges and benchmarking concerns within private market asset classes are shared by institutional investors across plan types and asset sizes. Issues that are unique to private market asset classes include but not limited to:

- The benchmarks do not meet standard benchmark requirements (CFA Institute "SAMURAI" characteristics)
- Un-investability of the fund universe in the benchmark composite
- Limited ability to invest in smaller and potentially better performing funds
- Determining the "Correct" level of premium over the benchmark is not knowable ex-ante
- Short term investment results are largely driven by longer dated investment decisions
- Maintaining the Policy Target makes pacing potentially uneven
- Incentive compensation for private equity teams is more difficult than most other asset classes

Conclusion:
Aon reviewed the benchmarks and universes used throughout the investment consultant's quarterly investment performance reports and have found that they adequately represent the Plan, asset class, and investment manager in which they are compared against.

The below table outlines the Plan benchmark as of September 30th, 2021

Table 2-21. LACERS Total Fund Policy Benchmark

Benchmark	Policy Weight
Russell 3000 Index	24%
MSCI ACWI ex-U.S.A	29%
Bloomberg U.S. Aggregate Index	19%
Credit Opportunities Blended Benchmark[1]	5%
Real Assets Policy Benchmark[2]	10%
Private Equity Blended Benchmark[3]	12%
91 Day T-Bills	1%

[1] 65% Bloomberg U.S. High Yield 2% Issuer Cap / 35% JPM EMBI Global Diversified
[2] 60% Bloomberg U.S. TIPS / 20% Bloomberg Commodity Index / 10% Alerian MLP / 10% FTSE NAREIT All Equity REIT
[3] Russell 3000 Index + 300bps

The table on the next page evaluates each component of the Plan benchmark relative to the CFA Institute "SAMURAI" characteristics outlined on the previous page.

Table 2-22. LACERS Asset Class Benchmark Evaluation

Asset Class	Equity			Core Fixed	Credit		Real Asset				Cash
Sub -Asset Class	Domestic Equity	Intrnational Equity	Private Equity	Core Fixed Income	High Yield	Emerging Market Debt	U.S. TIPS	Commodity	MLP	REIT	Cash
Benchmark	Russell 3000 Index	MSCI ACWI ex-U.S.A	Private Equity Blended Benchmark3	Bloomberg U.S. Aggregate Index	Bloomberg U.S. High Yield 2% Issuer Cap	JPM EMBI Global Diversified	Bloomberg U.S. TIPS	Bloomberg Commodity Index	Alerian MLP	FTSE NAREIT All Equity REIT	91 Day T-Bills
Long-Term Target	24%	29%	12%	19%	3%	2%	6%	2%	1%	1%	1.0%
Specified in Advance											
Appropriate											
Measurable											
Unambiguous											
Reflective											
Accountable											
Investable											
Overall View											
Aon Comments	None	None	Consider adding regional divers.	None	None	None	None	None	None	None	None
Benchmark for Consideration	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current

Property of the benchmark is valid
Property of the benchmark is nuanced
Property of the benchmark is not valid

Table 2-23. LACERS Policy Benchmark and Universe by Asset Class and Strategy

Public Markets	Benchmark	Universe
U.S. Equity	Russell 3000 Index	IM Public DB > $1B US Equity

Rhumbline Advisors Russell 2000	Russell 2000 Index	eV US Small Cap
Rhumbline Advisors Russell 2000 Value	Russell 2000 Value Index	eV US SMID Cap Value
EAM Investors	Russell 2000 Growth Index	eV US Small Cap Growth
Principal Global Investors	Russell MidCap Index	eV US Mid Cap
Rhumbline Advisors S&P 500	S&P 500 Index	eV US Large Cap
Copeland Capital Management	Russell 2000 Index	eV US Small Cap
Granahan Investment Management	Russell 2000 Growth Index	eV US Small Cap Growth
Segall, Bryant & Hamill	Russell 2000 Value Index	eV US Small Cap Value
Non-U.S. Equity	**MSCI ACWI ex-U.S.A**	**IM Public DB > $1B Non-US Equity**
Barrow Hanley	MSCI EAFE Value	eV EAFE Value
Lazard Asset Management	MSCI EAFE	eV All EAFE
MFS Institutional Advisors	MSCI World ex-USA Growth	eV EAFE All Cap Growth
Oberweis Asset Mgmt.	MSCI EAFE Small Cap	eV EAGE Small Cap
SSGA World ex-US IMI	MSCI World ex-USA IMI	eV EAFE Core Equity
State Street EAFE SC	MSCI EAFE Small Cap	eV EAFE Small Cap
Axiom Emerging Markets	MSCI Emerging Markets	eV Emg. Mkts. Equity
DFA Emerging Markets	MSCI Emerging Markets Value	eV Emg. Mkts. Equity
State Street Emerging Markets	MSCI Emerging Markets	eV Emg. Mkts. Equity
Wasatch Global Investors	MSCI Emerging Markets SC	eV Emg. Mkts. Small Cap
Core Fixed Income	**Bloomberg U.S. Aggregate Index**	**IM Public DB > $1B US Fixed Income**
Loomis Sayles & Co Core FI	Bloomberg U.S. Aggregate Index	eV US Core Fixed Income
SSGA U.S. Aggregate Bond	Bloomberg U.S. Aggregate Index	eV US Core Fixed Income
Baird Advisors Core FI	Bloomberg U.S. Aggregate Index	eV US Core Fixed Income
Garcia Hamilton & Associates	Bloomberg U.S. Aggregate Index	eV US Core Fixed Income
JPM Investment Management	Bloomberg U.S. Aggregate Index	eV US Core Fixed Income
Income Research & Management	Bloomberg U.S. Aggregate Index	eV US Core Fixed Income

Based on our experience with the benchmarks and universes being utilized by the Plan's investment consultant, we are comfortable with their continued use.

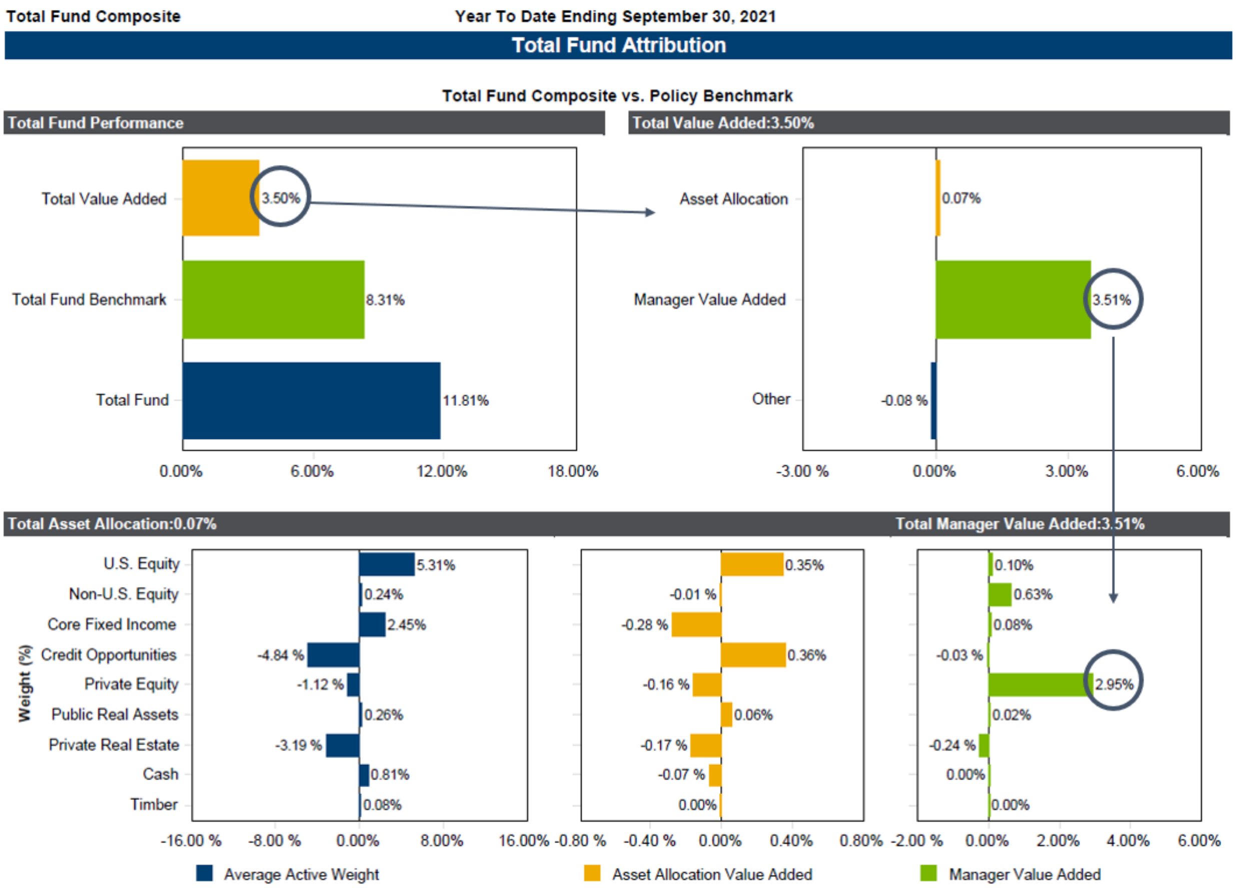
- ***Performance attribution analysis at the Total Fund level***

Conclusion:
Please see our performance attribution analysis at the Total Fund level as well as at the asset class level in Appendix E. The below charts provide an overview of what is provided in the appendix and how to appropriately interpret the analysis.

Total Fund:
The Chart below provides an attribution analysis at the Total Fund level for YTD 2021. The top

left of the chart provides the returns of the Total Fund and the Policy Benchmark as well as the relative difference. The top right chart breakouts out the relative return difference drivers by differences in asset allocation drifts from policy, manager value add difference driven by success or failure of active management (and structure decisions) within the underlying asset classes, and Other which typically represents the impact of cash flows during the period. The green bars in the bottom right chart present the breakout of the "Manager Value Added" category by asset class.

Chart 2-21. LACERS Total Fund Performance Attribution



Asset Class:

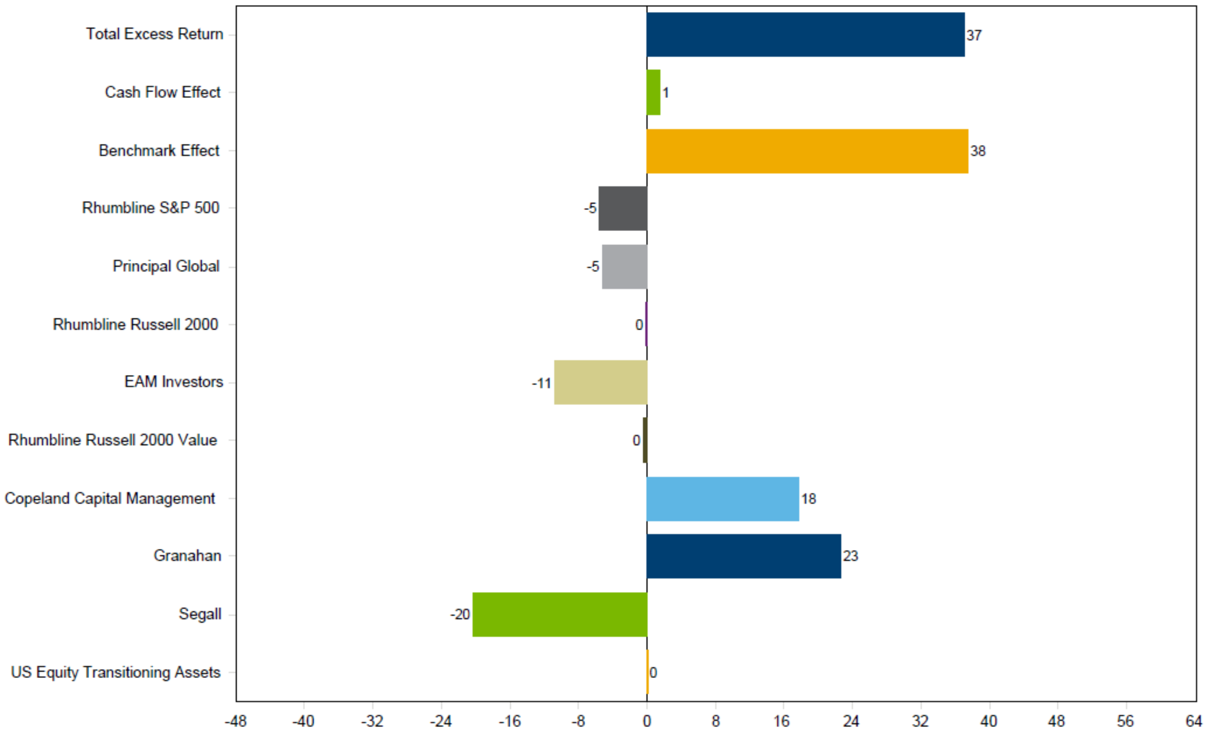
The chart below provides an overview of asset class attribution. The top line item represents the relative return between the asset class and benchmark which is then broken into two separate categories. The first being the effect cash flows had on the asset class's return and then the effect differences in the asset class benchmark relative to the underlying manager benchmarks had on relative results. The underlying strategies are also provided and the figures shown represent their total contribution to absolute results.

Chart 2-22. LACERS Asset Class (U.S. Equity) Performance Attribution

U.S. Equity **Year To Date Ending September 30, 2021**

Asset Class Attribution

Year To Date

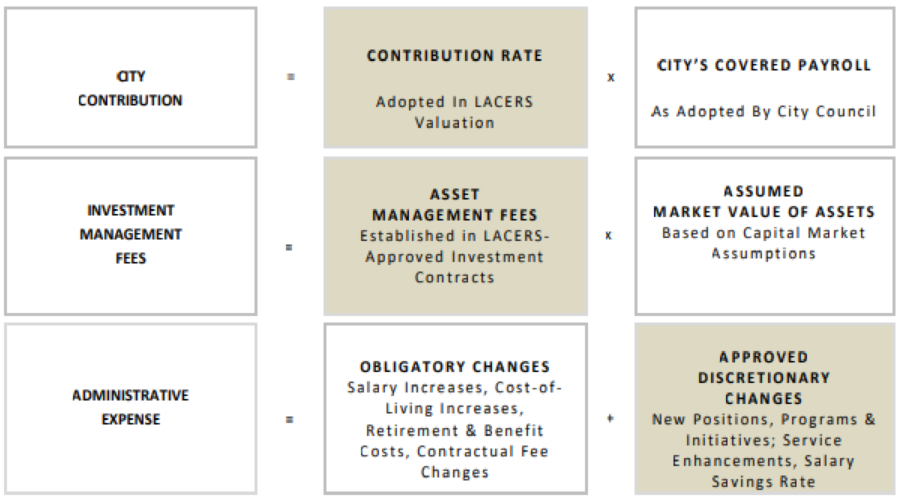


III. Economy and Efficiency of Administration/Management of the System

- ***Operating budget process***

We observe that the Board has a clearly defined and thorough process in place for consideration of its budget. The annual budget is comprised of an administrative expense budget, health care fund budget, investment management fees and expenses budget, and the City's contribution. The budget takes into consideration the Board's strategic plan and annual business plans. Chart III-1. below sets forth the components of the proposed budget.

Chart III-1. LACERS Budget Components



Source: LACERS May 26, 2020 Proposed Budget

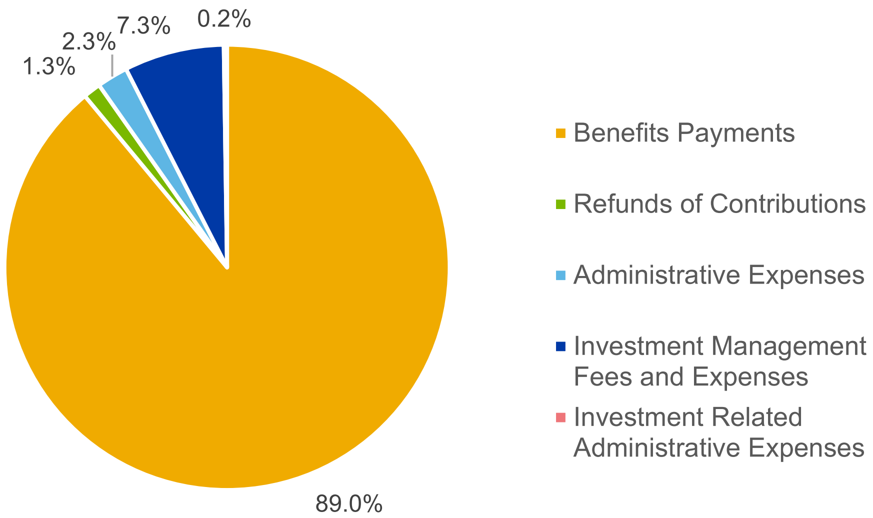
We find the LACERS *Annual Proposed Budget* process to be in line with best practices in terms of background, detail, justifications, and transparency.

Our interviews confirmed that LACERS Board and Staff are conscientious of properly budgeting and managing costs in a prudent manner.

- ***Broad drivers of costs***

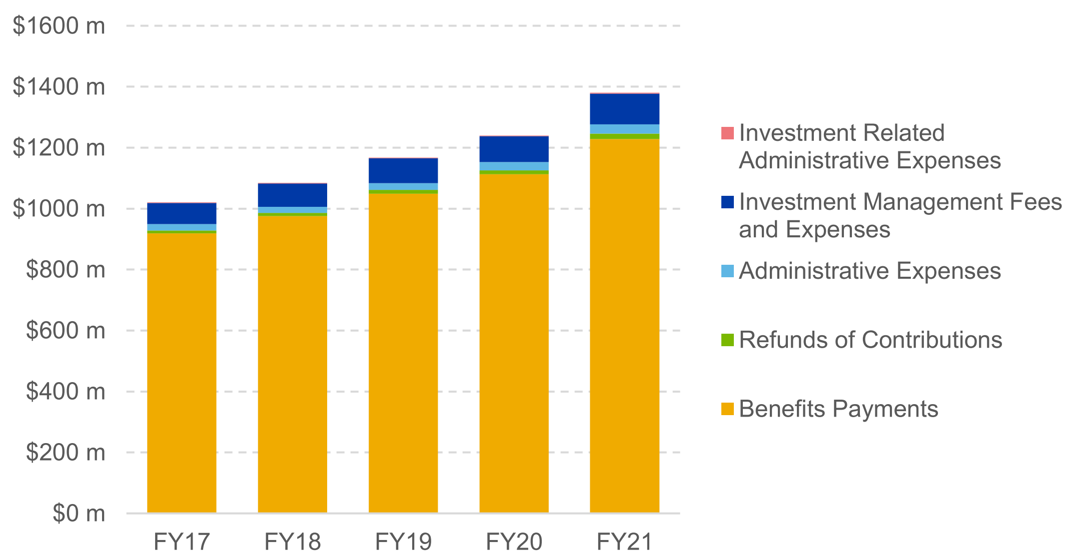
The total costs of LACERS' expenses include pensions and benefits, administration, and investment management. When looking at the total expenditures, administrative and investment management expenses make up a small portion of the total. The LACERS 2021 Annual Report reflects that administrative expenses represent 2.3 percent of the total expense. Investment management expense represents 7.3 percent and investment related administrative expense represents 0.2 percent. The remaining 90.3 percent of total expense was made up of pension and health benefit expenses and refunds of contributions, as depicted in Chart III-2 below created from the 2021 Annual Report:

Chart III-2. 2020-21 Actual Expenditures



The following Chart III-3. depicts a breakdown of total expenditures over a five-year period. Relative to benefits payments, other expenses have remained small.

Chart III-3. Five-Year Total Expenditures History



We observe the broad drivers of costs, including pension and health benefits expenses, investment management expenses and administrative expenses, are consistent with what we see represented in other public fund's expenses.

- ***Expenses over the scope period: administrative and investment management***

A. Administrative expenses

Chart III-4. below shows budgeted administrative expense, actual administrative expense and number of employees over the scope period. Administrative expense includes personnel services, professional services, information technology, investment related administrative expenses, leases and other related expenses. Generally, administrative expense increased over the scope period.

Chart III-4. Administrative Expense Budgeted vs Actual

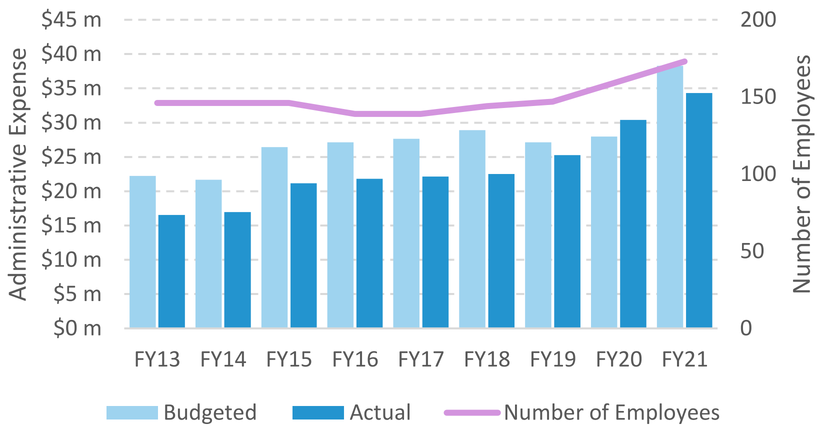


Chart III-5. below table below displays the percentage increase or decrease in actual and budgeted administrative expense compared to the previous year. The largest increase in actual administrative expense of 25% occurred in FY 2015. This increase in FY 2015 was primarily driven by the beginning of required employer contributions shared by LACERS for its employees' retirement and postemployment health care benefit. FY 2021 saw a 37% increase in administrative budget that was primarily driven by personnel services expenses, but the actual administrative expense only increased by 13%.

Chart III-5. Administrative Expense YoY Change Budgeted vs Actual

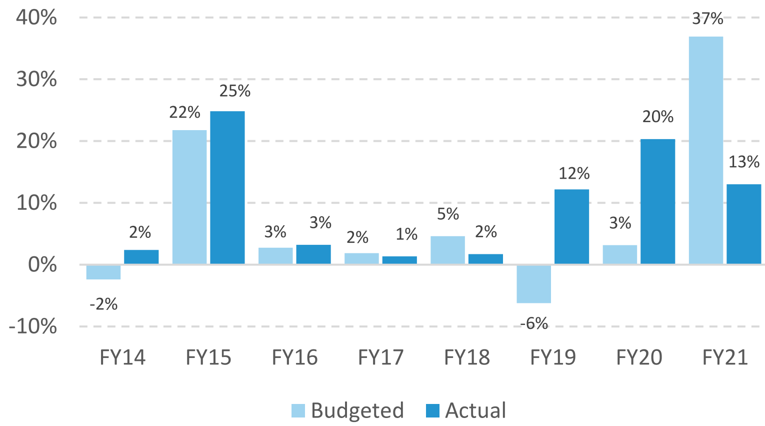
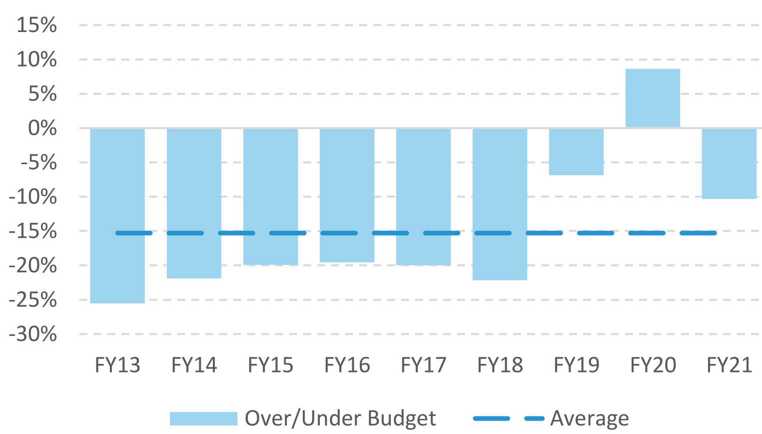


Chart III-6. below displays the percentage that actual administrative expense was over or under the budgeted administrative expense. Actual administrative expense was below budgeted administrative expense by an average of 15.3% from FY 2013 to FY 2020. Actual administrative expense remained under budget every year except FY 2020. In FY 2020, actual administrative expense exceeded budgeted administrative expense by 8.6%. This overage was primarily due to building operating expenses related to the new LACERS headquarter building, an increase in professional services expense related to self-funded dental plan administrative fees and a depreciation and amortization expense that was not included in the budgeted administrative expense.

Chart III-6. Administrative Expense Percentage Over/Under Budget



B. Investment expenses

Chart III-7. compares budgeted investment management expense, actual investment management expense and assets under management. Investment management expense includes investment management fees and consulting fees for all asset classes. Generally, actual and budgeted investment management expenses have increased over the scope period as assets under management have increased.

Chart III-7. Investment Management Expense Budgeted vs Actual

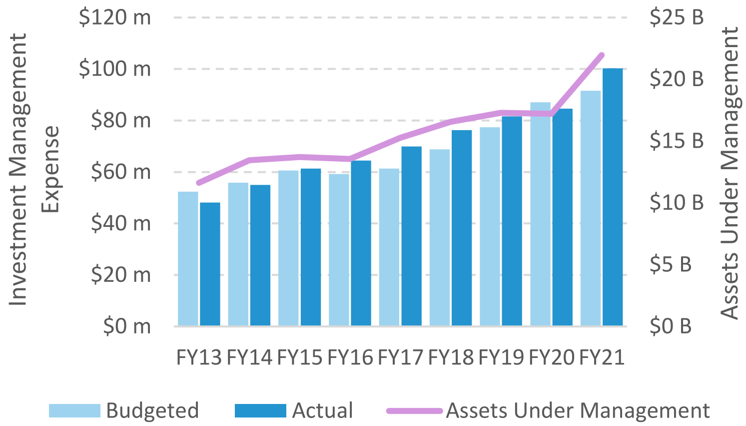


Chart III-8. below exhibits the percentage that budgeted and actual investment management expenses changed from the previous year. FY 2014 through FY 2017 experienced larger increases in actual investment management expense than budgeted investment management expense. FY 2018 through FY 2020 experienced larger increases in budgeted investment management expense than actual investment management expense.

Chart III-8. Investment Management Expense YoY Change Budgeted vs Actual

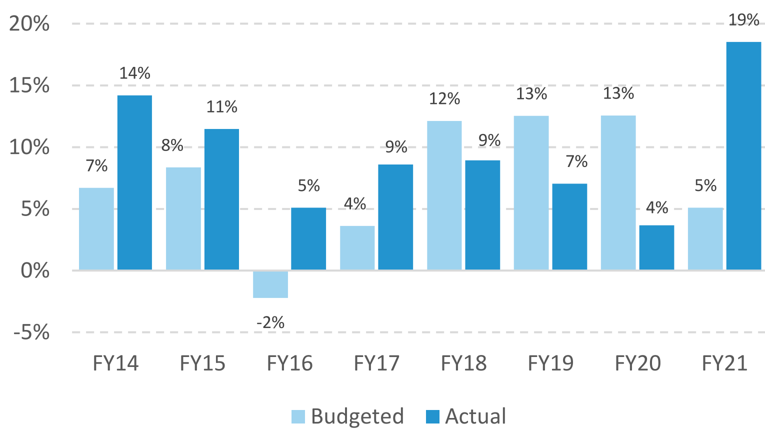
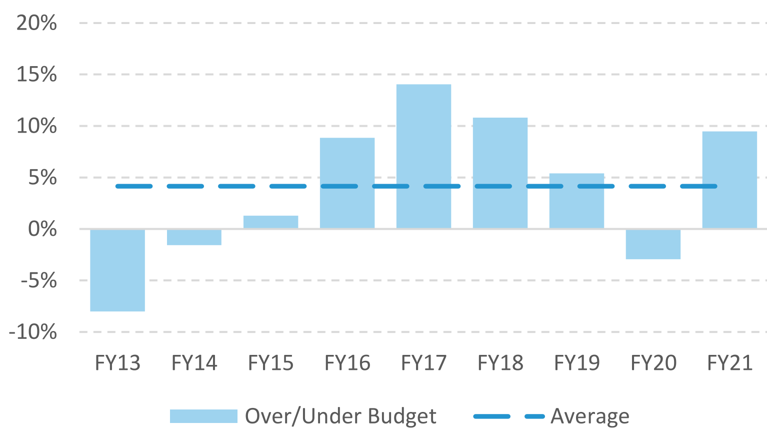


Chart III-9. below shows the percentage that actual investment management expense over or under budgeted investment management expense. Actual investment management expense was over budget by an average of 4.2% over the scope period. In FY 2017 investment management expense was 14.1% over budget.

Chart III-9. Investment Management Expense Over/Under Budget



Sources: FY 2013-FY 2021 Annual Comprehensive Financial Reports, FY 2013-FY 2021 Proposed Budget and Personnel Resolutions

Conclusion:
Generally, the administrative expense budget has increased minimally over the scope period and actual expenses have been under budget with the exception of FY 2020 with justifiable drivers for that year. The investment management budget and actual expenses have increased due to increased asset size.

- ***Expenses compared to peers***

LACERS uses CEM Benchmarking analysis to compare various aspects of its administration to peers, including pension administration costs. Comparison to peers is an exercise in prudence. The California Constitution and the City Charter require the LACERS Board to discharge its duties with the care, skill, prudence and diligence under the then prevailing circumstances that a prudent person acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims. This language mirrors ERISA and contemplates comparison to prudent trustees at peer pension systems. The standard does not require that fiduciaries act in the same manner as peers. Rather, it requires that decision-making by fiduciaries be informed by the actions of comparable fiduciaries – like entities with like aims.

We reviewed the CEM Benchmarking study completed in 2018. The 2018 study benchmarked LACERS pension administrative costs and service levels. CEM identified 13 LACERS peers for purposes of the study. Benchmarked against those 13 peers, LACERS total pension administration costs per member were only slightly above the peer average. LACERS total pension administrative costs per member were below the peer average when compared to

California pension systems. When reviewing total administrative costs compared to asset size (in basis points), LACERS was below the peer average.

Based on the 2018 CEM Benchmarking study, we observed that the number of LACERS administrative staff appear somewhat higher than the peer average. CEM reported that LACERS used 64% more full-time employees to serve members than peers. This was due to the complexity of the benefits and transaction volume necessary in providing services to the LACERS membership. LACERS reported that their staffing levels have only grown strategically where necessary. Furthermore, our interviews confirmed that the LACERS' staffing size is commensurate with the proper administration and management of the System, and that a few more additional staff would be able to fully support the specialized services such as service purchase, cybersecurity, benefit administration and investments, as assets have grown and there are more specialized services.

Table III-1. LACERS Staffing Turnover Rates

	Authorized Positions	Turnover
FY 2014	139	17
FY 2015	139	21
FY 2016	139	24
FY 2017	139	23
FY 2018	144	28
FY 2019	147	21
FY 2020	160	25
FY 2021	173	14
FY 2022	177	11

In reviewing turnover rates, we found them to be relatively stable over the scope period.

- ***Opportunities for Cost Sharing***

A. Current cost sharing arrangements

We observed that LACERS has instituted some cost sharing with the Los Angeles Fire and Police Pensions (LAFPP) and Water and Power Employees' Retirement Plan (WPERP).

Current cost sharing arrangements: The main area of cost sharing amongst the Systems is for the City Attorneys' Office legal representation amongst the Systems. The April 13, 2015 Letter Agreement between the Systems reflects the method and manner of this cost sharing arrangement. Shared costs include salaries incurred by City Attorney clerical staff, hours worked by City Attorney staff in joint support of the three Systems, and compensatory time taken by City Attorney staff. Each System is responsible for its portion of shared costs, which is calculated based on a percentage of salary per work order to the total salary. The salary-based percentage is also applied to the cost sharing of non-salary expenses. Effective July 1, 2014, LACERS is the central billing agency for the non-salary City attorney expenses. The non-salary expenses include office space lease, office furniture and equipment, parking, dues, subscriptions, publications, travel expenses, training, copy machine rental, office supplies and computer equipment. LAFPP and WPERP reimburse LACERS based upon the percentage of City Attorney staff time used by each System.

Currently the City Attorney Public Pensions General Counsel Division's primary office is housed in the LACERS location, with satellite offices at LAFPP. WPERP reimburses its pro-rata share of the primary office lease expense incurred by LACERS but is not responsible for reimbursing LAFPP for the satellite office lease expenses.

The Systems reconvene as necessary to review and discuss any changes to the City Attorney cost sharing arrangement.

LAFPP and LACERS also contract with the same real estate consultant. For investments made in the same commingled fund, the real estate consultant negotiates on behalf of both systems, which reduces each System's respective management fee for the commitment.

Finally, the three Systems share outside legal counsel expenses covering the review and drafting of investment fund documents when making the same investments.

B. Potential cost sharing opportunity:

A potential cost sharing opportunity could be explored through a group purchase of management liability insurance. By joining as a group through one broker, the Systems could contact the markets as a group, rather than individually, and obtain cheaper insurance rates. The management liability insurance could include primary and excess fiduciary liability, directors and officers liability, employment practices liability, cyber and crime, as determined by each System. Each System would obtain its own policy with their own limits and the Systems would not pool or share risk. This arrangement has successfully been utilized by other retirement systems and has resulted in cost savings for each system that was part of the group.

Recommendation III.1.:

High Priority	Medium Priority	Low Priority
		X

- Explore additional cost sharing arrangements LAFPP and WPERP regarding management liablity insurance.

- ***Interagency integrity of data***

LACERS receives payroll data from the City regarding contributions. It is our understanding that there is a slight misalignment regarding the format in which the payroll data is reported. However, LACERS has processes in place to convert the data into a format that they can run through their pension system, and a new City payroll system scheduled for 2023 should rectify the misalignment.

IV. Governance

- **Board Governance Manual/Policies**

Background:
"Governance" refers to the method by which an entity is directed and controlled. A good governance structure clearly defines the roles of the different parties that participate in the decision-making process and includes the way issues are identified, options are analyzed, and decisions are evaluated and ultimately by whom they are made. Key elements of a solid governance framework include transparency and accountability, prudent documentation, specificity regarding any delegation and oversight, and effective leadership. Consequently, organizations that exercise "good governance" have clear and concise documentation of roles and responsibilities, effective and efficient reporting lines, and clarity concerning what authority has been retained by a board and what has been delegated. Studies have shown that "good governance" adds tangible and intangible value to an organization.[2]

For many public pension funds, the enabling statute sets forth high-level duties of the board, the executive director/general manager, and the chief investment officer ("CIO"). Most public pension funds further document the roles, responsibilities and reporting lines by adopting bylaws, charters, written delegations of authority, organizational charts, position descriptions, and policies and procedures (e.g., the investment policy statement, governance manual, etc.).

Having clearly defined roles and responsibilities is a recognized best practice, as it facilitates a board's ability to fulfill its fiduciary duty, mitigate risk, and help the organization to run more effectively and efficiently. It is important that the documentation be in line with statutory authority, be unambiguous, succinct, consistent, and periodically reviewed to ensure relevance.

We find that many systems compile their internal policies and references to relevant statutes, regulations, and other documents into a governance manual in order to create one central place where the rules and principles governing the system are compiled. Such a governance manual helps ensure that all trustees, staff, stakeholders, and other interested parties receive complete and consistent information to understand their respective roles, as well as the governing structure of the system. In general, the purpose of a governance manual is to set forth in writing the operating guidelines a board has for itself. It codifies the way things work and provides continuity when trustees change. It documents the structure, manner, and process by which a board exercises its authority and control. It helps boards meet their fiduciary responsibilities.

---

[2] "Good Governance Adds Value", a study published by Rotman International Journal of Pension Management, found that better governed pension funds outperformed poorly governed funds by 2.4% per annum during the 4-year period ending 12/2003. A similar study for the period 1993-1996 found a 1% annual good governance performance dividend. Capelle, Ronald, Lunn, Hubert and Ambachtsheer, Keith, "The Pension Governance Deficit: Still with Us" (October 2008), Rotman International Journal of Pension Management, Vol. 1, 2008.

Conclusion:

LACERS has adhered to best practices by adopting a board governance manual. The LACERS Board Governance Manual sets forth LACERS' mission and vision, statement of purpose, applicable laws, ethical obligations, duties and responsibilities of the Board and the General Manager, expectations of Board members, Board procedures, Board administrative policies and Board investment policies. We find the LACERS Board Governance Manual is a thorough and essential document with clear delineation of roles and responsibilities and serves as an important source demonstrating the sound governance structure exercised by LACERS.

Further, LACERS follows best practice in transparency by posting the Board Governance Manual on its public website, and we commend LACERS for doing so.

In looking at the polices contained in the Board Governance Manual and adopted by the System, we focused on policies compared to industry standards. We compared LACERS' policies to the policies we would expect to find at a public fund that has operating policies consistent with best practices. In our comparison. We observed that LACERS has most of the policies we would expect to find.

Additionally, like a number of cutting-edge public pension systems, LACERS has adopted a policy addressing environmental, social, and governance (ESG) issues. LACERS Geopolitical Risk Investment Policy sets forth the Board's awareness that ESG issues may have an impact on investment returns, and in such instances, these issues should be examined. The Geopolitical Risk Policy makes it clear, however, that any actions taken must be consistent with the Board's fiduciary duties, which we find to be appropriate from a fiduciary and governance perspective.

The chart below compares the LACERS policies to our best practice policies list on the following page.

Table III-2. Best Practices Policy List	Policy Exists
1. Reference to governing laws and charters	√
2. Ethics policy	√
3. Conflicts of interest and disclosure policy	√
4. Board meeting protocol	√
5. Delegation policy	**Written Delegations of Authority**
a. Responsibilities of the Board	√
b. Responsibilities of the Executive Director/General Manager	√
6. Investment policy. Examples of key provisions	√
a. Investment goals and objectives	√
b. Identification of Roles and Responsibilities	√
c. Asset Allocation	√
d. Asset class guidelines and benchmarks	
e. Rebalancing policy	√
f. Monitoring and reporting	√
g. Securities litigation policy	√
h. Proxy policy	√
i. Insider trading policy	**Reference**
j. Personal trading policy	
k. Placement agent policy	√
7. Budget approval policy	**Reference**
8. Legislative policy	√
9. Customer service policy	**Reference**
10. Communication policy	√
11. Procurement policy	√
12. Audit policy	√
13. Board member education policy	√
14. Board travel policy, including approval process	√
15. Staff compensation policy	
16. Strategic planning and implementation policy	√
17. Succession planning policy	
18. Risk management policy	
19. Whistleblower policy	**Reference**
20. Disaster recovery/Business continuity policy	√
21. Cybersecurity policy	**Information Security Policy**
22. Board self-evaluation policy	
23. Executive Director/General Manager evaluation policy	√
24. Service provider evaluation policy	
a. Investment consultant	
b. Legal counsel	
c. Actuary	
25. Reporting and monitoring policy	
26. List of routine reports provided to the Board	

27. Board Operating Policy and Procedures	√
a. Benefits Administration	√
b. Benefits Processing	√
c. Benefits hearing	√
28. Funding Policy	√
Schedule of Policy Review Frequency and Amendments	√

Recommendation IV.1.:

High Priority	Medium Priority	Low Priority
		X

- We recommend that LACERS consider adoption of the best practice policies that have not been adopted listed above. Furthermore, LACERS should consider adding references to existing policies that are not contained in the Board Governance Manual itself.

- ***Monitoring and reporting***

Background:

In order to adequately fulfill their fiduciary responsibilities, it is essential that board members devote adequate time to monitoring compliance with the policies and procedures they have adopted. In order to assess compliance, suitable reporting is essential. The U.S. Supreme Court has stated that fiduciaries have a continuing duty-separate and apart from the duty to exercise prudence-to appropriately monitor. *Tibble v. Edison International*, 135 S.Ct. 1823 (2015), *Hughes v. Northwestern Univ., 595 U.S.__2022.*

Through our interviews, it is clear that the Board and Staff are mindful of the board's oversight role and have adopted many prudent ways to enable the Board to exercise this role. To further enable the Board's oversight role, we recommend the adoption of a Reporting and Monitoring Policy that sets forth the Board's expectation of regular reporting, and a schedule of routine reports provided to the Board. We also recommend that LACERS do a Reporting and Monitoring verification process on an annual basis to ensure that the regular reporting has been completed. Many other public pension systems use these methods, such as sister system LAFPP.

Recommendation IV.2.:

High Priority	Medium Priority	Low Priority
	X	

- Adopt a Reporting and Monitoring Policy and conduct an annual Reporting and Monitoring verification report to the Board.

- ***Board Education and Travel Policy***

Background:
To keep abreast of current issues and industry changes, the best practice is to provide thorough orientation and on-going training for trustees. Some boards have adopted education policies, which we believe is a prudent practice. An education policy sets forth the timeframes for orientation and continuing educational requirements, the essential educational topics to be covered, internal educational programs, recommended external conference opportunities, and an evaluation process for board input on training, and materials for self-study.

Many retirement systems have a required minimum of annual continuing education that board members must complete. According to a 2019 completed by the National Association of State Retirement Administrators (NASRA), out of 25 participating systems, 19 reported that they have a requirement to receive continuing education. 16 of those systems require a specified number of hours ranging from 2-18 hours annually. Most systems require that the education be related to fiduciary responsibility, ethics, investment issues, actuarial concepts, and open meeting requirements.

Conclusion:
LACERS has adopted a Board Education and Travel Policy (Policy). The Policy contains many of the expected elements of a prudent board educational policy. Additionally, the training topics listed therein comport with what we expect to see, including training on fiduciary duties, ethics, governance, actuarial principals, plan design, and investment and asset allocation. The Policy requires board members to complete a Board Member Evaluation Educational Form after attendance at an outside conference. The appendix to the Policy also provides a schedule of approved educational seminars.

The LACERS Board Education and Travel Policy has a minimum of 24 hours of board education that is required within the first two years for new board members, and for every subsequent two-year period. We believe requiring a minimum number of educational hours is consistent with best practice.

The Board Education and Travel Policy requires a quarterly travel expenditure report, monthly report on conferences attended by Board members, and an annual travel activity summary. LACERS practices transparency by posting these reports, which comports with the governance element of transparency.

It is also LACERS' practice to have the City Attorney review board member travel requests for potential conflicts of interest.

- ***Independence of the System-Frequency of board meetings/Staff hiring and compensation***

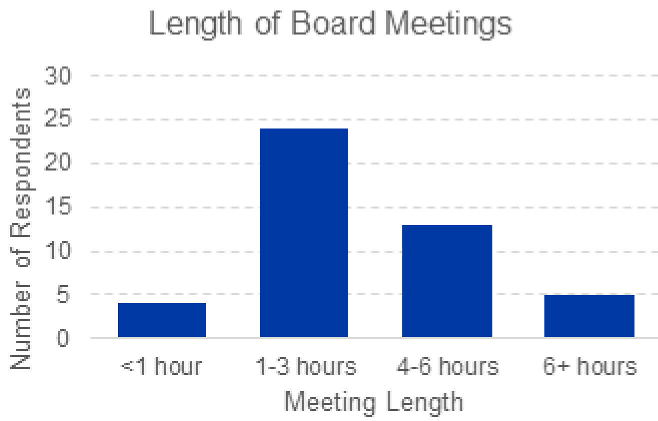
Background:
The National Conference of Commissioners on Uniform Laws approved and recommended the Uniform Prudent Investor Act (UPIA) to all states August 4, 1994, and the Uniform Management of Public Employees Retirement Systems Act (UMPERSA) on August 1,1997. These two uniform laws effectively incorporate the major principles of fiduciary duty. The concepts set forth in the uniform laws are often considered "best practice" and therefore have been used as models by public pension funds and investment boards to modernize fiduciary and investment standards.

It is important for governing fiduciaries in charge of the administration and management of retirement system assets be independent-whether a sole fiduciary or board of trustees. UMPERSA specifies that the governing fiduciaries must have a level of independence that is sufficient to allow them to perform their duties effectively and efficiently. Governing fiduciaries are subject to extensive and stringent fiduciary standards such as the duty of loyalty. Independence permits the governing fiduciaries to perform their duties in the face of pressure of others who are not subject to the same obligations.

- ***Frequency and length of board meetings***

Background:
We have seen a growing trend for public pension system boards to reduce the number of annual board meetings. The National Association of State Retirement Administrators (NASRA) conducted a 2019 survey on the frequency and length of board and committee meetings. Forty-eight systems in thirty-seven different states responded to the survey. Of the responses, 14 systems reported that their governing boards meet monthly, 7 meet bi-monthly, and 17 meet quarterly. Others meet between 5-10 times per calendar year. The typical length of board meetings is as follows:

Chart III-10. NASRA Survey-Typical Length of Public Pension Funds Board Meetings (2019)



Conclusion:
Pursuant to City Charter Section 503(b), the LACERS Board is required to meet at least twice per month. This is atypical of current practices and trends. Additionally, meeting so often requires a signification amount of Board and Staff expenditure of time and resources. This can also result in a lag in keeping board meeting minutes up to date. Through our interviews, the Board members did not necessarily see a need to meet less often. Board members do not want to see longer board meeting days as a result of cutting back on meeting twice per month. We also recognize that any changes would require an amendment to the City Charter. However, we believe LACERS should have its own ability to independently decide on the frequency and timing of its board meetings.

Recommendation IV.3:

High Priority	Medium Priority	Low Priority
	X	

- We recommend that the City consider changing the City Charter to permit LACERS independence to determine the frequency and timing of LACERS board meetings.

- ***Staff hiring and compensation***

Background:
Historically, public pension funds have been hindered in their ability to recruit and retain qualified talent, particularly professional and investment staff, because they did not have independent authority or were subject to civil service requirements. Many public pension funds

have been granted authority by their respective legislatures to have independence over the recruitment, hiring, and compensation of the fund's staff. Currently, LACERS is subject to the City's classifications of positions and salary structure. Through our interviews we learned that at times the classifications do not adequately cover the job being performed at the retirement system. Not having an independent salary compensation structure could cause problems with professional and investment staff being underpaid according to market, which can directly affect recruiting and retention efforts.

The Department of Labor, in reviewing the duty to defray reasonable expenses of administering a pension system, has stated that reasonable expenses are those that are appropriate and helpful to the plan. DOL recognizes that in order for the plan to be properly managed and to fulfill responsibilities of administering the plan, trustees can ensure that they have adequate resources and staff necessary to meet the needs of the plan. This could be hindered if a system does not have proper independence in this area. Having independence in this area is in line with the independence principles noted by UMPERSA and best practices.

Recommendation IV.4.:

High Priority	Medium Priority	Low Priority
X		

- We recommend that the City amend the City Charter to give LACERS independent authority regarding LACERS staff hiring and compensation.

- ### *Delegation*

A trustee has a duty personally to perform the responsibilities of the trusteeship **except as a prudent person of comparable skill might delegate those responsibilities to others**. In deciding whether, to whom and in what manner to delegate fiduciary authority in the administration of a trust, and thereafter, in supervising or monitoring agents, the trustee has **a duty to exercise fiduciary discretion and to act as a prudent person of comparable skill would act in similar circumstances.** Section 80 of the Third Restatement of Trusts. (Emphasis added.)

Trustees are not only allowed to delegate certain tasks, but they are expected and encouraged to do so. *Donovan v. Cunningham*, 716 F.2d 1455, 1467 (5th Cir. 1983). Trustees cannot reasonably be expected to fulfill every function the retirement system is responsible for performing, particularly in the area of investments given the size and complexity of public pension fund assets. Additionally, most public pension fund trustees are part-time, not compensated and many do not have financial and investment expertise. It is considered prudent given these constraints to prudently delegate to professionals who have the requisite knowledge and experience.

This is particularly important given the complexity of today's environment in which institutional investors operate. Best practice is an oversight model that enables board members to focus on the policy issues that demand their attention, trending away from board management of the minutiae. Prudent delegation is critical to the long-term success of retirement systems and can allow board members to focus on matters of policy that require their attention and is an important trait of an effective, efficient board.

Public retirement boards can delegate but they cannot abdicate their responsibilities. They can delegate duties to qualified agents; however, if the board elects to delegate duties, it must utilize reasonable care, skill and caution in selecting and monitoring the agents and establishing the scope and limits of the agent's authority. Prudent delegation assists in mitigating fiduciary liability. Best practices are to make clear delegations in writing after undertaking a prudent process to determine if the agent is truly an expert in the type of work being delegated. When considering whether a delegation is proper, consideration is to be given to "all factors that are relevant to analyzing where the fact and manner of delegation can reasonably be expected to contribute to the sound, efficient administration of the trust." Section 80, Comment e, of the Third Restatement of Trusts. As stated in *Donovan v. Cunningham*- "[t]he test of prudence is one of conduct and not a test of the result of the performance of an investment. The focus of the inquiry is how the fiduciary acted in his selection of the investment and not whether his investment succeeded or failed." 716 F.2d 1455 (5th Cir. 1983). In our opinion, echoed by other industry experts, we find delegation when prudently done is a best practice.

The decision to delegate is a governance decision and is ultimately within the discretion of the LACERS Board to decide whether, and in what manner, to delegate functions to Staff or to third parties. There are two areas that we identified where the Board could consider delegation of its authority: one, the disability hearing process, and two, the selection of investment managers. Based upon our empirical knowledge, many public pension fund boards have delegated in these two areas. These delegations have resulted in the need for less board preparation and board meeting time and made the processes more efficient. We recognize the LACERS Board has delegated "discretion in a box" to its consultant regarding making private equity commitments up to a maximum of $150 million for new and existing managers without board approval. The Board could consider additional delegation regarding investments, and regarding disability approvals. This would cut down board meeting time as well. Through our interviews with Board members, however, the majority reported that they felt their role is a vital one in both of these areas and did not seem inclined to delegate additional investment discretion or disability approval discretion. We do encourage the Board to consider any other areas that could be delegated that permits them to continue to focus on policy, and charge Staff with implementation. For any delegations, the Board can exercise its prudent oversight and monitoring and ensure their delegation is being properly executed according to the terms of the delegation.

V. Progress toward Recommendations made in the Prior Management Audit

The last management audit of LACERS was completed in 2013 by P2E Consulting. P2E Consulting made a total of 41 Recommendations. We confirmed that the LACERS Board promptly and thoroughly considered every Recommendation.

Of the 41 Recommendations, LACERS reports that it has completed 33 Recommendations, considered and recommended status quo on 6 Recommendations, and noted 1 Recommendation as unknown.

We reviewed each recommendation, documentation and questioned the Board and Staff regarding implementation. Our review confirms that LACERS has completed 32 of the Recommendations.

Regarding Recommendation #25-Aon agrees in part. Recommendation #25 provides that LACERS establish a Monitoring and Reporting Policy, Strategic/Business Planning Policy, and a GM Performance Evaluation Policy. LACERS has adopted the Strategic Planning Policy and GM Performance Evaluation Policy but has not adopted a Monitoring and Reporting Policy. We discuss this and make a recommendation in the Governance section of this Report.

Recommendation #21 recommended that the Board consider delegating the entire investment selection process to Staff, subject to Board-approved parameters, selection criteria, and relevant internal controls. There has been some delegation to Staff relative to private equity. We discuss delegation of selection of investment managers above in our Governance section of this Report.

Recommendation #15 recommended that LACERS should propose to the City Council that the City Charter be amended to grant the Board full authority to administer the System subject to fiduciary standards relative to the System's own independence, including staff compensation and hiring policy, and setting the number and timing of board meetings. LACERS reported that the Recommendation is better directed to the City. We discussed our recommendations more fully above under the Governance section of this Report.

Our full comments are listed in the Status of Prior Recommendations Matrix chart below. We have highlighted the Recommendations where we renew all or part of the original Recommendation.

Reco Number	Recommendation	LACERS Status/Aon Comments
Interim 1	Comprehensive review of active management program; ensure LACERS has taken all relevant factors into consideration.	Completed Aon: Agree
Interim 2	Emerging Manager Fund of Funds Program: terminate or revise Program or revise the Emerging Manager Policy.	Completed Aon: Agree
Interim 3	Update Section V.C. of Investment Policy Statement to reflect the more stringent requirements contained in Section IV of the Manager Search and Selection Policy.	Completed Aon: Agree
Final	The City should consider the matter of consolidation or combination of its pension systems. One aspect of its consideration of the matter should be a comprehensive study to determine an estimate of the potential savings and form the basis for further action.	Unknown - Recommendation was addressed to the Mayor and Council. Aon: Agree
Final 1	LACERS should supplement Monte Carlo simulation with scenario analysis. This would allow it to examine the performance of its asset mix policy under a limited number of specific economic scenarios, so as to better understand the risk of lower than anticipated investment returns under adverse capital market condition. It would also enable LACERS to better communicate the risks of the System to the City. The added costs associated with scenario analysis would be minimal.	Completed Aon: Agree
Final 2	The Board should devote more time and effort to reviewing the investment assumptions before the asset/liability study is conducted (in the same ways that it reviews actuarial assumptions prior to the actuarial valuation) to satisfy itself that the assumptions, particularly with respect to the expected returns on asset classes, are realistic, that they reflect the current valuation in capital markets, and that they are a reasonable expectation of investment performance over the period of the study.	Completed Aon: Agree
Final 3	LACERS should explore with its investment consultant the feasibility of using alternative methodologies, other than mean-variance optimization, for determining allocations to private market assets.	Completed Aon: Agree
Final 4	LACERS should not invest in any asset class (or sub- asset class) without analyzing the potential implications of any such investment on the expected risk and return of the Fund. More specifically, LACERS should not invest in the real asset sub- asset classes that were recently approved until those sub-asset classes are modeled to determine the impact they may have on total portfolio.	Completed Aon: Agree

Reco Number	Recommendation	LACERS Status/Aon Comments
Final 5	The Board should establish maximum-minimum asset allocation ranges as part of the transition plan to guide the rebalancing of the actual allocation if it were to drift too far away from the quarterly target mix.	Completed Aon: Agree
Final 6	LACERS should establish a separate rebalancing policy with comprehensive guidelines and procedures with respect to the rebalancing process. (a) LACERS should examine the feasibility of rebalancing the asset allocation of the System, not just when the allocation exceeds the maximum-minimum ranges, but on an ongoing basis by directing contributions towards portfolios which are under-weighted (i.e. below their target allocations but still within the approved range) and withdrawals from portfolios which are over-weighted with proper allowance for the liquidity issues surrounding private market assets. Purchases and sales of securities in order to rebalance should only be undertaken when the asset allocation exceeds the approved ranges. While we were informed by staff that they consider cash flow in the rebalancing process, this should be more clearly specified in its investment policy. (b) LACERS should explore the use of overly strategies based on market index futures contracts as an alternative and/or a supplement to cash flows and asset purchases and sales for rebalancing.	Completed Aon: Agree
Final 7	The Board should require that the quarterly reports provided by the general investment consultant, real estate consultant, and private equity consultant provide the necessary information to allow the Board to monitor compliance with portfolio diversification requirements contained in LACERS investment guidelines.	Completed – Quarterly reports are now being submitted by the general investment consultant, real estate consultant and private equity consultant. Aon: Agree
Final 8	The Board should require investment consultants to submit a compliance report (quarterly or at least annually) that verifies the Systems' compliance with the various provisions and guidelines of its investment policies.	Completed - this has been implemented by requiring the public markets investment managers that manage separate accounts to submit compliance statements annually within 45 days of calendar year end. Aon: Agree with the implemented process
Final 9	LACERS should consider stratified rates by Service Range provided by the actuary for retiree medical and dental coverage and continue to monitor the 50% election assumption for deferred vested members.	Completed Aon: Agree

Final 10	LACERS should reexamine the data on marital status at retirement and age difference between spouses because it is a more significant factor in an OPEB valuation.	Completed Aon: Agree
Final 11	LACERS should add more automation, if cost beneficial, in the application process to reduce the amount of work, time, and effort spent scanning applications, and ensure applications are complete. An automated system would ensure that all applications are legible and complete before submission, and automatically generate an electronic file, that would likely be easily searchable.	Completed - implemented when our PGOLD or retirement system application was upgraded in 2018 Aon: Agree
Final 12	LACERS should establish relationships with area physicians and become more proactive in getting medical records. Specifically, if cost-biennial, creating a mechanism to accept these applications electronically will eliminate delay that may be present with faxing or mailing this information, and allow the Disability Department to keep track of medical records in real time.	Completed - Status Quo approved by the Board Aon: Agree that the area physicians are not under contract with LACERS so it is not possible to require they submit their medical reports electronically. However, LACERS does require their own evaluators to submit their medical reports through a secure, electronic portal.
Final 13	LACERS should organize scanned data into additional sub-categories if cost beneficial, to help increase utility.	Completed Aon: Agree
Final 14	LACERS should consider ways to expedite the few retirement cases exceeding 90 days.	Completed – LACERS has always been ensuring cases do not exceed the promised processing time of 60 days from the time the application requirements have been completed. If it exceeded 60 days mostly its because there are issues beyond the control of LACERS. Aon: Agree, and note the “few” retirement cases were a total of three
Final 15	In accordance with industry best practice and published standards LACERS should propose to the City Council that the City Charter be amended to grant the Board full authority to administer the System subject to fiduciary standards. Such authority would include but not limited to: (a) Appointment of the General Manager; (b) Selection of legal counsel (internal or external); (c) staff compensation and hiring policy(at a minimum, the authority to allocate and reallocate positions without going through the City Personnel Department); and (d) Setting the number and timing of board meetings.	Completed - Status Quo approved by the Board Aon: Agree the Board did discuss the recommendation, but Board determined the recommendation should be directed to the City rather than to LACERS.

Final 16	LACERS should propose a Charter amendment to stipulate that an appointed Board member may only be removed for cause (except at end of term) and, if removed, that the reason is publicly disclosed.	Completed -Status Quo approved based on discussions with Mayor's Office Aon: Agree discussions regarding the recommendation were held.
Final 17	LACERS should establish separate comprehensive charters for the Board, the Board Chair, and the GM, as opposed to having their roles and responsibilities documented in various governance and investment policies. The use of charters (or terms of reference) was a typical practice among Cortex Peer Group.	Completed - Status Quo approved by the Board Aon: Agree that the roles and responsibilities of the Board, the Board Chair and the GM are outlined in the current Board Manual.
Final 18	LACERS should establish a charter for Internal Audit position that describes the roles and responsibilities of the position, and the internal auditor's reporting relationship with the Board and the General Manager.	Completed Aon: Agree
Final 19	LACERS should remove the Investment Committee Charter from the Governance Manual, as well as various references to the committee found throughout the Governance Manual, as the committee was disbanded in 2011.	Completed Aon: Agree
Final 20	LACERS should consider instituting a consistent format and content for each committee charter, such as general statement as to the role of the committee, committee composition, frequency of meetings, as well as the specific duties and responsibilities of the committee.	Completed Aon: Agree
Final 21	As LACERS investment programs get larger and more sophisticated over time, the Board should consider delegating the entire investment selection process to management subject to Board-approved parameters, selection criteria, and relevant internal controls. (Acknowledges Board has moved in this direction)	Completed - Status Quo approved by the Board The authority to make investments has not been fully delegated to staff. For Private equity, staff and consultant have limited discretion. Private equity does not need to be approved by the Board as long as the commitments are made within certain guideline amounts (up to $50 mil for new funds and up to $100 mil for follow on funds); the Board receives a notification report after staff and consultant make the commitment. Any potential commitment that exceeds the guideline amounts would need to be approved by the Board. For all other areas of the portfolio (public equity, fixed income, credit opportunities, private real estate and public real assets), the Board has to approve any investment. Aon: May renew recommendation

Final 22	The Board should establish a separate Audit Committee, and in preparing a charter for the committee, should consider the sample charters prepared by the Association of Public Pension Fund Auditors (APPFA) and the American Institute of Certified Public Accountants (AICPA).	Completed Aon: Agree
Final 23	The Board should consider eliminating the Strategic Planning Committee.	Completed Aon: Agree
Final 24	LACERS should establish a formal frequency for the periodic review of governance policies. Industry standards in this regard range from every 3 to 5 years. The policy review frequency should be documented (this could be done in the Statement of Governance Principles or in each policy). Ideally, all governance policies should indicate the date the policy was first approved, and last reviewed and/or amended.	Completed Aon: Agree, for policies where it is not specifically outlined within the policy, all policies are to be reviewed every five years, pursuant to the Policy and Procedure Management Policy.
Final 25	Establish other governance policies: Monitoring and Reporting Policy; Strategic/Business Planning Policy; and GM Performance Evaluation Policy.	Completed a GM performance evaluation policy is already in place. A strategic planning policy has been implemented since 2018. Aon: Agree in part, although there is not a separate Monitoring and Reporting Policy-we may recommend its adoption
Final 26	LACERS should review and update Investment Policy Statement and other investment policies and include the latest versions in its Governance Manual.	Completed. The Board adopted the Revised Investment Policy Statement on October 24, 2017 Aon: Agree
Final 27	LACERS should add the Board Communications Policy to the Board's Governance Manual.	Completed Aon: Agree
Final 28	LACERS should update the Commitment of a Board Member document, which references committees and sub-committees that no longer exist (e.g. Audit and Risk Control Committee, Private Investment Committee, etc.).	Completed Aon: Agree
Final 29	LACERS should reorganize Governance Manual so that ethics-related policies are all contained in the same section of the Manual to assist Board Members to maintain familiarity with them	Completed Aon: Agree
Final 30	LACERS should amend its Governance Manual so that it includes a comprehensive list of all applicable ethics legislation, for easy reference by Board Members and staff.	Completed Aon: Agree

Final 31	LACERS should establish an annual attestation to be completed by Board members in which they affirm they have reviewed and are familiar with LACERS governance and ethics policies (possibly extend to staff).	Completed - Status Quo approved by the Board Aon: Agree. LACERS reports that it has periodic governance and ethics training, all Board members and Executive Staff file Statements of Economic Interest which affirms they understand governance and ethics, and LACERS has several policies that address ethical issues.
Final 32	LACERS should work with City's Ethics Commission and City Attorney to ensure at least annual in-person fiduciary and ethics training.	Completed Aon: Agree
Final 33	LACERS should develop an education needs assessment process for the Board, which would serve as input into Board or Trustee education plan.	Completed Aon: Agree
Final 34	LACERS should establish consistent accessibility to the meeting minutes of all its Board committees.	Completed Aon: Agree
Final 35	LACERS should consider conducting fund attribution on a regular basis.	Completed Aon: Agree
Final 36	The Board should reaffirm or remove policies concerning proposed legislation and periodic evaluation of Board’s performance.	Completed Aon: Agree
Final 37	The City and LACERS should formalize communication process regarding long-term strategic and financial planning.	Completed-Strategic planning in place Aon: Agree

Aon Investments USA Inc. Disclaimer

Investment advice and consulting services provided by Aon Investments USA Inc. ("Aon Investments"). The information contained herein is given as of the date hereof and does not purport to give information as of any other date. The delivery at any time shall not, under any circumstances, create any implication that there has been a change in the information set forth herein since the date hereof or any obligation to update or provide amendments hereto.

This document is not intended to provide, and shall not be relied upon for, accounting, legal or tax advice or investment recommendations. Any accounting, legal, or taxation position described in this presentation is a general statement and shall only be used as a guide. It does not constitute accounting, legal, and tax advice and is based on Aon Investments' understanding of current laws and interpretation.

This document is intended for general information purposes only and should not be construed as advice or opinions on any specific facts or circumstances. The comments in this summary are based upon Aon Investments' preliminary analysis of publicly available information. The content of this document is made available on an "as is" basis, without warranty of any kind. Aon Investments disclaims any legal liability to any person or organization for loss or damage caused by or resulting from any reliance placed on that content. Aon Investments reserves all rights to the content of this document. No part of this document may be reproduced, stored, or transmitted by any means without the express written consent of Aon Investments.

Aon Investments USA Inc. is a federally registered investment advisor with the U.S. Securities and Exchange Commission. Aon Investments is also registered with the Commodity Futures Trading Commission as a commodity pool operator and a commodity trading advisor and is a member of the National Futures Association. The Aon Investments ADV Form Part 2A disclosure statement is available upon written request to:

Aon Investments USA Inc.
200 E. Randolph Street, Suite 700
Chicago, IL 60601
ATTN: Aon Investments Compliance Officer

Appendix A–Recommendations Matrix

Number	LACERS Management Audit	Page Number
	I. Actuarial Methods, Assumptions, Funding and Innovative Strategies	
I.1.	**LACERS should review whether securities lending and agent oversight could result in opportunity cost savings/revenue enhancements or additional risk mitigation benefits.**	31
	II. Investment Performance/Asset Allocation	
II.1.	**Aon recommends creating a formal procedure to ensure governance processes articulated in the policy are completed on the mandated cycle.**	37
II.2.	**Aon recommends all federal, state, and local legal requirements be explicitly stated together within the IPS.**	43
II.3.	**Aon recommends adding language to the IPS that states all modifications to the document are to be reviewed by the applicable consultant as well as fiduciary counsel prior to being presented to the Board.**	57
II.4.	**Consider including a memo from the applicable consultant and fiduciary counsel for all amendments of the IPS. The memo would articulate and document their agreement or disagreement with the proposed changes.**	56
II.5.	**Consider the creation of a compliance calendar to facilitate the oversight of compliance with the governance items articulated within the IPS.**	59
II.6.	**Consider including policy targets and ranges within the IPS.**	61
	III. Economy and Efficiency of Administration/Management of the System	
III.1.	**Explore additional cost sharing arrangements with LAFPP and WPERP regarding management liability insurance.**	87
	IV. Governance	
IV.1.	**We recommend that LACERS consider adoption of the best practices policies that have not been adopted. Furthermore, LACERS should consider adding references to existing policies that are not contained in the Board Governance Manual itself.**	92
IV.2.	**Adopt a Reporting and Monitoring Policy and conduct an annual Reporting and Monitoring verification report to the Board.**	93
IV.3.	**We recommend that the City consider changing the City Charter to grant LACERS independence to determine the frequency and timing of LACERS board meetings.**	95

IV.4.	**We recommend that the City amend the City Charter to give LACERS independent authority regarding LACERS staff hiring and compensation.**	96

Red= high priority Blue=medium priority, Green=lower priority

Appendix B–List of Interviewees

LACERS Board of Commissioners:

- Annie Chao
- Elizabeth Lee
- Sandra Lee
- Cynthia Ruiz, President
- Nilza Serrano
- Sung Won Sohn, Vice President
- Michael Wilkinson

LACERS Staff:

- Edwin Avanessian, Senior Benefits Analyst
- Todd Bouey, Assistant General Manager, Executive Officer
- Anya Freedman, Legal Counsel – City Attorney's Office
- Karen Freire, Division Manager, Health, Wellness, Buyback
- Bryan Fujita, Investment Officer III, Public Markets
- Neil Guglielmo, General Manager
- Rodney June, CIO
- Wilkin Ly, Investment Officer III, Private Markets
- Rahoof Oyewole, Departmental Chief Accountant
- Alex Rabrenovich, Health Benefits Administration Division
- Melani Rejuso, Interim Departmental Audit Manager
- Ferralyn Sneed, Acting Chief Benefit Analyst, Retirement Services Division
- Dale Wong-Nguyen, Assistant General Manager, Members Benefits and Services

External Actuary:

- Paul Angelo, External Actuary, Segal
- Andy Yeung, External Actuary, Segal

Appendix C–Summary of Documents Requested and Received

LACERS Management Audit
Initial Document Request

Item Number	Document Description	Document Received	Date Received	Comments
1	**General Information**			
A	Statutes and Constitutional provisions applicable to the System	Yes		
B	Administrative rules applicable to the System	Yes		
C	Board meeting minutes from January 2013 to present	Yes		
D	Annual Reports for each year during the review period	Yes		
E	The last Management Audit	Yes		
F	Organizational Chart	Yes		
2	**Administration/Management of the System** ➢ ***Administrative Expenses*** ➢ ***Active and Passive Management*** ➢ ***Operational Policies & Practices***			
A	Overall operating budgets for each fiscal year 2013 to present	Yes		
B	Written description of the budget approval process or the Budget Approval Process Policy	Yes		
C	Total administrative expenses for each fiscal year 2013 to present, and the definition of what items are considered as administrative expenses and what is not	Yes		
D	Summary of Board and staff travel expenses for each fiscal year 2013 to present, allocated by category	Yes		
E	Description of any current cost sharing arrangements	Yes		
F	Progress reports on implementation status of prior management audit recommendations for cost sharing	Yes		
G	Any studies of administrative expenses of comparable funds	Yes		

Item Number	Document Description	Document Received	Date Received	Comments
	(e.g., Internal studies, CEM, or comparable studies			
H	Past studies or reports on the System's investment program provided to the Board (e.g., Internal studies, CEM, or comparable studies	Yes		
I	Any analysis of active/passive management performed during the review period	Yes		
J	Listing of all investment managers from fiscal year 2013 to present, a description of each manager's style, the fee schedule and actual fees charged by each manager, and each manager's returns by year during the review period	Yes		
K	Annual fees for investment consultants, custodian bank, and securities lending agents for each fiscal year 2013 to present, broken down by category	Yes		
L	Policies related to the operations of the System	Yes		
M	Any management letters issued during the review period	Yes		
N	Description of the process(es) used to verify policy compliance	Yes		
O	Risk Management Policy	Yes		
P	Business Continuity Plan	Yes		
Q	Any written delegations of authority and/or the accountability matrix reflecting what authority has been retained and what has been delegated and to whom	Yes		
R	System's Policy Manual	Yes		
3	**Asset Allocation & Investment Performance** ➢ ***Actuarial Methods*** ➢ ***Investment Activities*** ➢ ***Asset Allocation***			
A	Investment Policy Statement	Yes		
B	Any documentation of processes and procedures regarding the adoption, monitoring, and updating	Yes		

Item Number	Document Description	Document Received	Date Received	Comments
	the Investment Policy Statement beyond what is stated in the IPS			
C	Annual actuarial valuation reports for fiscal years 2013 to present used to determine funding into the System	Yes		
D	Each actuarial experience study performed during fiscal years 2013 to present	Yes		
E	Each actuarial audit report performed during fiscal years 2013 to present	Yes		
F	Each Asset allocation study performed during the Review Period	Yes		
G	Each asset-liabilities study performed during the Review Period and the data provided at the time of such studies	Yes		In F zip files
H	Capital market assumptions used by investment consultant during the Review Period	Yes		In F zip files
I	Description of the process used for setting and modifying the asset allocation	Yes		In F zip files
J	Listing of each asset allocation adopted by the Board during the Review Period and a statement of why it was changed	Yes		
K	Any rebalancing processes and procedures beyond those stated in the IPS, who has responsibility for rebalancing, sample notifications to the Board and, a statement regarding controls to ensure compliance with rebalancing requirements	Yes		
L	Quarterly investment performance reports since January 2013 prepared by the investment consultant	Yes		L, M, N are same doc
M	Total fund benchmark composition since January 2013	Yes		L, M, N are same doc
N	Benchmarks for each asset class and investment manager, noting whether the benchmark was changed during the Review Period and if so, why	Yes		L, M, N are same doc
O	Description of process used for return calculations	Yes		
P	Manager selection and monitoring policies/procedures	Yes		

Item Number	Document Description	Document Received	Date Received	Comments
Q	Portfolio structure review documentation from 2013 to present	Yes		
R	Total fund monthly benchmark composite returns from fiscal year 2013 to present	Yes		R, S, T are same spreadsheet
S	Asset class monthly return and market value since 2013.	Yes		R, S, T are same spreadsheet
T	Monthly return and market value of individual investment managers utilized since 2013 (public asset class investments)	Yes		R, S, T are same spreadsheet
U	Each report during fiscal years 2013 to present detailing the impact of the early separation incentive program	Yes		
4	**Comparative Metrics/Innovative Strategies** ➢ ***Past performance & trajectory*** ➢ ***Plan design/sustainability*** ➢ ***Performance & organizational metrics and practices*** ➢ ***Interagency data*** **Many of the documents related to this section have been requested in earlier sections.**			
A	Any funding policies	Yes		
B	System financial projections of assets and liabilities provided to the Board during the period July 1, 2013 to present, including any proposals or presentations addressing financial planning and their resolution	Yes		
C	Listing of interagency data received by the system, including payroll data used to calculate pension benefits and pension liability	Yes		
D	Policies, procedures, and controls regarding interagency data	Yes		
E	Governance Policies (which were not part of the Policy Manual requested	Yes		
F	Board member names, terms, and contact information	Yes		
G	Applicable metrics used for benefit and health care administration	Yes		
H	Any studies or analysis related to the costs of benefit and health care administration	Yes		
I	Any analysis depicting health subsidy growth	Yes		

Item Number	Document Description	Document Received	Date Received	Comments
J	Data presented to the Board during the Review Period regarding health care benefits and costs, projected benefits growth, and health subsidy growth	Yes		
K	Policies and procedures and data considered by the Board regarding any early separation incentive program engaged in during the Review Period	Yes		

Appendix D–Debating Active vs. Passive

Debating Active vs. Passive

The research is more nuanced than often acknowledged April

2018

Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.

Empower Results®

Key Points

- The active versus passive management debate is both nuanced and rich. There are good reasons why this is a hotly-debated topic, and reasonable people fall on both ends of the spectrum. It is unfortunate that often this debate is summarized with half-truths and sound bites.
- This paper summarizes and clarifies our views on the debate on active versus passive, shining light on the multi-faceted issues to provide institutional investors with an actionable way forward. Our views are not rigid or ideological: they are based on research, the details of which are contained in several other papers cited throughout this piece. We believe some investors are well-suited for active management, while others are likely to perform best with passive or factor-based investments. Suitability will vary based on both investor circumstance and asset class.
- While we acknowledge the average active manager is likely to underperform after fees, we also believe that actively managed, long-only public equities are likely to add value for skilled investors willing to employ broad, high-conviction mandates (such as unconstrained global equities) and stick with them over the long-term. However, these characteristics are challenging to maintain, so most of the world's investors are better off investing equities passively or using low-cost factor-based strategies.
- Active management in fixed income has higher odds of success than equities, especially for broad, multi-sector mandates. Investors may be able to achieve some of the same returns as active management simply by using customized blends of the broad market. Passive mandates may make sense for those needing a high level of simplicity or liquidity.
- Beyond public equities and fixed income, each strategy has its own unique considerations. The details of other strategies are beyond the scope of this paper.

Introduction

The debate about active versus passive management is an incredibly polarizing topic, with many well informed experts passionately holding views on opposite extremes. Why is this? We believe much of the public narrative on this topic is one-sided or incomplete. Depending on their perspectives (or financial incentives), people often focus on only one side of the debate and ignore the other. Some people have grown so dogmatic that they fail to listen to valid points from the other side. With all the varying research and statements made by professionals, what should investors believe?

The statements people make are often half-truths, in that they are valid perspectives, but not the complete story. They can mislead people at the same time as inform them. Both sides of this debate tell such half-truths.

We seek to bring order to this debate by laying out the research on both sides, and describing how we develop recommendations for our clients. We do not see a one-size-fits-all solution. Some investors are well positioned to be successful with certain types of active management, while others are likely to perform best with passive. Hopefully, this paper will help investors understand what is most appropriate for their portfolios.

The Half-Truths

It is worth pointing out the half-truths told on each side of the debate before we dive into the research.

The half-truths from proponents of active management: They trot out three-year performance track records for their products, boasting as if this is a long enough time to demonstrate skill (it isn't). Even where products have substantial histories of value-added results, they commonly downplay the reality that there can be protracted periods of underperformance even when ultimately successful. They don't talk about the products that performed poorly, lulling investors to forget about that possibility. They remind investors how much the investors "need" extra returns to meet their objectives, with less emphasis on how difficult it may be to earn those extra returns with active management.

The half-truths from proponents of passive management: They focus on research about the difficulty of success in active management without giving sufficient consideration to the research on characteristics of managers who tend to perform well or factors associated with outperformance. They demand unreasonably high batting averages for active managers to "prove" they have skill, otherwise dismissing outperformance as luck. They cite research on the poor net-of-fee performance of mutual funds marketed to retail investors, without acknowledging that large institutional investors can access similar strategies for much lower fees. They also cite research in one asset class and use it to draw conclusions about other asset classes. And they encourage people to infer that poor performance of the average investor implies that no investor should expect to do well.

There are even some half-truths promoted by both sides. One way we've seen this done is by citing recent experience of active managers in a particular asset class to draw long-term conclusions, though the recent results may have been driven by market cyclicality. Many active managers hold out-of-benchmark securities, which can cause headwinds and tailwinds for the average active manager. For example, when U.S. large cap is the best performing asset class, we expect most active managers in that strategy to underperform more than usual because there will be headwinds from out-of-benchmark securities, such as smaller-cap and non-U.S. stocks. Active management returns can be cyclical, and a focus on 1, 3, and even 5 year historical results isn't sufficient to form forward-looking expectations.

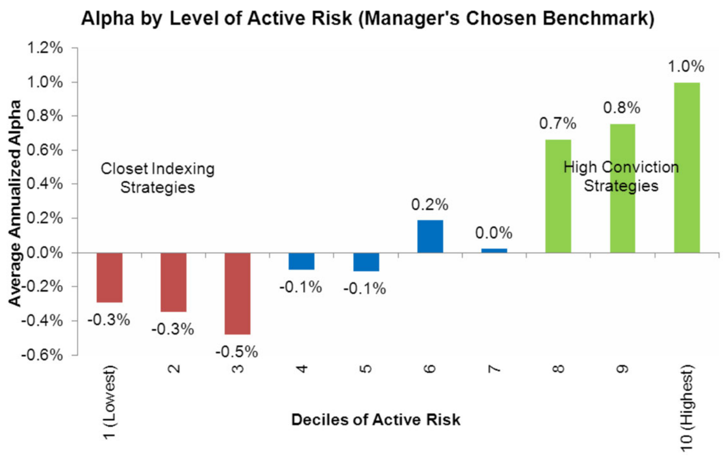
We will paint a more balanced, complete picture for both public, long-only equities and fixed income.

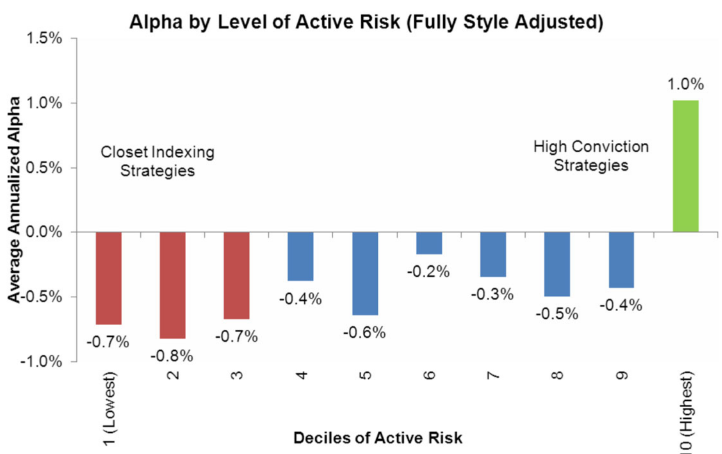
Equities: The Theory

Active management in equities is difficult. The average active manager in public equities has underperformed net of fees over the long-term across nearly every equity market. The proportion of public equity managers underperforming is especially high for mutual funds, which tend to have much higher fees than similar institutional products. However, there are some characteristics of active managers that have outperformed, which we think may be good indicators of expected future performance:

1. High conviction managers are those that tend to be significantly different from their benchmarks. Our own research, "Conviction in Equity Investing" [Sebastian and Attaluri 2014], shows that products in the three highest deciles of tracking error relative to the benchmark tended to outperform their chosen benchmark (net of fees). To slice the data a different way, this study also style-adjusted each product's benchmarks to account for persistent biases to factors such as value and small cap. This reduced the measured outperformance, but the products most different from their benchmarks still tended to outperform by an average of 1.0% (net of fees). That is, among the investment products taking the most active risk, where winners win big and losers lose big, the average manager came out ahead. The following exhibits show some of the key results from this study.

Exhibit 1





While this study shows that the average high conviction product has outperformed, the study also looked at how reliable historical performance was at assessing skill. It uses historical returns to determine the proportion of managers that fall into each of three categories:

- Unskilled: Statistically significant evidence that alpha net of fees is negative
- Insufficient evidence of net alpha different from 0: Historical net alpha was too noisy to assess whether the manager was skilled or unskilled with statistical significance based
- Skilled: Statistically significant evidence that alpha net of fees is positive

Notably, 2% fell into the top category and 82% of products fell into the middle category. That is, though high conviction products outperformed on average, historical performance alone is usually insufficient to assess a manager's skill. Our own manager research process considers many factors other than the manager's level of active risk and historical excess returns.

2. Certain risk factors have outperformed in the long run. This has received more attention the past few years with the proliferation of strategies in the "smart beta" space, which is also known as "factor

investing" or "rules-based investing." Specifically, low volatility, value, quality, and momentum are factors that have demonstrated persistent outperformance [Yesildag and Carvounes 2017, Sebastian and Attaluri 2016]. Active managers who exploit such factors may have the wind at their backs. Research suggests that factor performance drives about 80% of the active performance of the typical active manager [Bender et al 2014]. Rules-based strategies ("smart beta") may be able to access these risk premiums at a lower fee level than traditional active management, while a truly active investment manager may be able to add additional returns by rotating across factors and selecting individual securities.

Equities: The Practice

The prior section shows why we believe it is possible to identify active investment managers in advance that are likely to outperform a capitalization-weighted index. However, in practice, implementing such a strategy is very difficult for two main reasons. First, many investors are uncomfortable with high-conviction managers that have the best odds of success because they experience more ups and downs. Second, many investors destroy value by using short-term performance (three years or fewer) to make decisions about hiring and firing managers. We believe that investors are not well-suited for active management in equities whenever either of these characteristics apply. As a result, we believe such investors should stick with passively managed equities or low-fee, factor-based strategies.

The Ups and Downs of Holding High-Conviction Portfolios

While a high-conviction active manager may be expected to outperform over the long-term, there will probably be large performance swings, as well as a possibility of extended underperformance. Many investors may find it difficult to ride through such performance without terminating the manager.

In a series of white papers titled "Death, Taxes, and Short-Term Underperformance" [2013], the Brandes Institute reviewed the 10-year performance history of managers in four different asset classes, focusing on those in the top decile for the full period, to understand how they performed over shorter periods.[1] For investors holding managers for the full 10-year period, these would have been the best ones to have. However, many have had poor performance over shorter periods. A summary of some of this experience for these top-decile managers is illustrated in the following table:

Asset Class	Average Annualized Excess Returns/ Shortfall in Worst 3-Year Period	Percentage of Managers Below Average in at Least One 3-Year Period	Percentage in Worst Quintile in at Least One 3-Year Period
U.S. Equities	-8.30%	81%	40%
International Equities	-5.45%	100%	67%
Emerging Market Equities	-2.49%	67%	33%
Fixed Income	-11.64%	76%	29%

[1] The 10-year periods in these studies end on 6/30/2009 for U.S. equities, 6/30/2014 for international equities, 6/30/2013 for emerging market equities, and 12/31/2014 for fixed income.

Even if we could guarantee that our manager research process could pick the managers that would perform in the top decile over a decade—which we can't—investors would still experience poor performance over periods of three years (and longer). Those who fire managers after three years of underperformance would likely have too much portfolio turnover and poor performance. Investors should be prepared for the reality of bumpy performance, even for good managers with strong prospects for long-term performance.

Mandate Structure

Grinold and Kahn [2011] articulated that expected alpha from active management can be thought of as needing two factors: breadth and skill. Breadth can be thought of as the range of independent, diversifying investment opportunities from which the manager can choose. Broad mandates give investment managers more opportunities to add value. Our own research about active equity mandates is consistent with this concept: broad, global equity mandates are more likely to perform well than combining multiple regional style boxes (growth/value, large/mid/small cap) that approximately mimic the overall market before fees [Ennis 2001 and EnnisKnupp 2003].

Using Past Performance to Guide Decisions on Hiring and Firing Managers

Many investors focus too much on short-term performance, driving them to make costly mistakes in hiring and firing decisions. Some research illustrating the impact of this phenomenon includes:

- Goyal and Wahal [2008] reviewed the performance of investment managers before and after termination and hiring events. Although the managers that were hired usually had stronger historical track records than those that were terminated, performance after the hiring and firing events were statistically indistinguishable. On average, the fired managers slightly beat the ones hired over the subsequent periods.
- Cornell, Hsu, and Nanigian [2017] analyzed the theoretical impact of using only three-year excess returns to hire and fire managers. They found that a contrarian strategy of hiring the losers outperformed a typical strategy of hiring winners by 2.28%. That is, there is mean-reversion in manager performance, so investors making decisions based on three-year outperformance are likely to destroy value.

These findings suggest that investors seem to be hiring and firing managers at the wrong times. Other studies with similar results include Kinnel [2013] and Hsu, Myers, and Whitby [2016]. In effect, investor behavior has been to sell low and buy high. It is not sufficient for investors to be able to identify active managers expected to outperform; investors must avoid hiring and firing at the wrong times, which can be difficult to do because it often requires hiring and retaining those with poor short-term performance. We have encouraged investors to abandon short-term performance triggers commonly used in "watch lists" (Friedman and Pawlisch [2016]). Having a willingness to invest as a contrarian requires a rare temperament, but is important to be successful with active management.

Applications to Specific Situations

We believe that actively managed equities are likely to add value for skilled investors willing to use high-conviction managers and not over-emphasize short-term performance. However, these characteristics are rare, so most of the world's investors are better off investing equities passively or using low-cost factor-based strategies. We apply these views to several specific situations:

Defined contribution plans: Fiduciaries for defined contribution plans are making decisions that affect other people's money, and thus can be subject to a high level of external pressure, including risk of litigation. This makes it difficult for some defined contribution plans to use high-conviction active equity strategies as stand-alone options. As a result, the headwinds for successful active management may be higher in defined contribution plans. For plan sponsors where this is a concern, one way to address it is to eliminate traditional active management from equities in their core lineup, only using passive management. A less dramatic way is by primarily using active equity managers in multi-manager portfolios such as target date funds and white-labeled core options, where multiple mandates can be blended to reduce potential for significant underperformance. We are seeing such approaches becoming more common.

Investment committees with turnover: Investors need to remember why they hired each manager and how they expect them to perform in various markets over different time periods. This is especially important for high-conviction managers, whose performance can have large swings. Institutional memory can be short when committees turn over frequently, and committee members may be less knowledgeable about, or patient with underperformance from investment managers they did not select. For investment committees with significant turnover, we suggest three possible options to manage this risk:

- Develop a written set of investment beliefs, including the role and expectation for each manager. When a high-conviction equity manager is experiencing bumpy performance, this could be resurfaced to remind the committee that it was aware such an experience was likely, and help them keep a steady hand.
- Use an Outsourced Chief Investment Officer (OCIO) model for active investing to delegate responsibilities to an outside party. In this approach, the OCIO monitors performance of smaller positions in multiple active managers, and the committee will be less focused on hiring and firing decisions for individual managers.
- Invest equities passively or with factor-based strategies.

Investors with external pressures: Most institutional investors have external pressures. For example, it is common to be reviewed by a Board, and Chief Investment Officers may have career risk associated with their investment decisions. Public pension plans are often subject to scrutiny from taxpayers, legislators, and the media. These influences can be both good and bad; most notably, it often makes it difficult for investors to be different from the norm. We have seen some investors hire (what we believe are) good investment managers, experience short-term underperformance, then be pressured to terminate the managers. "Know thyself" is key; investors should only pursue strategies that they can implement successfully.

Defined benefit plans with de-risking glide paths: Many defined benefit plans in the private sector have de-risking glide paths in place, where they are scheduled to sell equities as funded status increases. As a result, the time horizon for their equity portfolio is uncertain—possibly less than a full market cycle. The timeline for both the alpha and beta in the equity portfolio may not be long enough to be confident in strong performance. We view glide paths as a phased way to reduce all forms of risk from the equity portfolio. While it may be reasonable for plan sponsors to reduce active risk from the equity portfolio at the same speed that the equity beta is reduced, we more often find that many plan sponsors are better served by the simplicity of passive management for this shrinking portion of their portfolio.

Investors with high return needs: It is tempting to say that investors needing high returns should use active management. It is critical to start by asking whether the investor is likely to add value with active management—active management used poorly is worse than passive management. Is the investor well-suited for high-conviction active management, including being comfortable with significant active risk? If not, passive management or low-fee factor-based investments may be preferable, and the investor may need to find another way to address its return needs.

Fixed Income: The Theory

Fixed income differs from equity in that the fixed income markets have many participants motivated beyond fundamental value. Market demand is driven by factors such as liquidity needs, liability characteristics, regulatory requirements, and central banks and taxes; market supply is affected by monetary and fiscal objectives. As a result, the fixed income market can experience severe deviations from fundamental value for prolonged periods.

Many fixed income investors tend to have highly customized mandates and engage primarily in certain sectors and durations of the fixed income markets, as illustrated in Exhibit 3.

Exhibit 3

DURATION	SECTOR: TREASURY/GOV'T RELATED	SECTOR: SECURITIZED	SECTOR: CORPORATE BONDS
LONG	Corporate Pensions Investors Needing Liquidity Central Banks		Corporate Pensions Insurance Companies
INTERMEDIATE	Investors Needing Liquidity Central Banks Money		Insurance Companies
SHORT	Market Funds Stable Value Funds Investors Needing Liquidity Central Banks Collateral Holders	Stable Value Funds	Stable Value Funds

The collective actions of these various market participants will impact prices even though their motivations are not exclusively based on total return. For example, when one of these investor types is stressed—requiring any systematic changes to the amounts or types of fixed income needed—it puts disproportionate pressure on the specific segments of the fixed income market they operate in, which can create sustained deviations from fair values. As a result, passively investing in a broad market-weighted benchmark is rarely optimal, and not simply because the largest constituents of the index are also the most in debt. Investors can do better than simply acting as passive price-takers of broad market-weighted fixed income benchmarks, largely driven by the collective forces of investors with unique characteristics that cause them to act on factors other than pricing fundamentals. Segmentation in fixed income is different from, or at least more extreme than, that of equity markets.

Aon research looked at the empirical performance of active fixed income managers to see if they were able to exploit these market dynamics to create excess returns [Friedman and Zink 2015]. Exhibit 4 shows the results of this analysis, based on slicing the data three ways:

- **Core vs. Core Plus mandates –** Both are typically benchmarked against the Bloomberg Barclays U.S. Aggregate Bond Index, with Core Plus being less constrained, having greater ability to rotate where they see opportunity.
- **Gross vs. net of fees** – Net-of-fee returns is most practical because it reflects what investors get, but gross-of-fee performance is informative about whether investment managers are skilled.
- **Compared to the Bloomberg Barclays U.S. Aggregate Index ("Agg") vs. a custom benchmark** – The Aggregate is the managers' chosen benchmark, whereas the custom benchmarks reflect structural biases of the manager such as persistent underweighting of government bonds or exposures to high yield. This gives us insight into true skill versus style.

Exhibit 4: Average Excess Returns for Fixed Income Managers (2000-2014)

	Gross of fees	Net of Fees
Core, relative to the Agg	0.37%	0.04%
Core, relative to custom benchmarks	0.23%	-0.09%
Core Plus, relative to the Agg	0.97%	0.41%
Core Plus, relative to custom benchmarks	0.58%	0.02%

The average investment manager has added value with its investment decisions, as evidenced by positive excess returns gross of fees. Unfortunately, much of this is eaten up by fees, and the remainder is due to style, not skill.[2] (Style biases can benefit investors, but can also be attained passively with a customized blending of different indices.) However, relative to equities, we see these results as more encouraging for active management, because the average active manager in fixed income doesn't underperform passive. In the very least, we can say that active management in fixed income is not an uphill battle. Investors may be wise to consider active management if they believe they can identify above-average managers or negotiate below-average fees.

Fixed Income: The Practice

While the average active manager in fixed income has a greater tailwind than the average active manager in equities, generating excess returns is still challenging and requires taking risk. One of the most difficult aspects of active management in fixed income is knowing what you're getting. In order to add value, active managers need flexibility to invest different from the benchmark; however, less constrained strategies increase the odds of being surprised by performance. In the extreme, we saw some investment committees in 2008 surprised at how poorly their Core Plus mandates performed due to significant exposure to high yield. In many cases, this was the investment committee's fault—their managers may have been well-known to invest in high yield. Nevertheless, turnover on investment committees increases the likelihood of people feeling surprised if a similar market event recurs.

Applications to Specific Situations

We believe that actively managed fixed income is likely to add value for skilled investors or strong fee-negotiators willing to employ loosely-constrained or unconstrained strategies. However, active

---

[2] Exhibit 4 compares the performance of active managers relative to benchmarks, not relative to passive implementation. Passive investment managers will likely underperform the benchmark by their fees. As a result, the value-added by active managers may be greater than the amount shown in this exhibit.

management is more complex and less liquid, so investors looking for simplicity or liquidity may be better served by investing passively. We apply these views to several specific situations:

Defined contribution plans: Many participants in defined contribution plans are looking for, and likely benefit from simple investments that reliably track the benchmark. As a result, we typically recommend including a passive fixed income option in the core lineup for defined contribution plans. Other participants may be more comfortable taking active risk, and if the plan sponsor believes they can find skilled active managers at an attractive price relative to their expected performance, we believe it may be reasonable to include in the core lineup as well as multi-manager options such as target date funds.

Defined benefit plans with discount rates based on corporate bond yields: Many defined benefit plans are required to discount their liabilities with a yield curve using corporate bond yields. It can be difficult for a passive fixed income portfolio to keep up with the liabilities, as the bond portfolio is exposed to the risk of defaults and downgrades, but the liabilities are not. This performance drag, by itself, is not a sufficient reason to invest actively; the investor must also believe they can identify an active manager that is likely to be able to outperform the passive option. We are optimistic about the ability for active long duration managers with government/credit and credit benchmarks to add value, as several of the inefficiencies in the fixed income market apply to long duration—in particular, the demands of liability hedgers such as pensions and insurance companies can be irregular and driven by factors other than market fundamentals.

Investors who are particularly fee-sensitive: All investors should be fee-sensitive, as fees erode performance and net-of-fee performance is what truly matters. Some investors, however, are sensitive to fees beyond what can be justified by this. For example, they may be exposed to external pressures or committee turnover making it difficult to hold active strategies through periods of underperformance if fees exceed a certain level. In such situations, investors may consider passive fixed income portfolios that blend sectors of the Aggregate in a customized way, persistently underweighting government bonds, and possibly varying the level of underweight based on market conditions. Such a strategy can achieve a significant part of the returns from active managers while paying fee levels for passive management.

Other Asset Classes

While this paper has focused on public equities and high quality U.S. fixed income, there are many other asset classes, each with unique characteristics.

- Private real estate cannot be implemented passively.
- Passive high yield bond strategies exist, but structural factors in the market have prevented them from tracking the indices well.
- Commodity portfolios using futures have exhibited some inefficiencies because the indexers are required to roll their futures contracts in predictable ways.
- Hedge funds are inherently active strategies, though there have been some creative attempts to replicate their return patterns.

Each of these strategies could be the subject of their own papers. We encourage investors to consider the merits of these strategies separate from their views on equities and high quality bonds. For example, it may be reasonable for an investor to passively invest in public equities and high quality bonds, but be active in private real estate and high yield bonds. A well-researched, thoughtfully considered approach should focus on the unique characteristics of each asset class.

Conclusion

The debate on active vs. passive management has been ongoing for decades, and we expect it to continue for the foreseeable future. It is unfortunate that some of the deep research in this area is often reduced to half-truths and sound bites. This paper does not seek closure on the debate or even add new research to it, but to shine light on the multi-faceted issues and provide institutional investors with an actionable way forward. While the debate will persist in academic papers and conferences, each investor must make practical decisions about what is right for their situation. They should understand both their beliefs and their situation; what is appropriate for one portfolio may not be appropriate for another.

In public equities, we believe investors who are well-suited to invest in high-conviction mandates that are significantly different from the benchmark may be good candidates for active management; most investors, however, are better candidates for traditional passive management or low-fee factor-based strategies. In fixed income, there is a stronger case for active management, but investors needing simplicity or liquidity should focus on passive strategies. While investors should regularly reassess their strategies to be consistent with their circumstances and beliefs, whatever path they choose, it should be intended for the long haul.

References

Bender, Jennifer; Hammond, P. Brett; and Mok, William, 2014. “Can Alpha Be Captured by Risk Premia?” *Journal of Portfolio Management* 40: 18–29,12.

Cornell, Bradford, Jason Hsu, and David Nanigian. “Does Past Performance Matter in Investment Manager Selection?” *The Journal of Portfolio Management*, Vol. 43, No. 4 (Summer 2017), pp. 33-43.

Ennis, Richard M. “The Case for Whole-Stock Portfolios.” Journal of Portfolio Management. Vol. 27, No. 3 (Spring 2001).

“Death, Taxes, and Short-Term Underperformance—International Funds.” The Brandes Institute. September 2014.

“Death, Taxes, and Short-Term Underperformance—Update on U.S. Equity Funds.” The Brandes Institute. 2009.

“Death, Taxes, and Short-Term Underperformance—Emerging Market Funds.” The Brandes Institute. January 2014.

“Death, Taxes, and Short-Term Underperformance—Fixed Income Funds.” The Brandes Institute. March 2015.

Ennis Knupp & Associates. “Global Equity – An Integrated Approach to Active Portfolio Management.” 2003.

Friedman, Eric and Daniel Pawlisch. “Putting Watch Lists on Watch?” Aon Hewitt Investment Consulting. December 2016.

Friedman, Eric and Emory Zink. “Flexibility in a Rigid Market: How investors may be able to improve on market cap-weighted benchmarks in fixed income.” Aon Hewitt Investment Consulting. October 2015.

Goyal, A. and S. Wahal. “The Selection and Termination of Investment Management Firms by Plan Sponsors,” Journal of Finance, American Finance Association, Vol. 63, No. 4 (2008), pp. 1805–1847.

Grinold, Richard C. and Ronald N. Kahn. “Breadth, Skill, and Time.” *Journal of Portfolio Management*, Vol. 38, No. 1 (Fall 2011): 18-28.

Hsu, Jason, Brett W. Myers, and Ryan Whitby. “Timing Poorly: A Guide to Generating Poor Returns While Investing in Successful Strategies.” *The Journal of Portfolio Management*, Vol. 42, No. 2 (2016), pp. 90-98.

Kinnel, Russel. “Mind the Gap: Why Investors Lag Funds.” Morningstar article. 4 February 2013.

Sebastian, Mike and Sudhakar Attaluri. “Conviction in Equity Investing.” *Journal of Portfolio Management*. Vol. 40, No. 4 (Summer 2014).

Sebastian, Mike and Sudhakar Attaluri. “Factor Investing and Adaptive Skill: 10 Observations on Rules-Based Equity Strategies.” *Journal of Investing*. Vol. 25, No. 1 (Spring 2016).

Yesildag, Koray and George Carvounes. “The Rise of Factor Investing.” Aon Hewitt. 2017.

Contact Information

Eric Friedman, CFA, FSA, EA
Partner, U.S. Director of Content Development
Aon Hewitt Investment Consulting, Inc.
+1.312.381-1319
eric.friedman@aon.com

Disclaimer

This document has been produced by the Global Investment Management Team, a division of Aon plc, and is appropriate solely for institutional investors. Nothing in this document should be treated as an authoritative statement of the law on any particular aspect or in any specific case. It should not be taken as financial advice, and action should not be taken as a result of this document alone. Consultants will be pleased to answer questions on its contents but cannot give individual financial advice. Individuals are recommended to seek independent financial advice in respect of their own personal circumstances. The information contained herein is given as of the date hereof and does not purport to give information as of any other date. The delivery at any time shall not, under any circumstances, create any implication that there has been a change in the information set forth herein since the date hereof or any obligation to update or provide amendments hereto. The information contained herein is derived from proprietary and non-proprietary sources deemed by Aon Hewitt to be reliable and are not necessarily all inclusive.

Aon Hewitt does not guarantee the accuracy or completeness of this information and cannot be held accountable for inaccurate data provided by third parties. Reliance upon information in this material is at the sole discretion of the reader.

This document does not constitute an offer of securities or solicitation of any kind and may not be treated as such, i) in any jurisdiction where such an offer or solicitation is against the law; ii) to anyone to whom it is unlawful to make such an offer or solicitation; or iii) if the person making the offer or solicitation is not qualified to do so. If you are unsure as to whether the investment products and services described within this document are suitable for you, we strongly recommend that you seek professional advice from a financial adviser registered in the jurisdiction in which you reside. We have not considered the suitability and/or appropriateness of any investment you may wish to make with us. It is your responsibility to be aware of and to observe all applicable laws and regulations of any relevant jurisdiction, including the one in which you reside.

Appendix E–Attribution

LACERS Management Audit

Performance Attribution

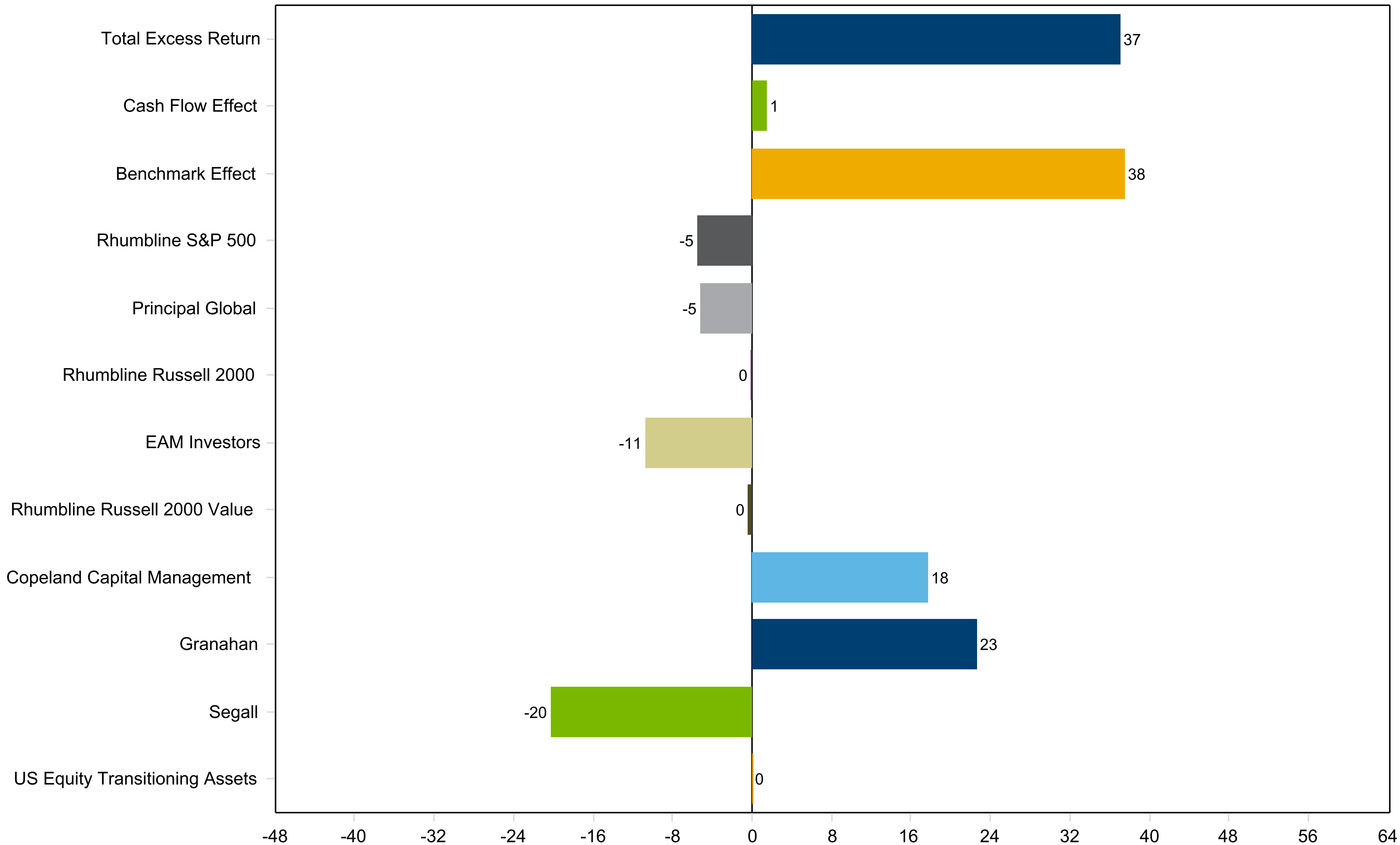
*Visit the **Investments Thought Leadership Site** (https://insights-north-america.aon.com/investment); sharing our best thinking.*

Visit our new video library with our views on key investment topics for this quarter using access code "aon!"
(https://site-494121.bcvp0rtal.com/category/videos/key-topics-by-investor-type)

Empower Results®

Asset Class Attribution

Year To Date

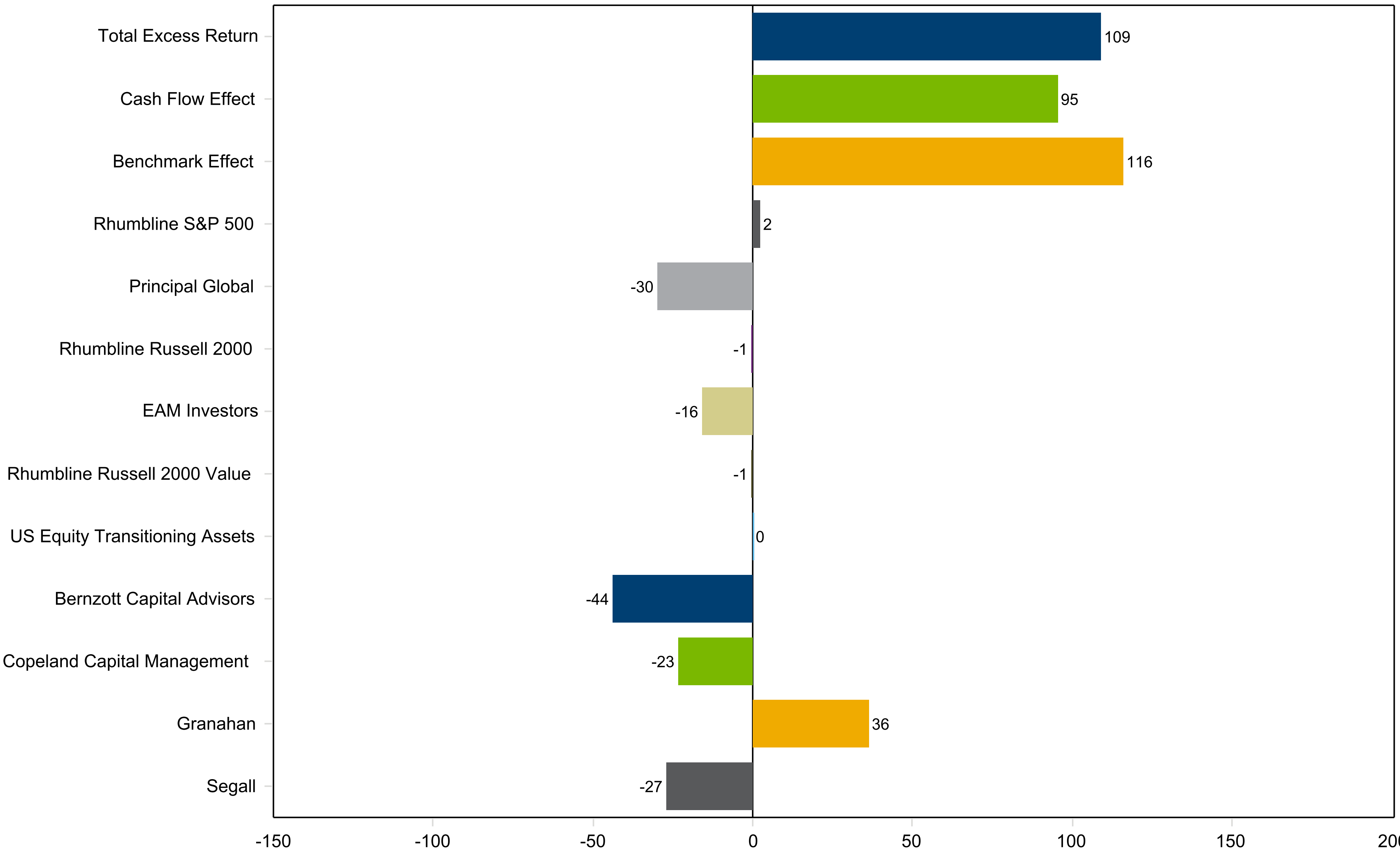


U.S. Equity

1 Year Ending September 30, 2021

Asset Class Attribution

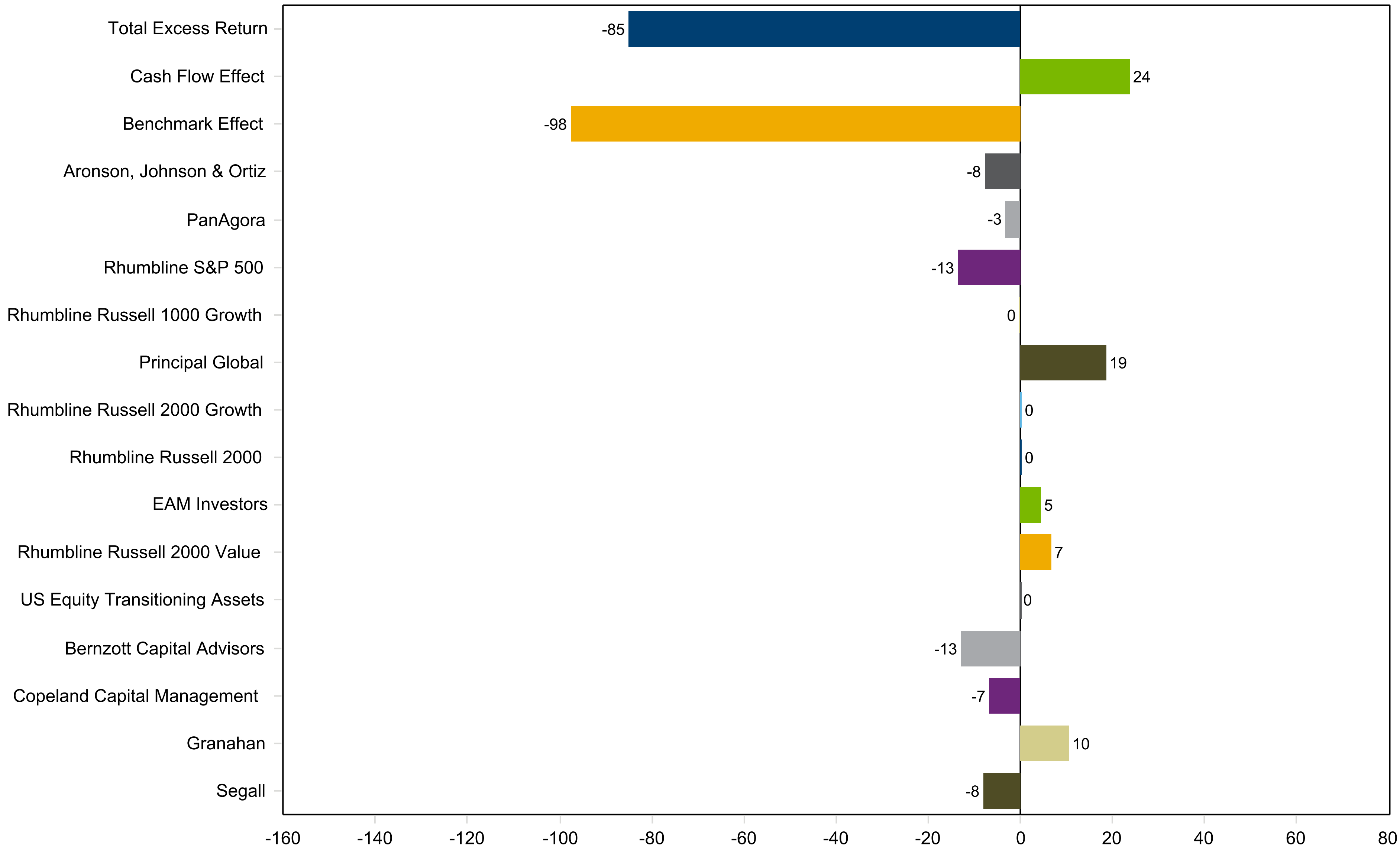
1 Year



Empower Results®

Asset Class Attribution

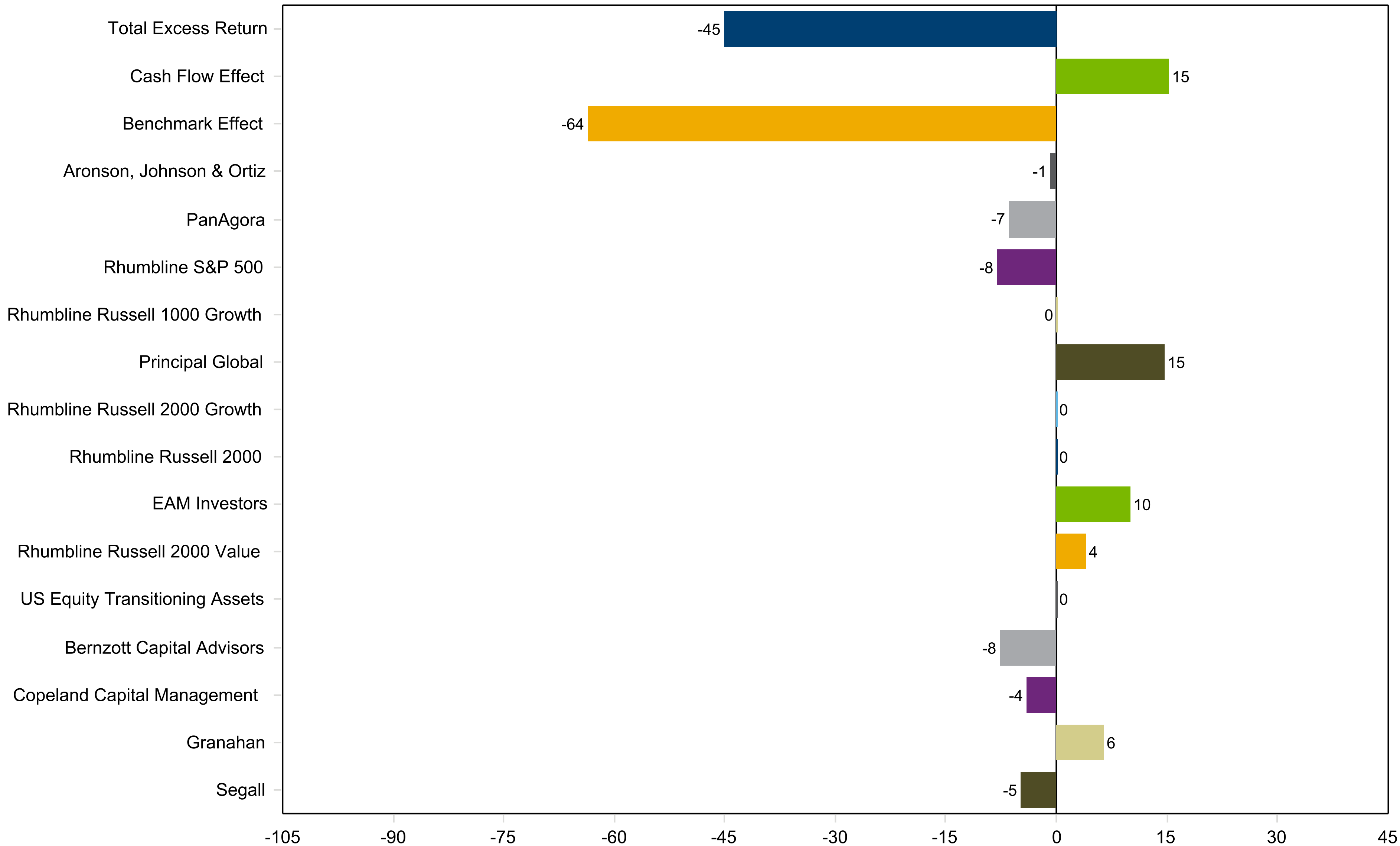
3 Years



Empower Results®

Asset Class Attribution

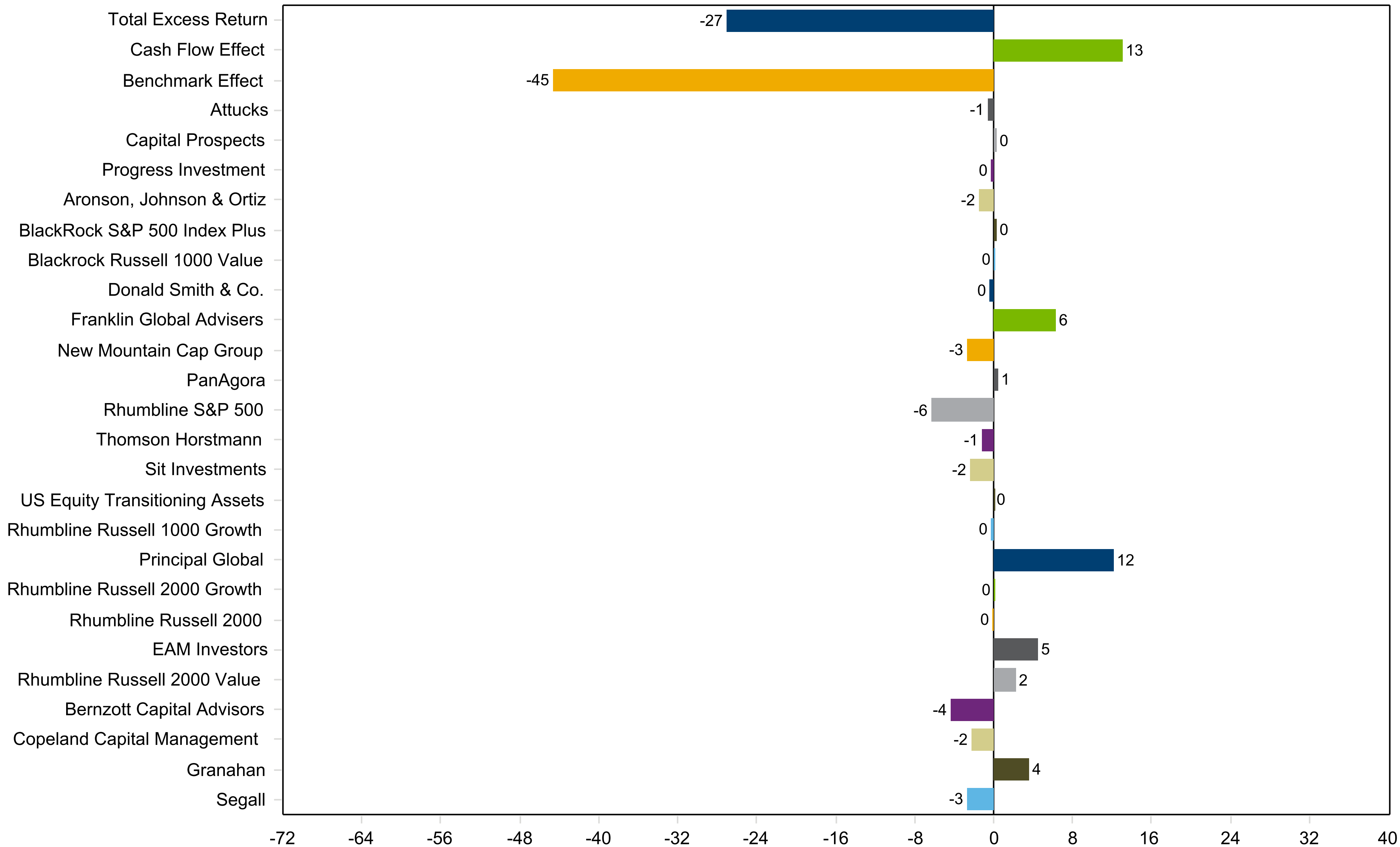
5 Years



Empower Results®

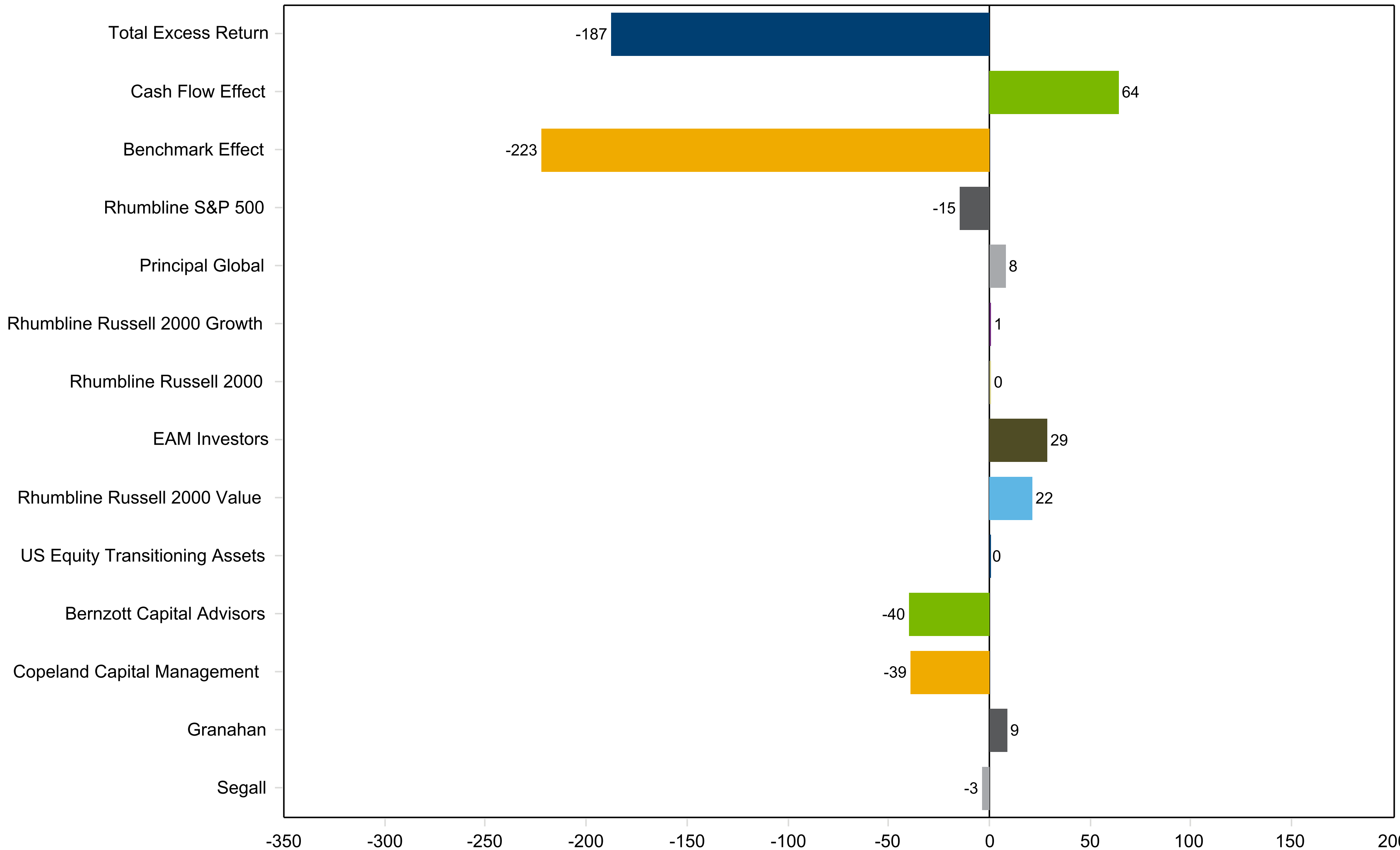
Asset Class Attribution

February 1, 2013 To September 30, 2021



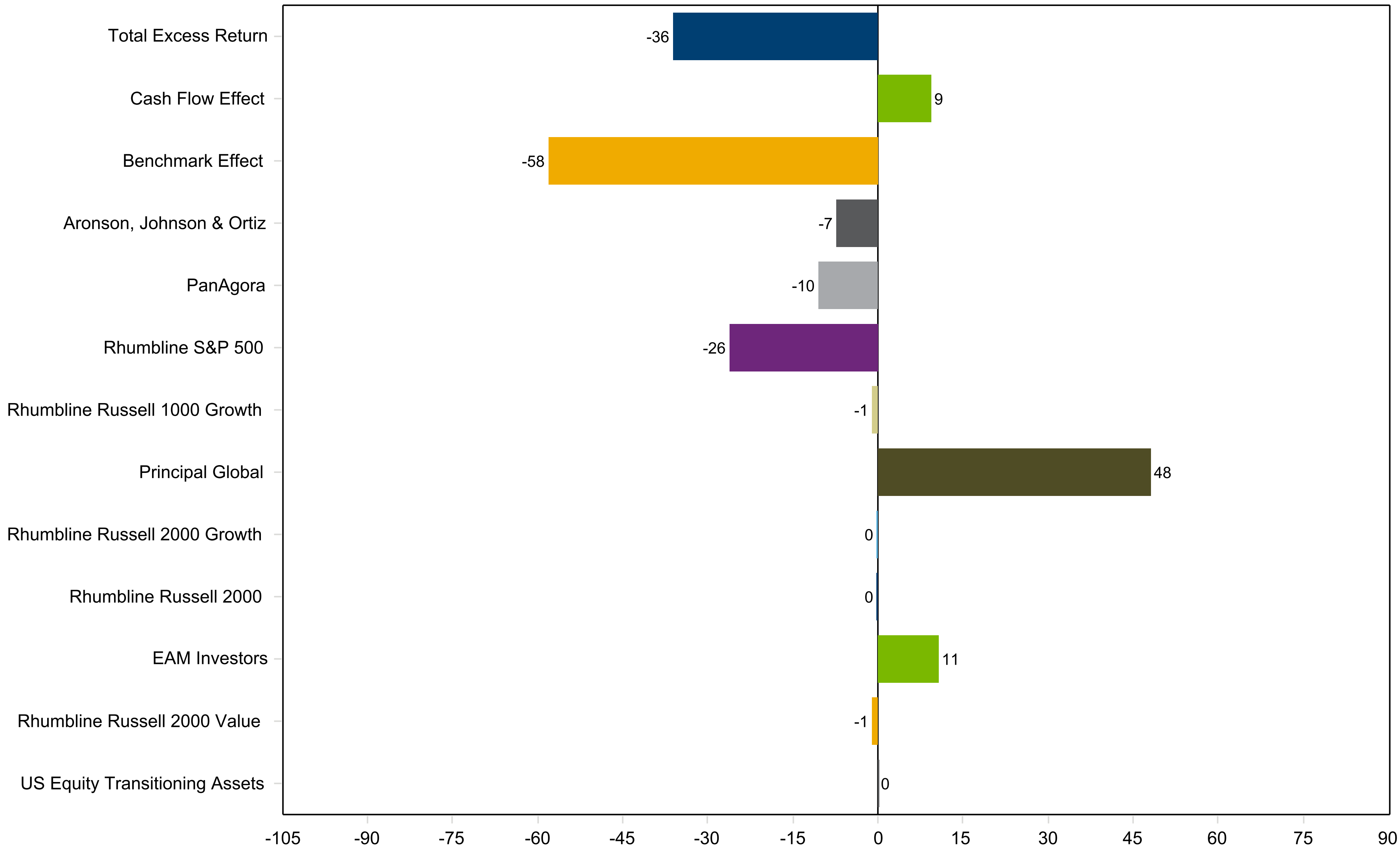
Asset Class Attribution

1 Calendar Year Before



Asset Class Attribution

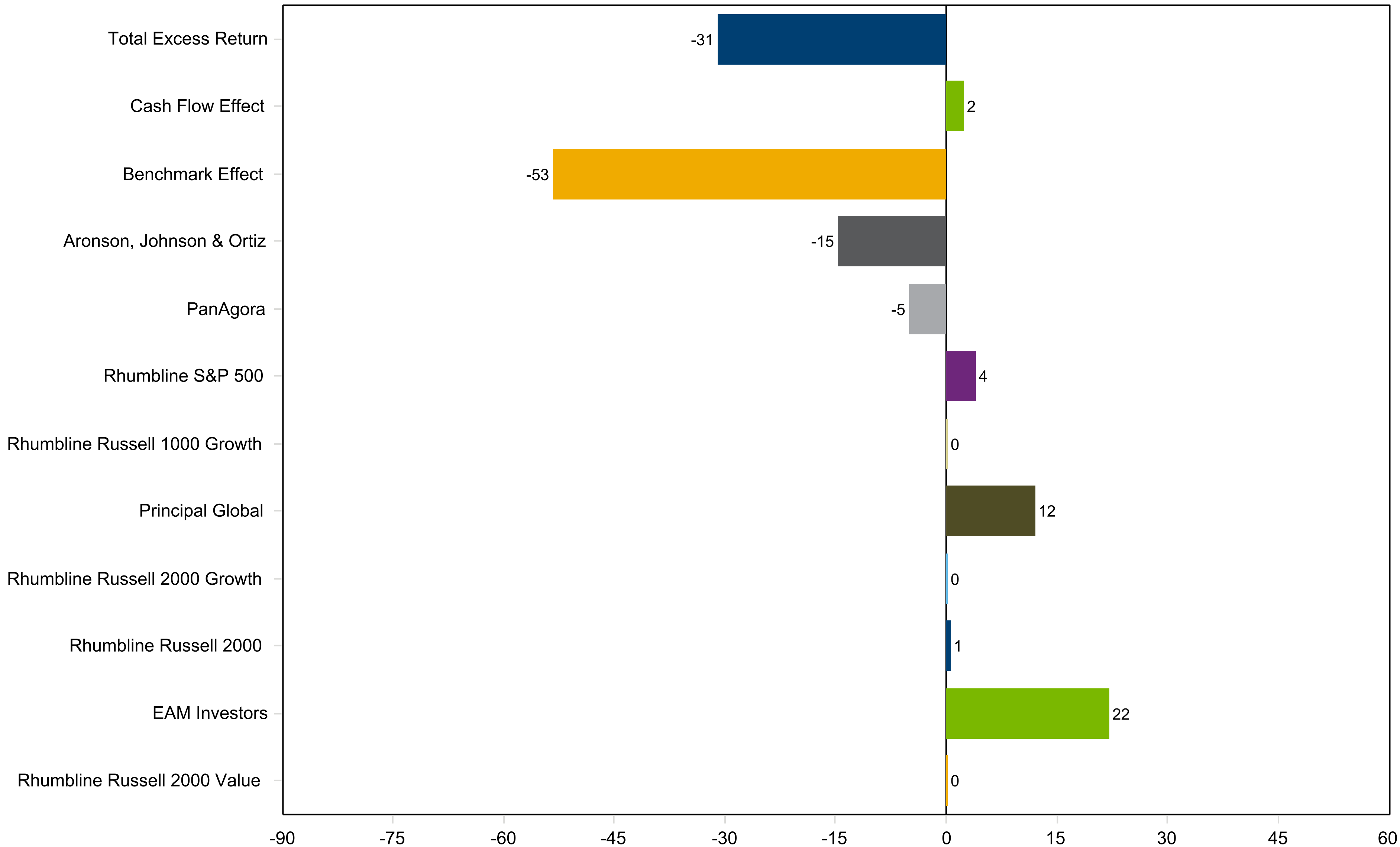
2 Calendar Year Before



AON Empower Results®

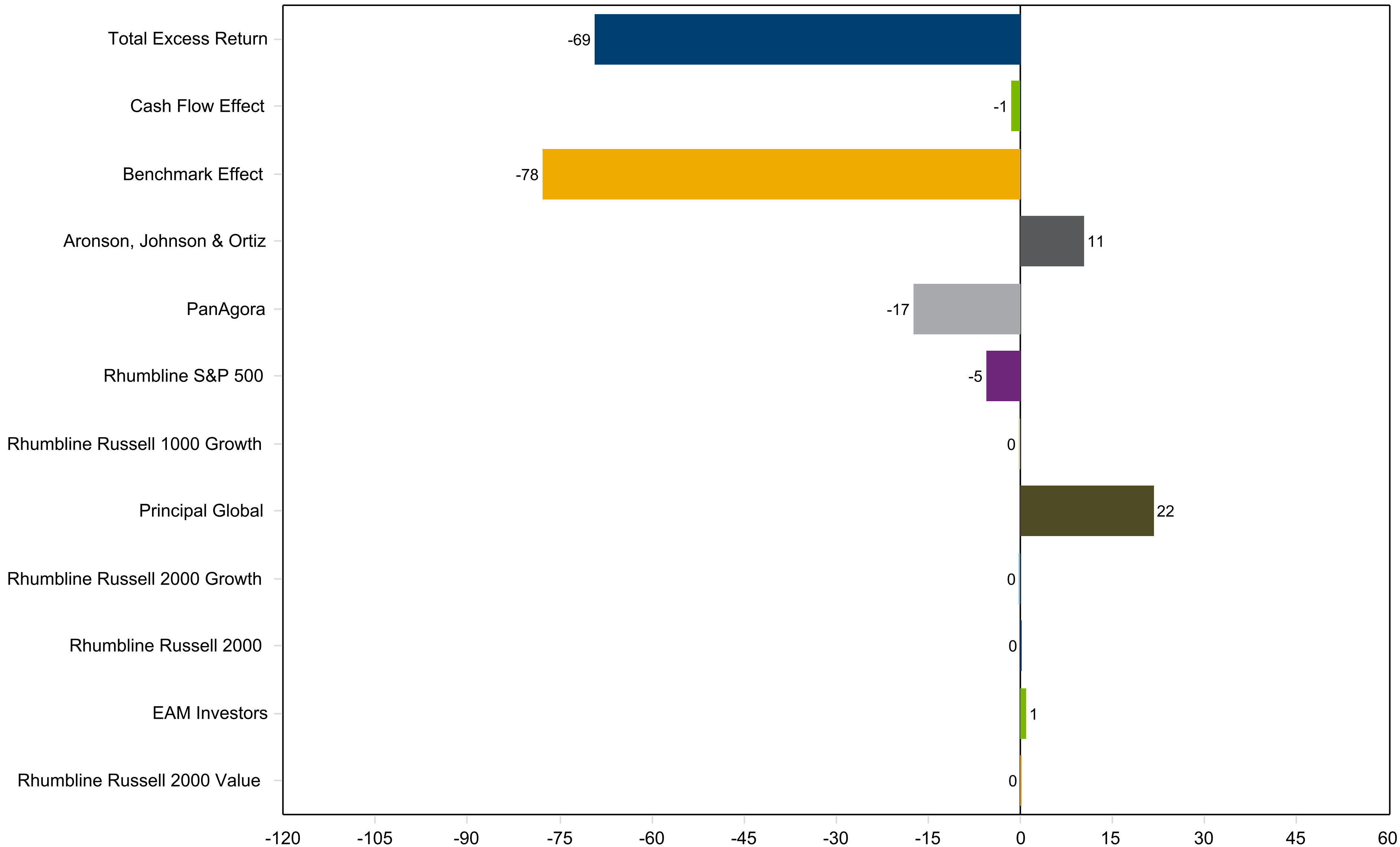
Asset Class Attribution

3 Calendar Year Before



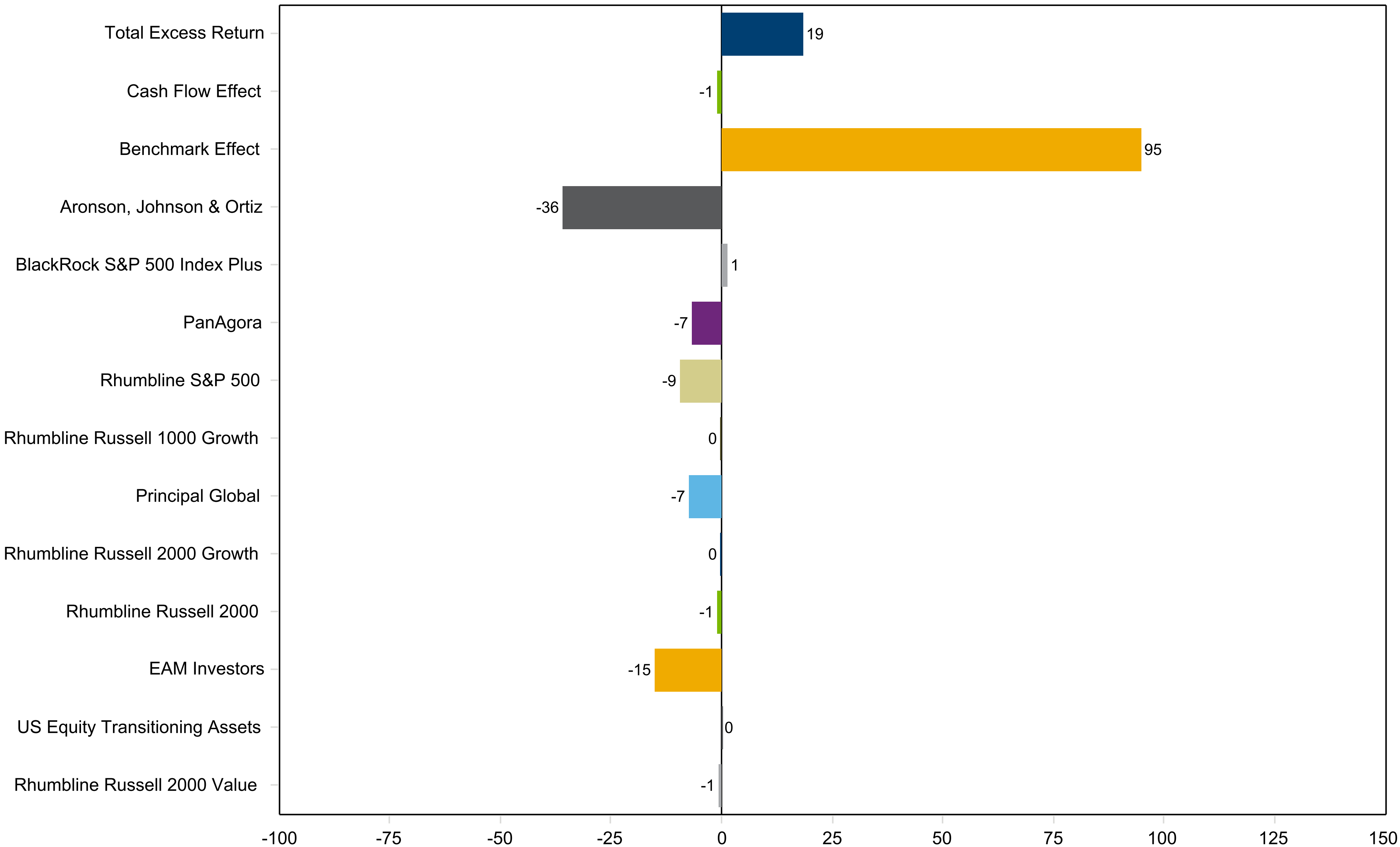
Asset Class Attribution

4 Calendar Year Before



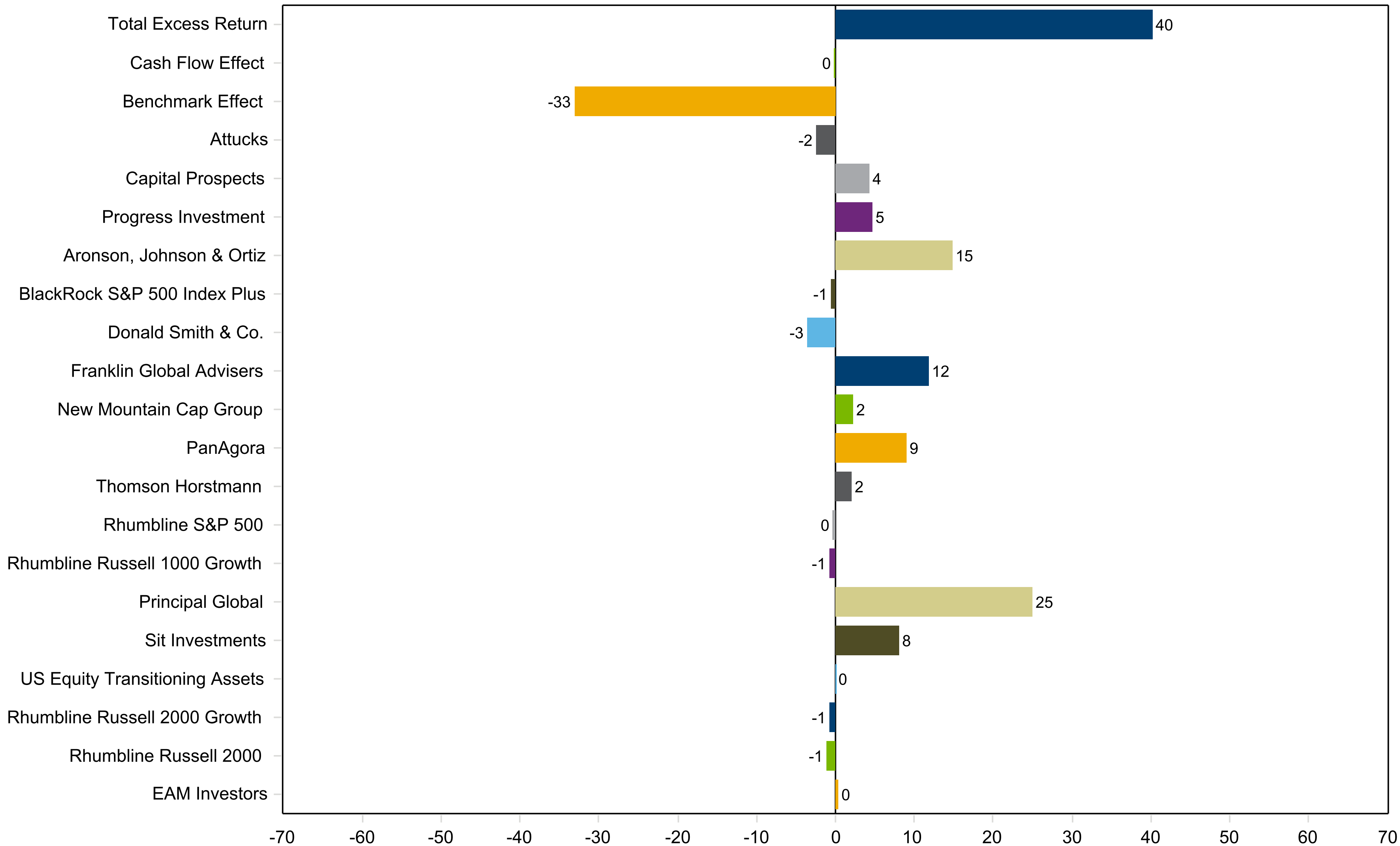
Asset Class Attribution

5 Calendar Year Before



Asset Class Attribution

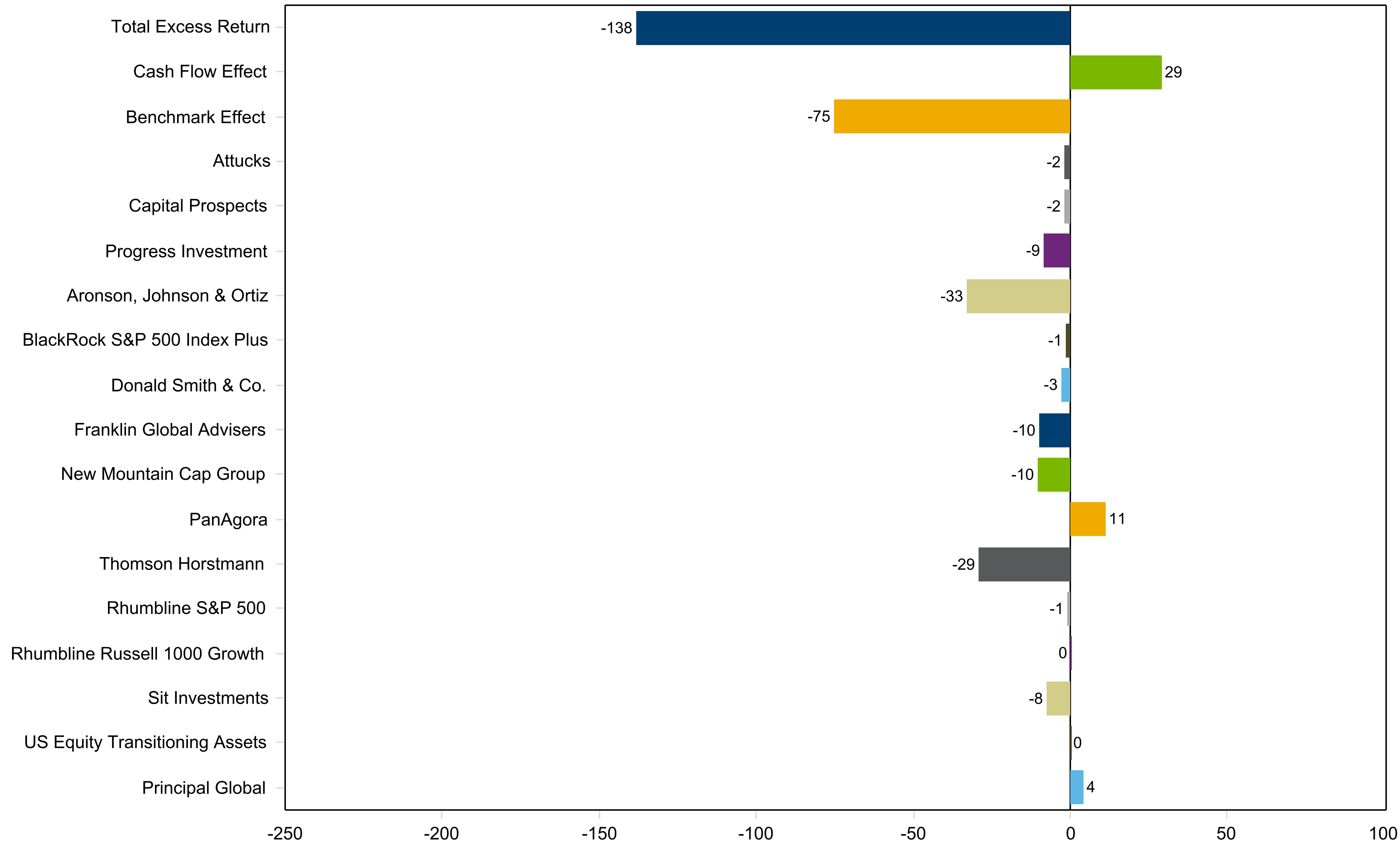
6 Calendar Year Before



Empower Results®

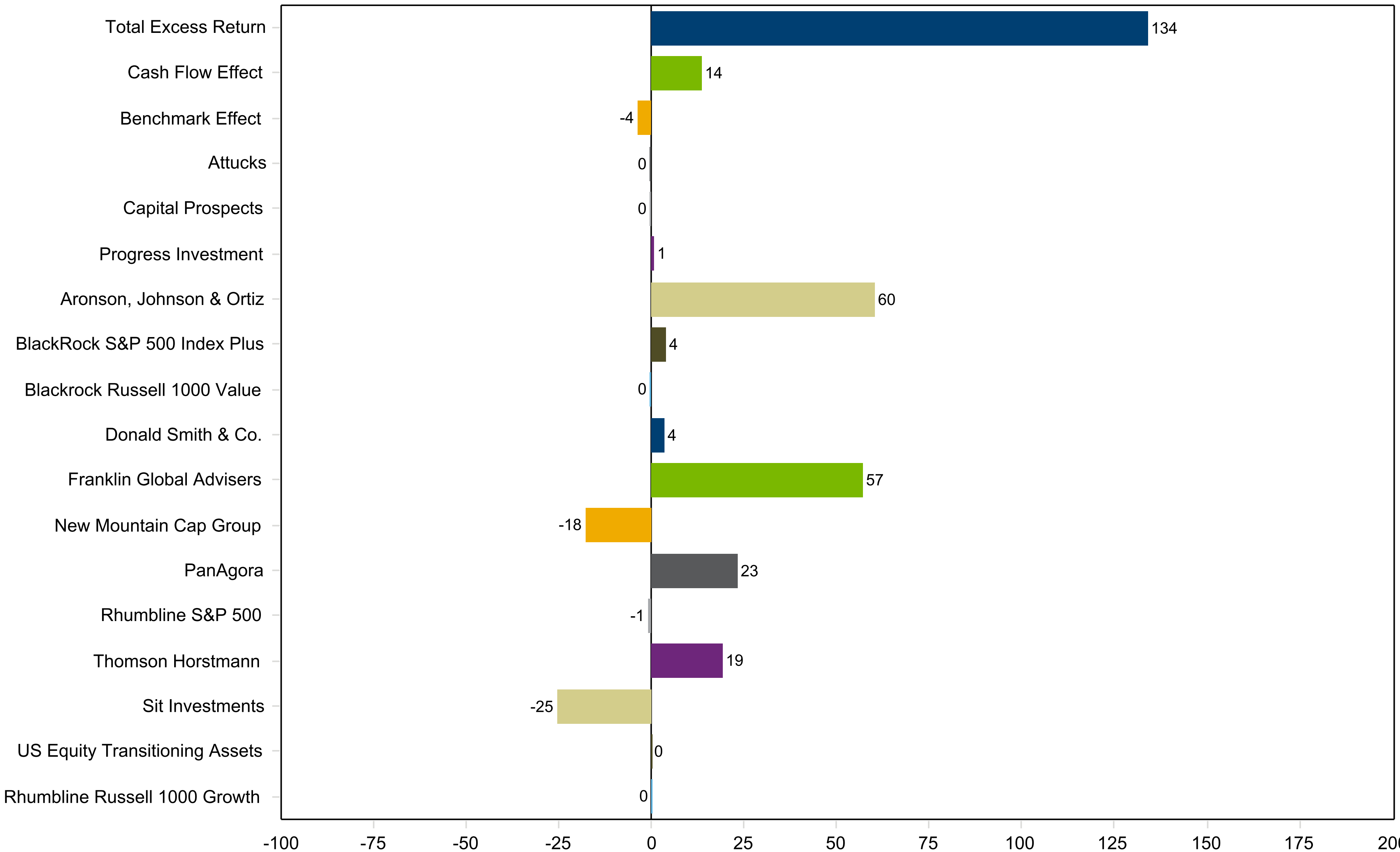
Asset Class Attribution

7 Calendar Year Before



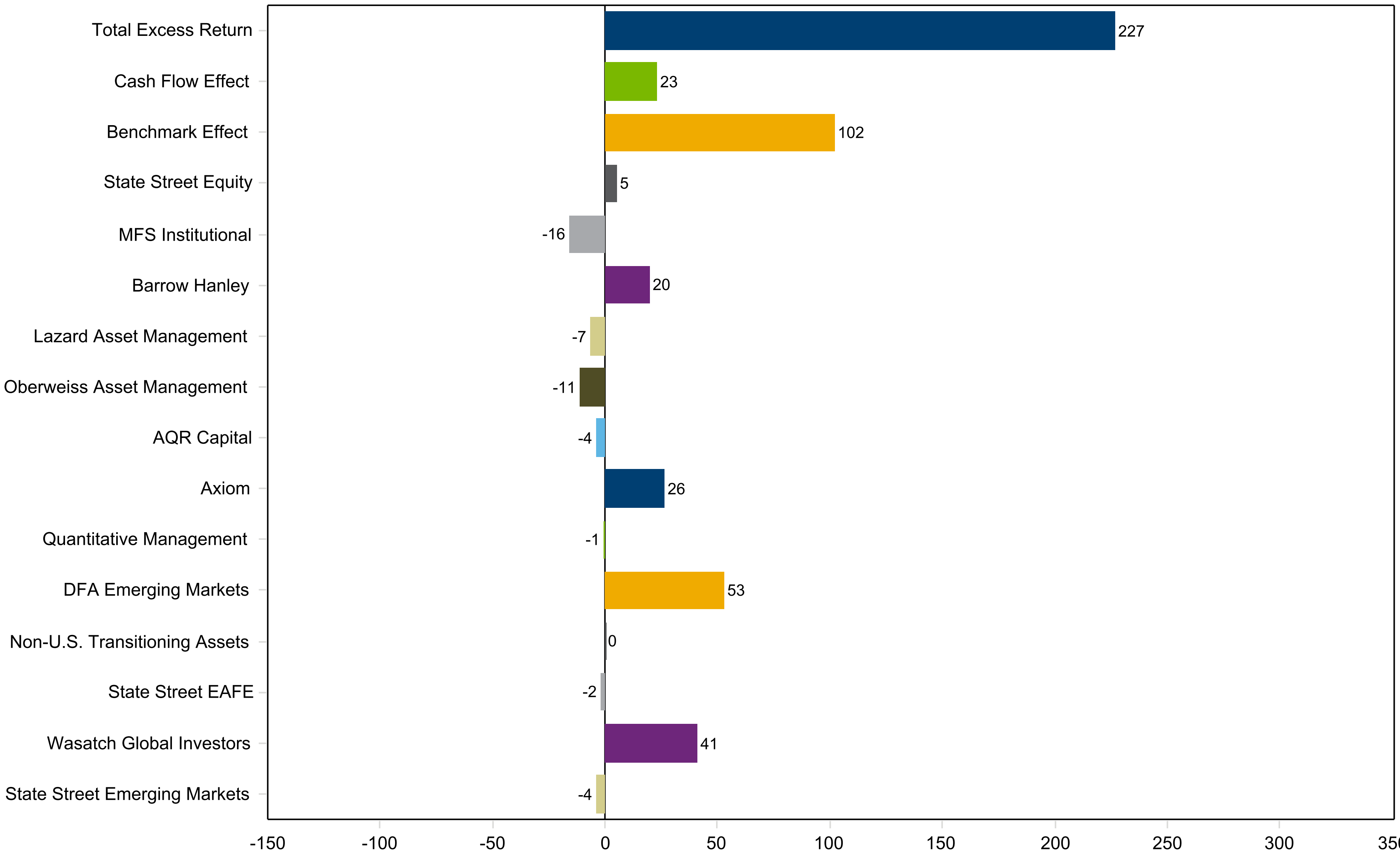
Asset Class Attribution

February 1, 2013 To December 31, 2013



Asset Class Attribution

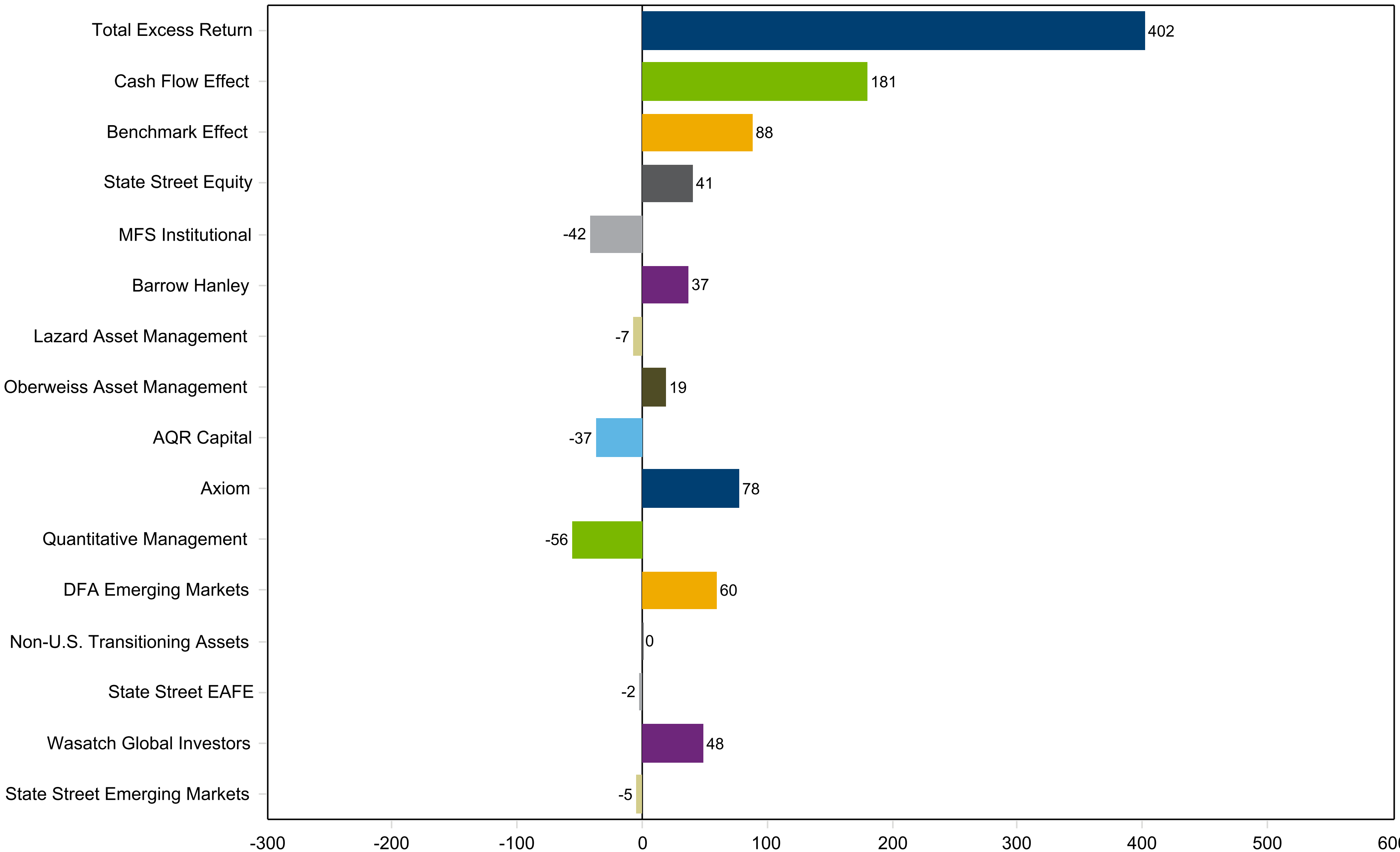
Year To Date



AON
Empower Results®

Asset Class Attribution

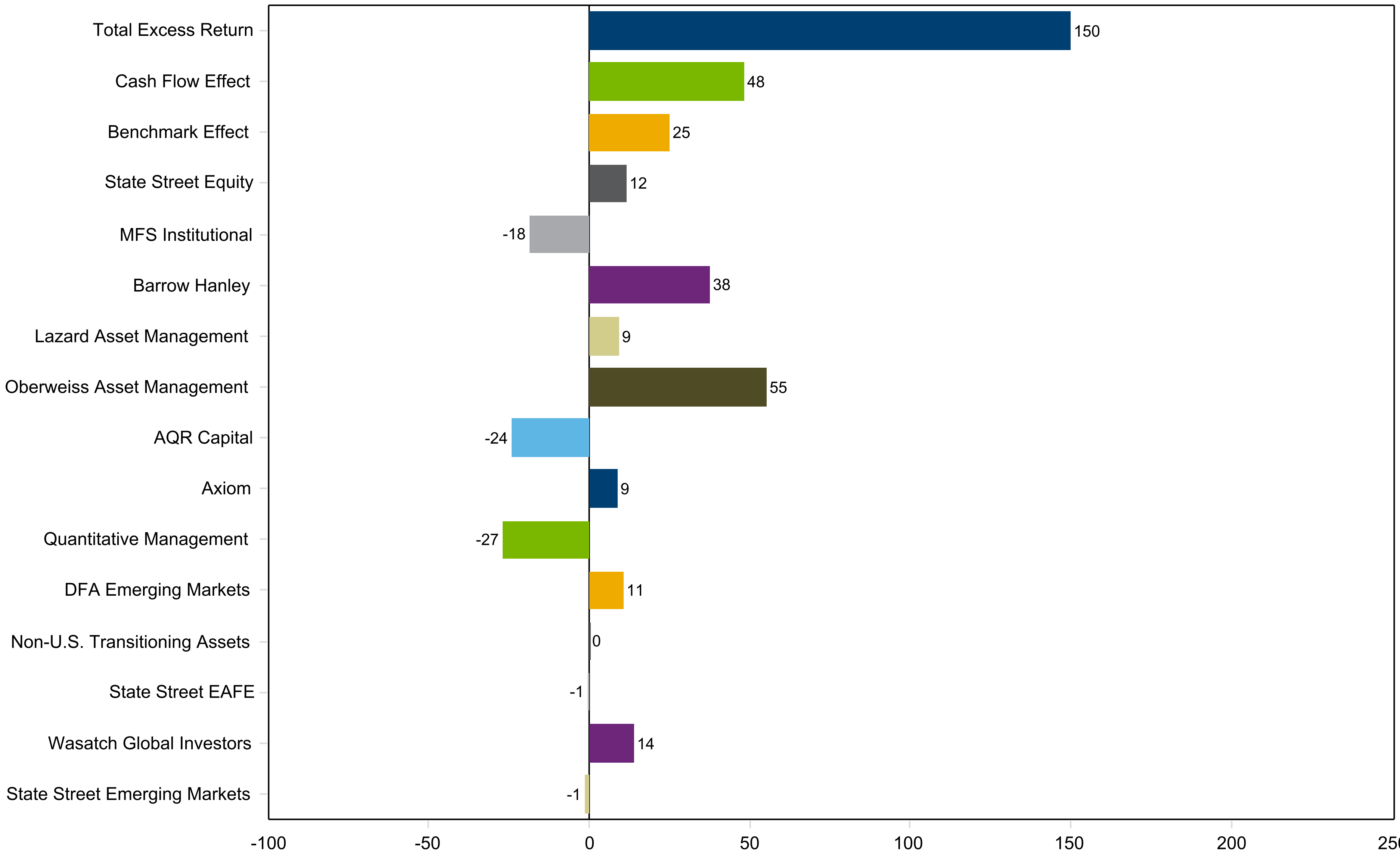
1 Year



Empower Results®

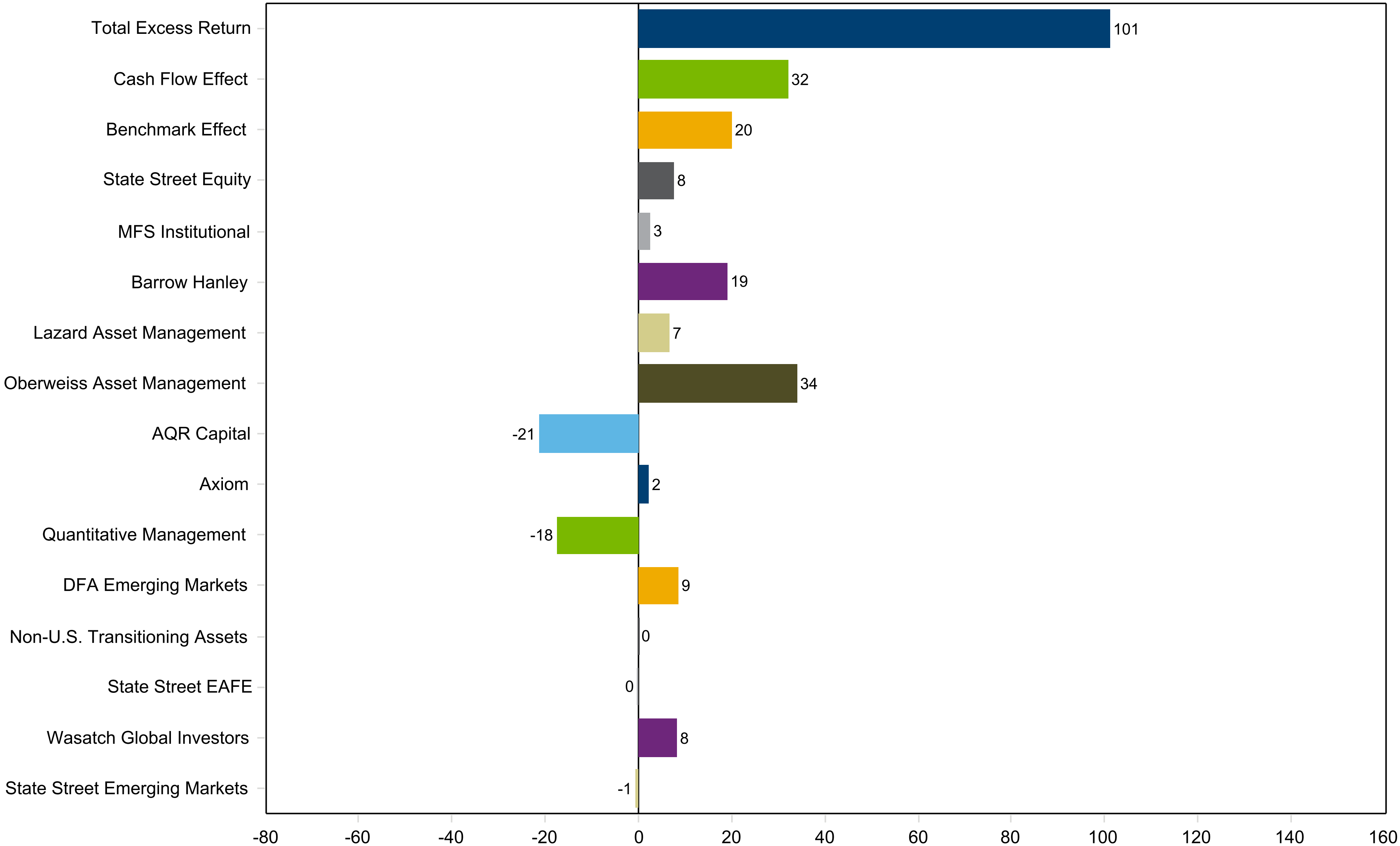
Asset Class Attribution

3 Years



Asset Class Attribution

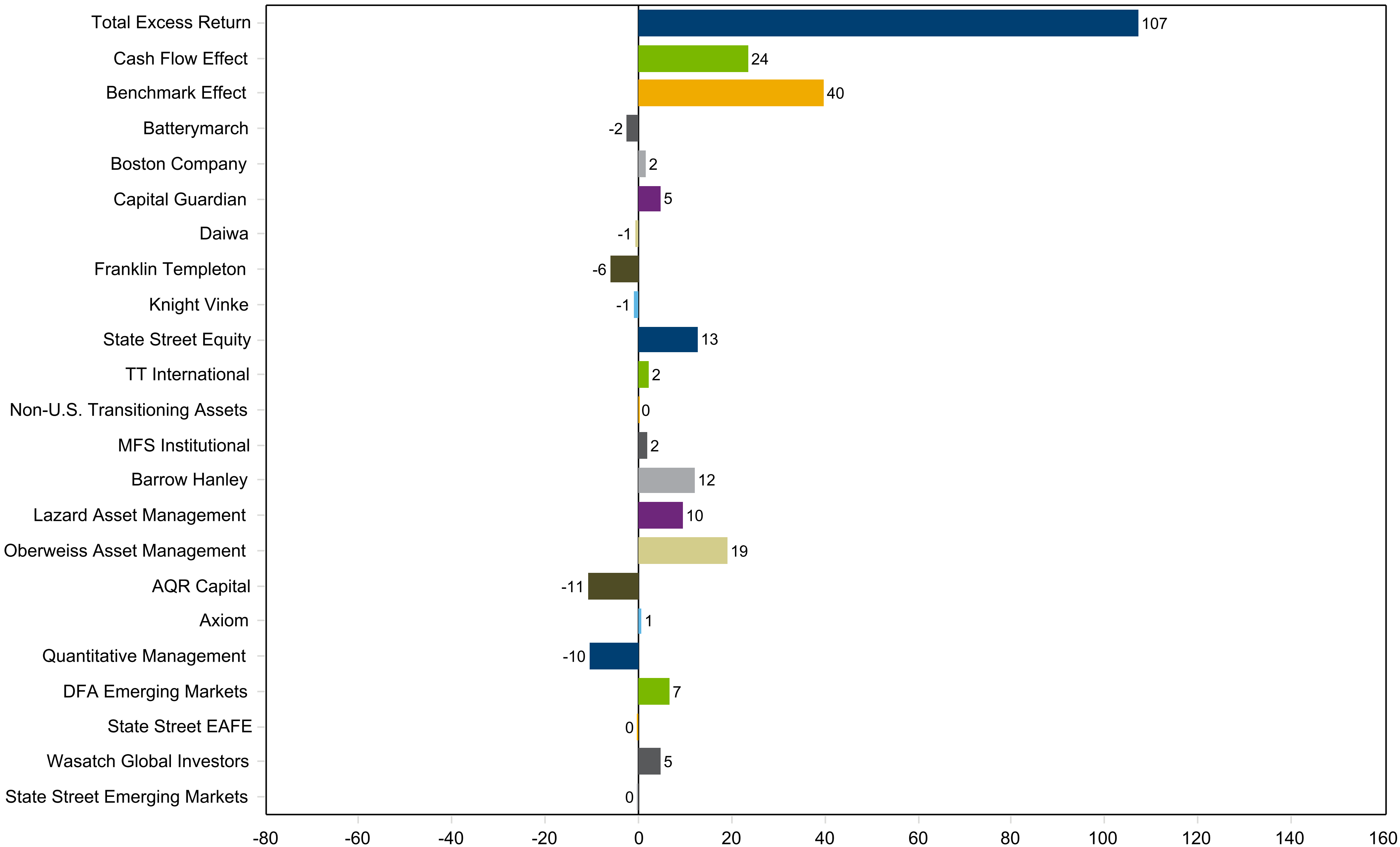
5 Years



Empower Results®

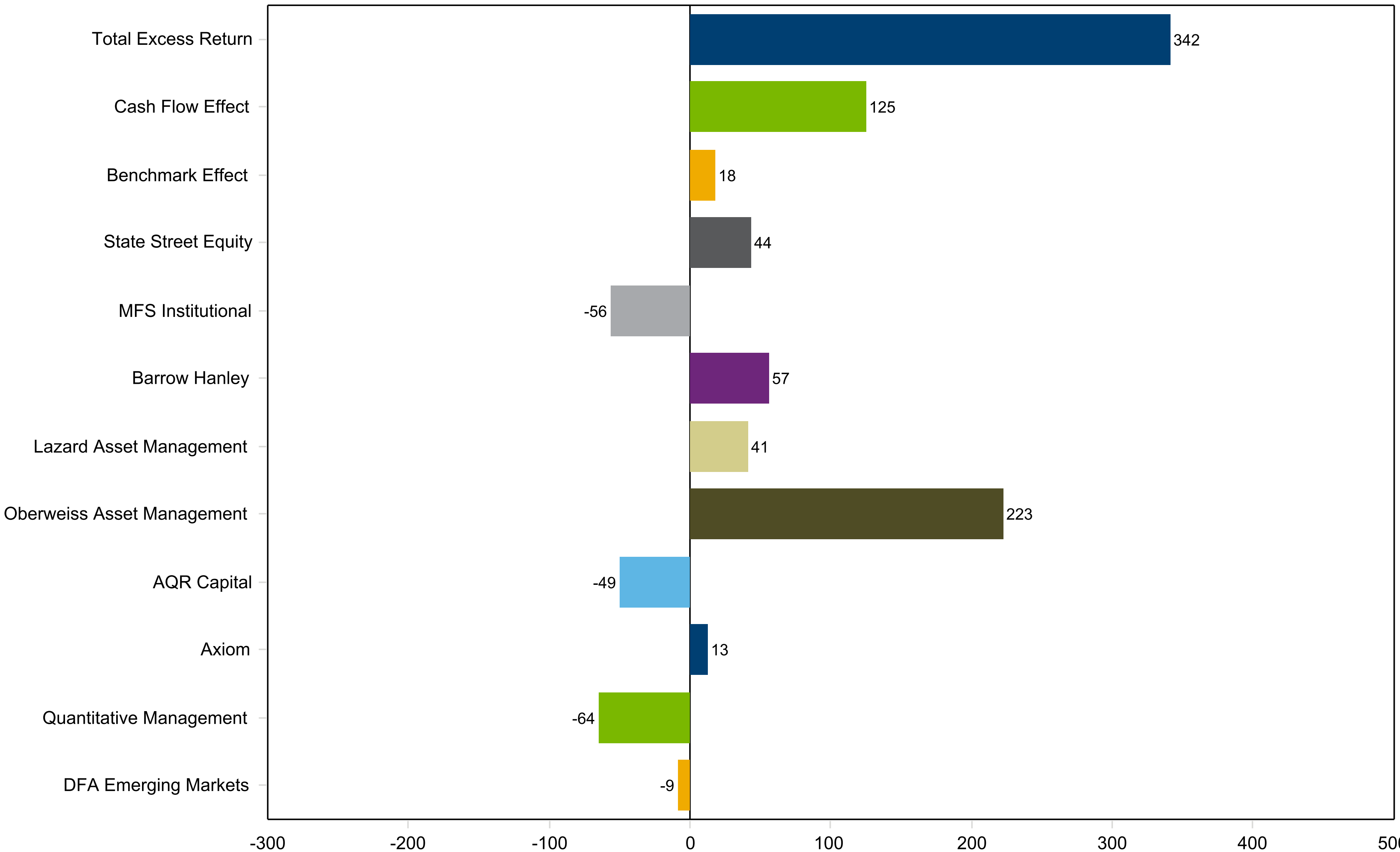
Asset Class Attribution

February 1, 2013 To September 30, 2021



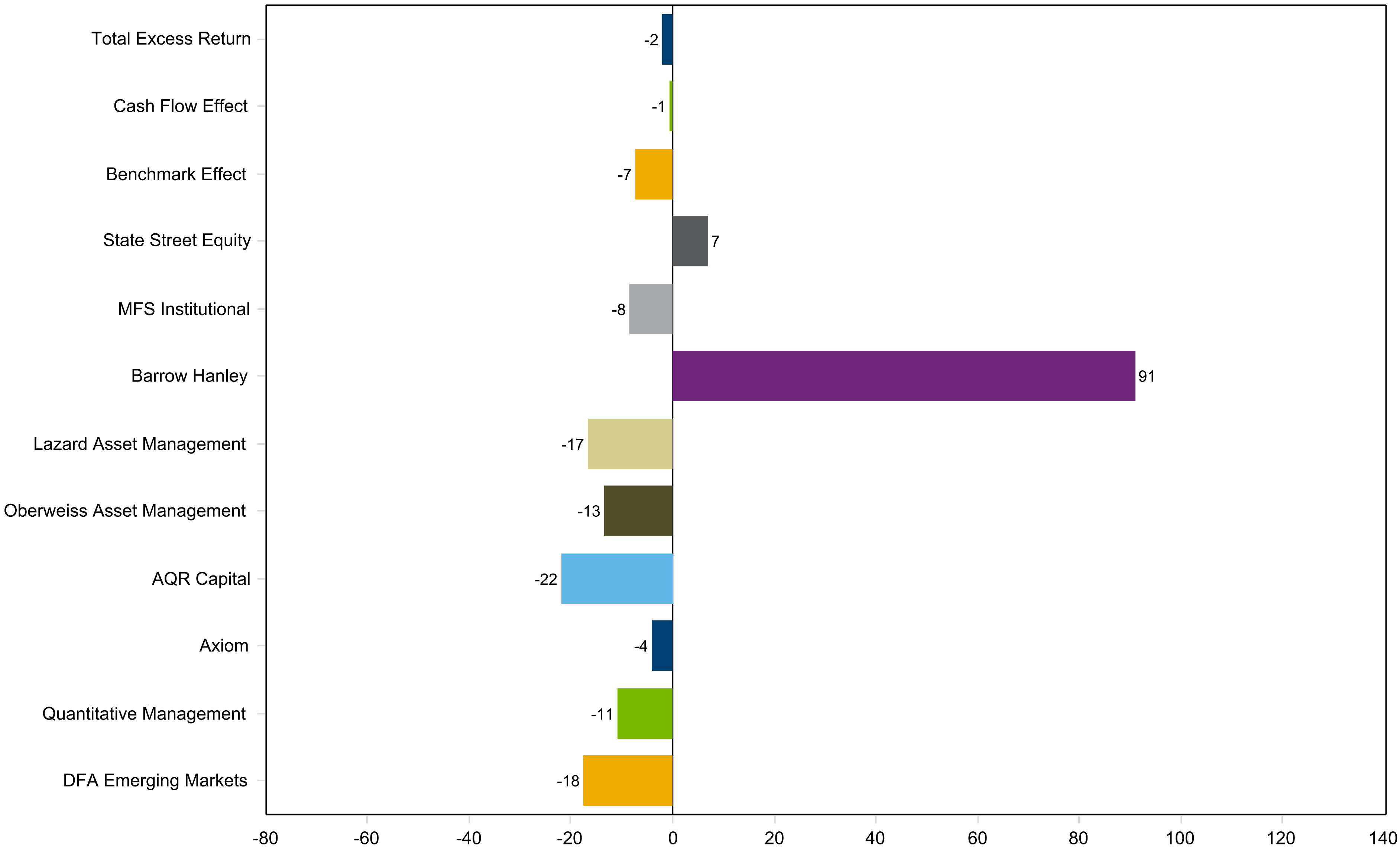
Asset Class Attribution

1 Calendar Year Before



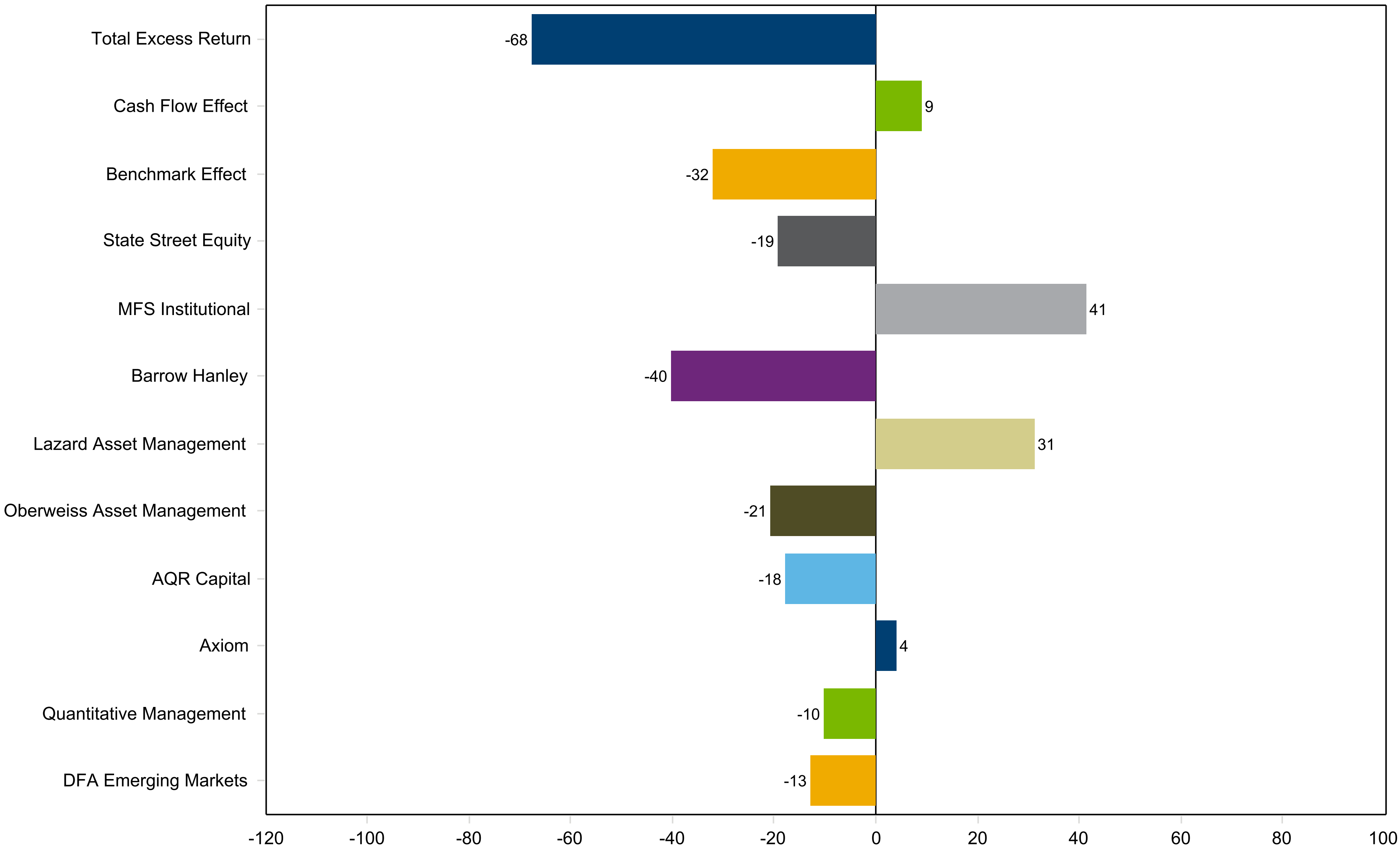
Asset Class Attribution

2 Calendar Year Before



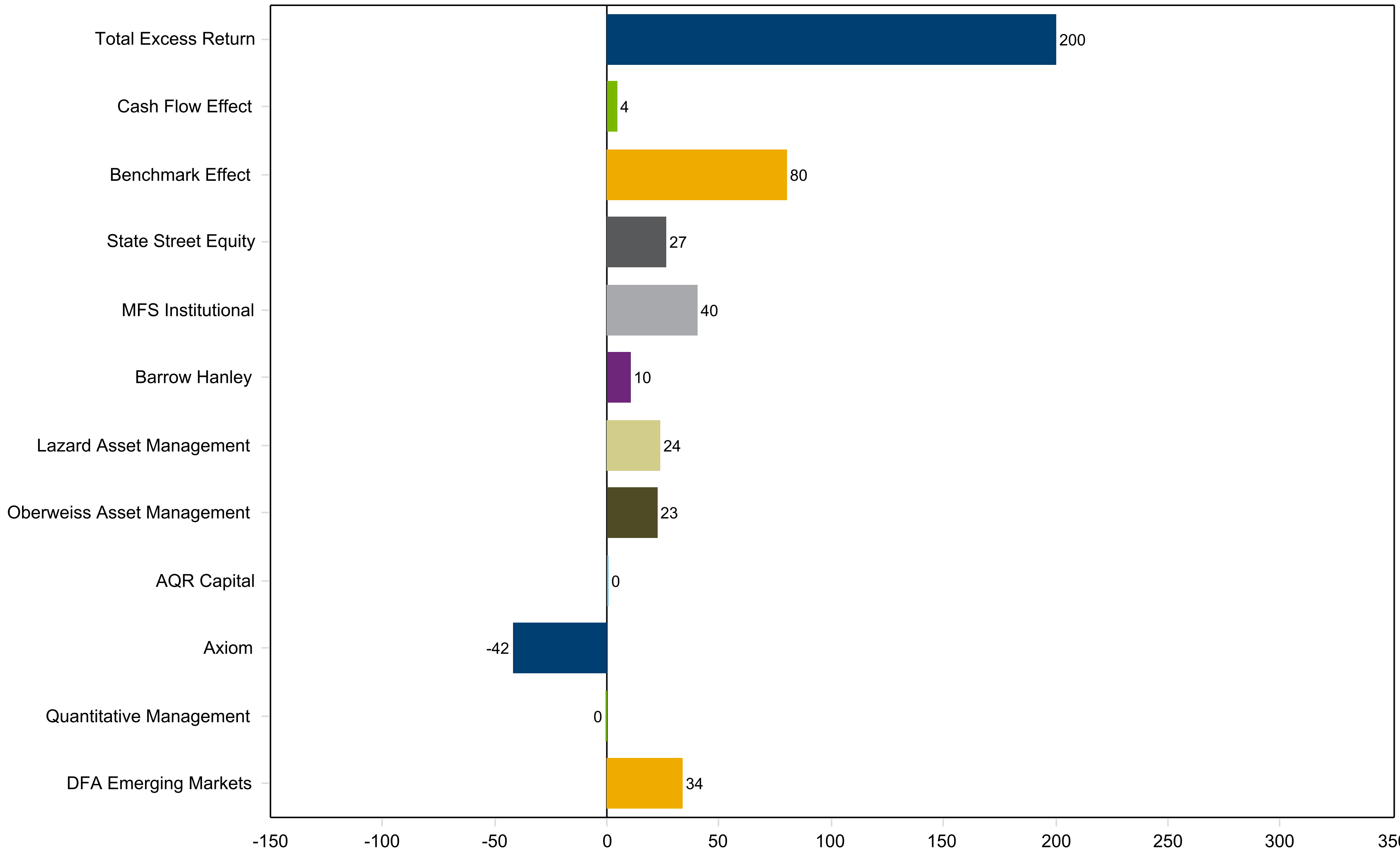
Asset Class Attribution

3 Calendar Year Before



Asset Class Attribution

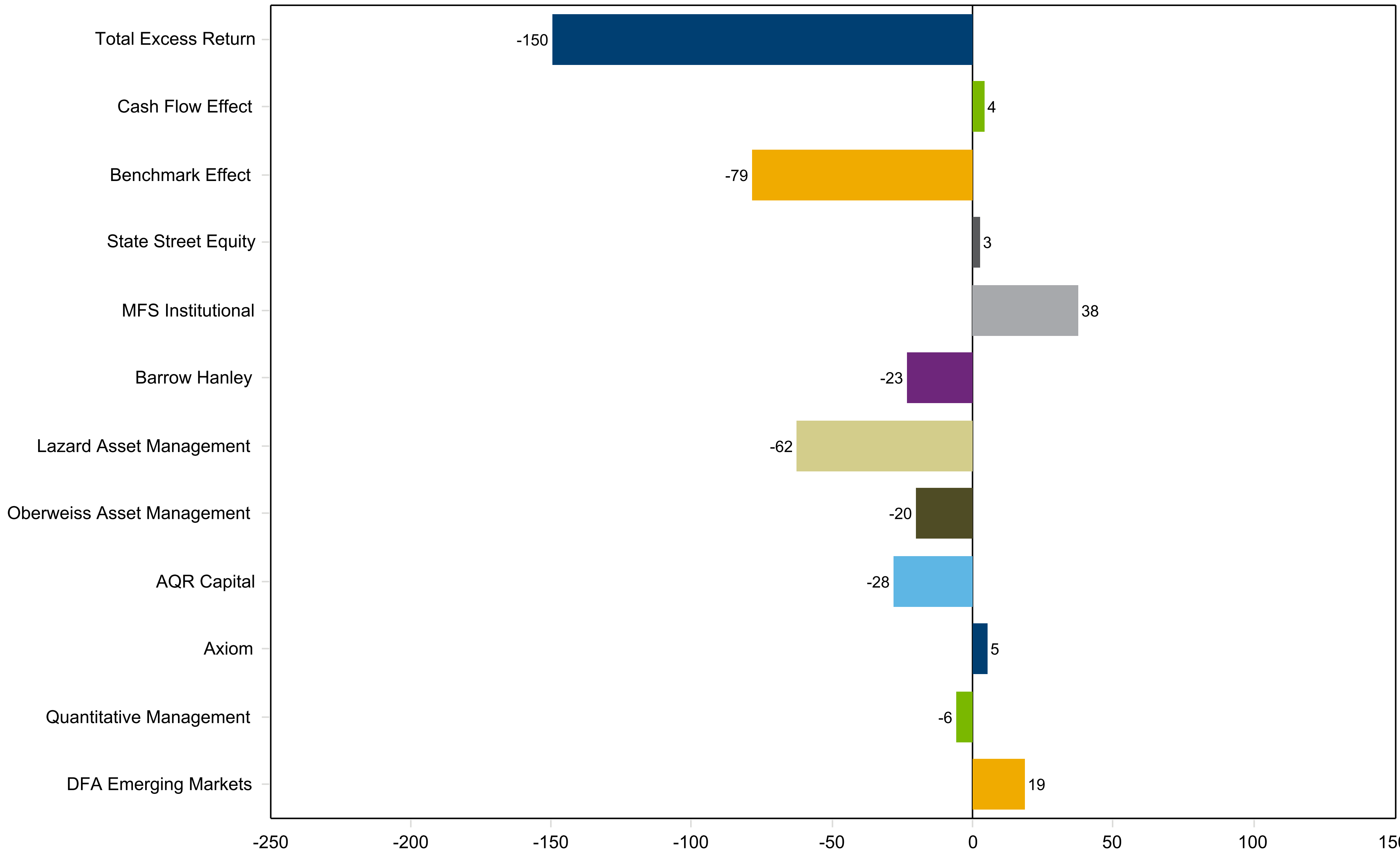
4 Calendar Year Before



Empower Results®

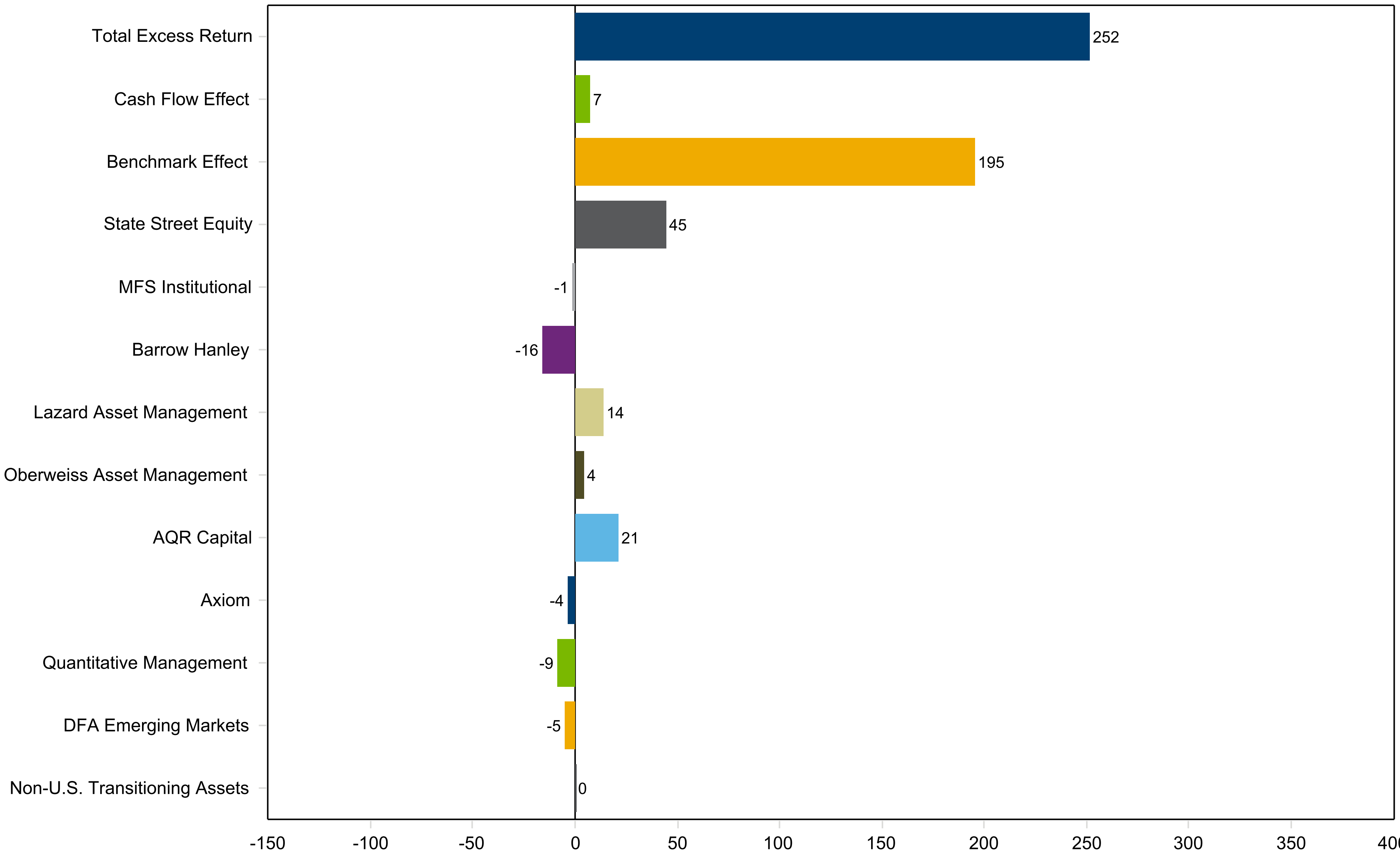
Asset Class Attribution

5 Calendar Year Before



Asset Class Attribution

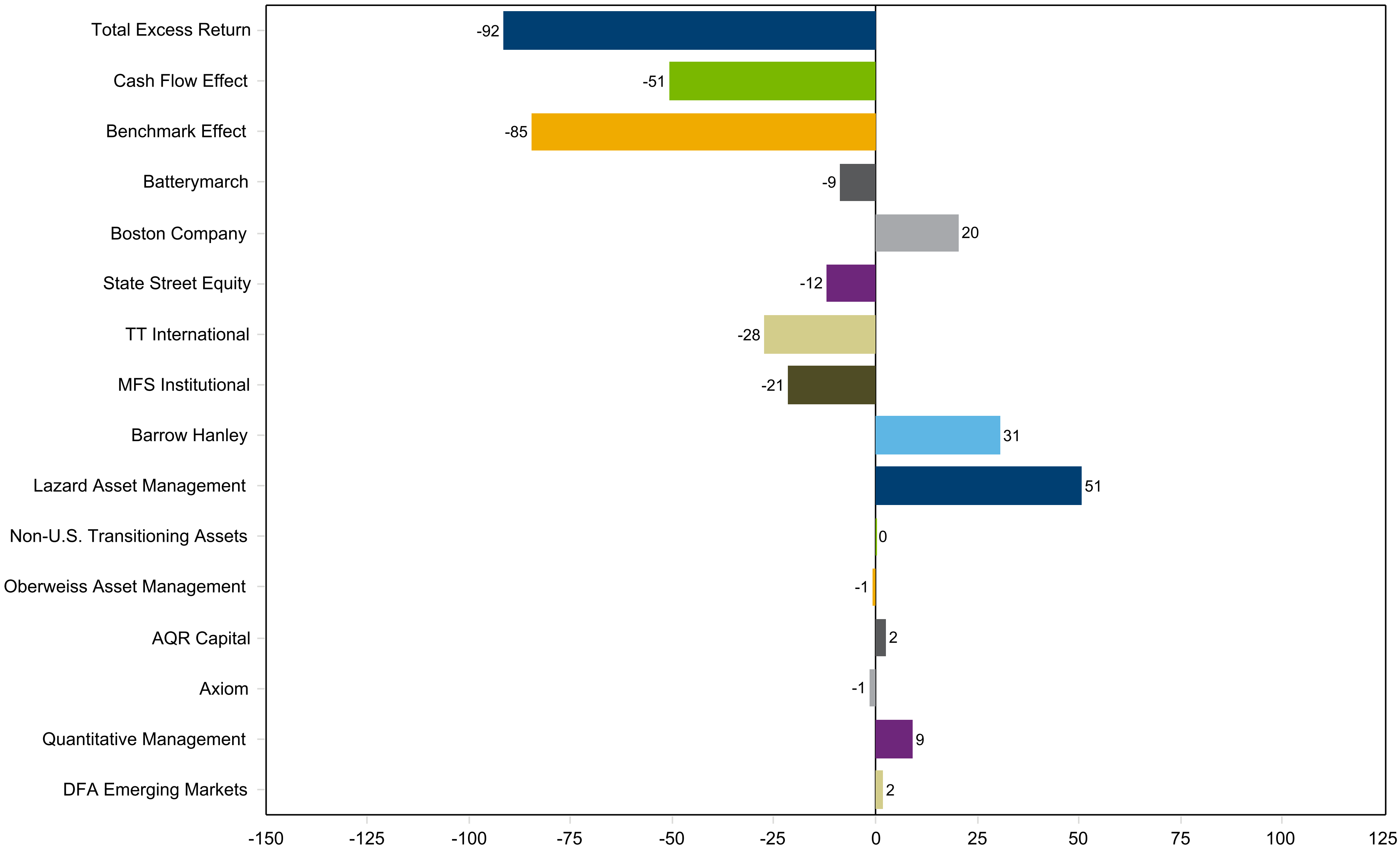
6 Calendar Year Before



Empower Results®

Asset Class Attribution

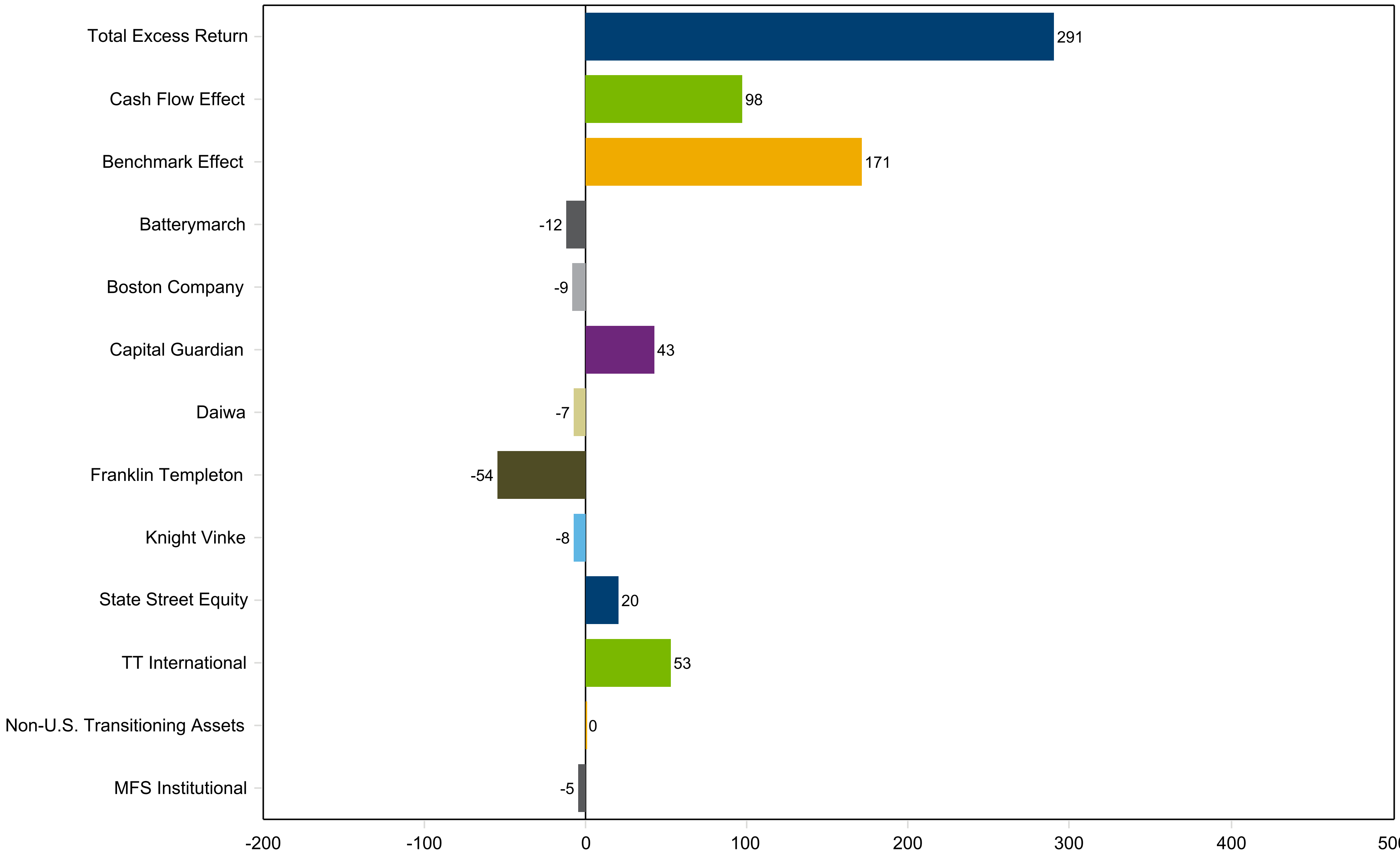
7 Calendar Year Before



Empower Results®

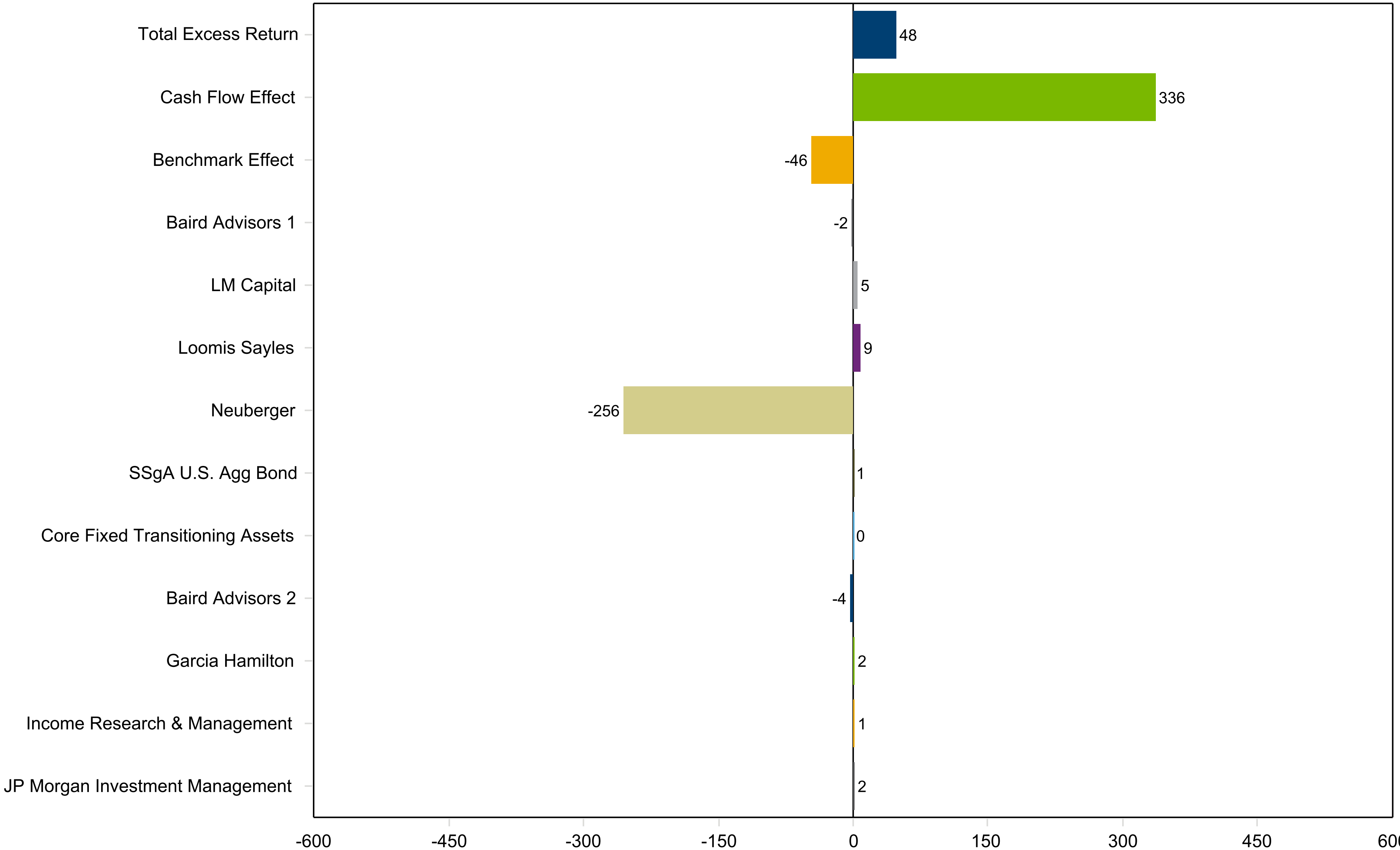
Asset Class Attribution

February 1, 2013 To December 31, 2013



Asset Class Attribution

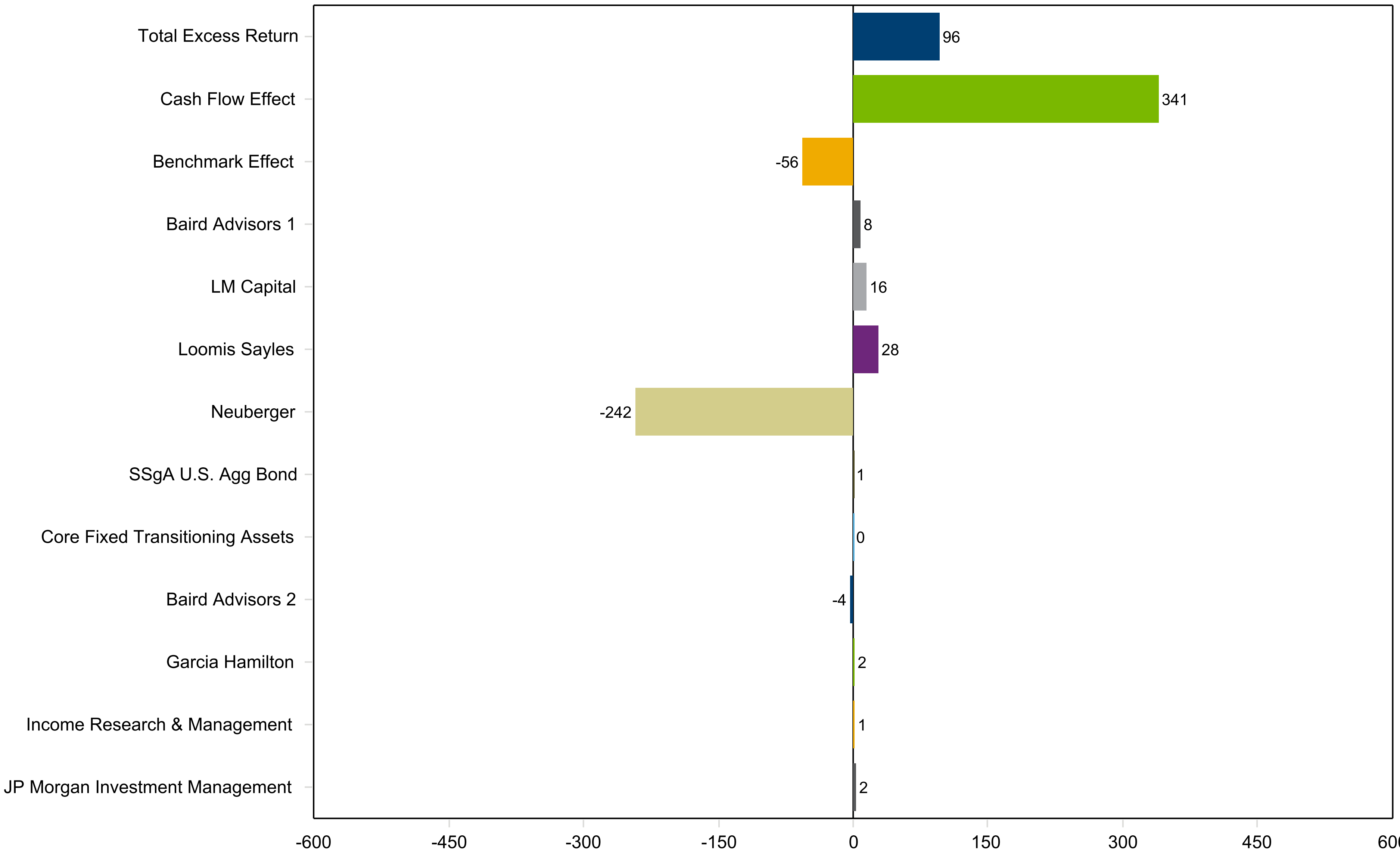
Year To Date



Empower Results®

Asset Class Attribution

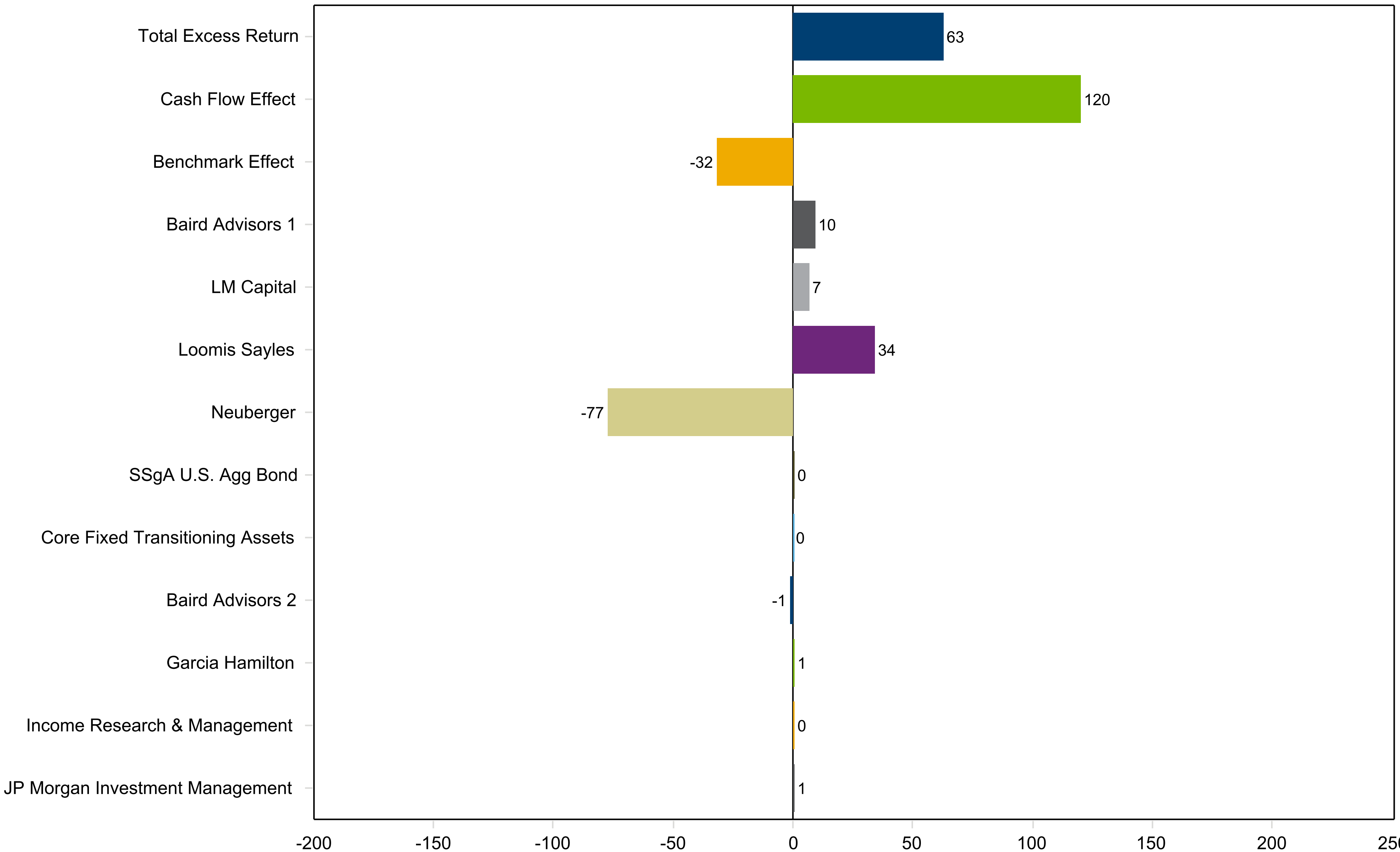
1 Year



Empower Results®

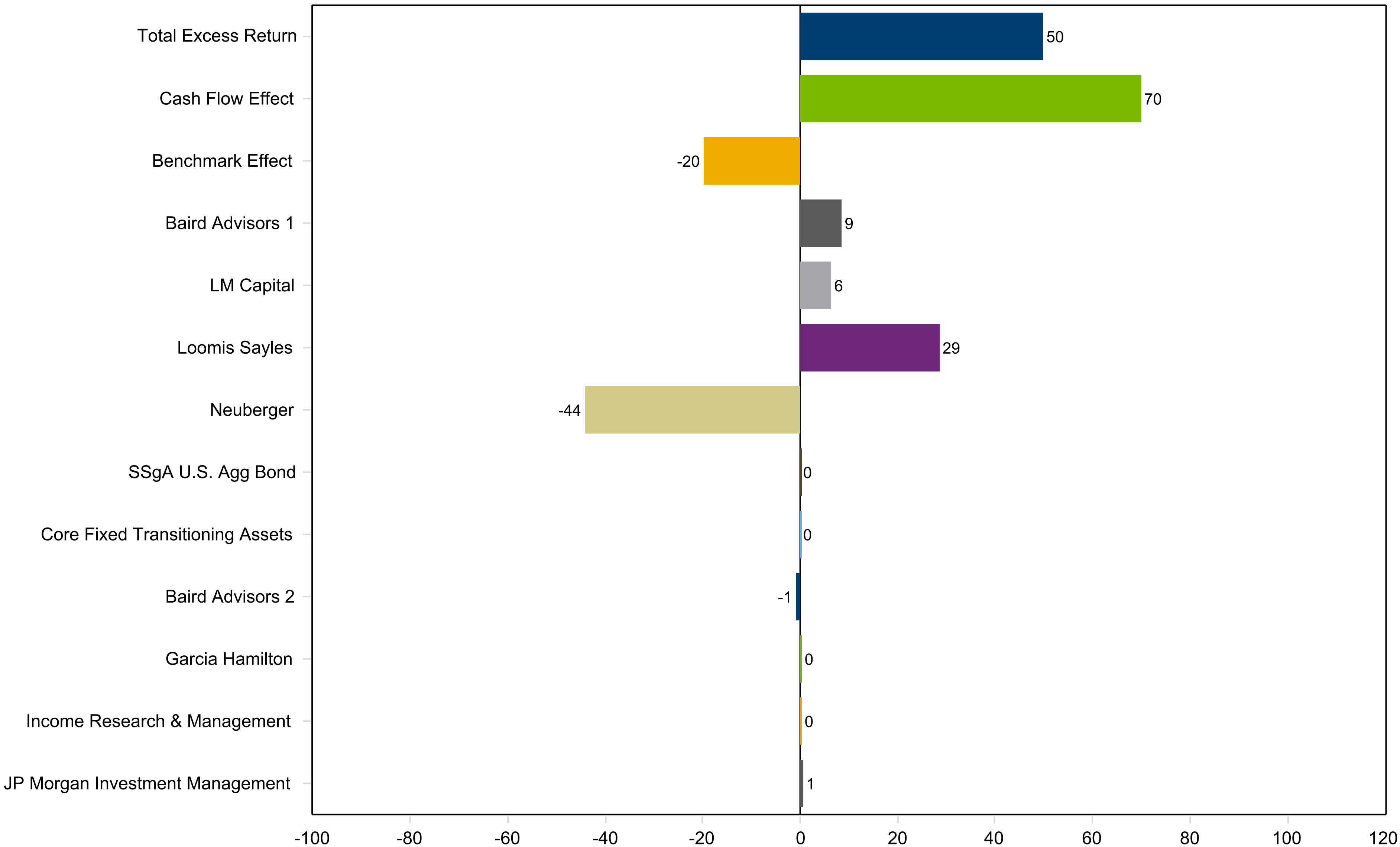
Asset Class Attribution

3 Years



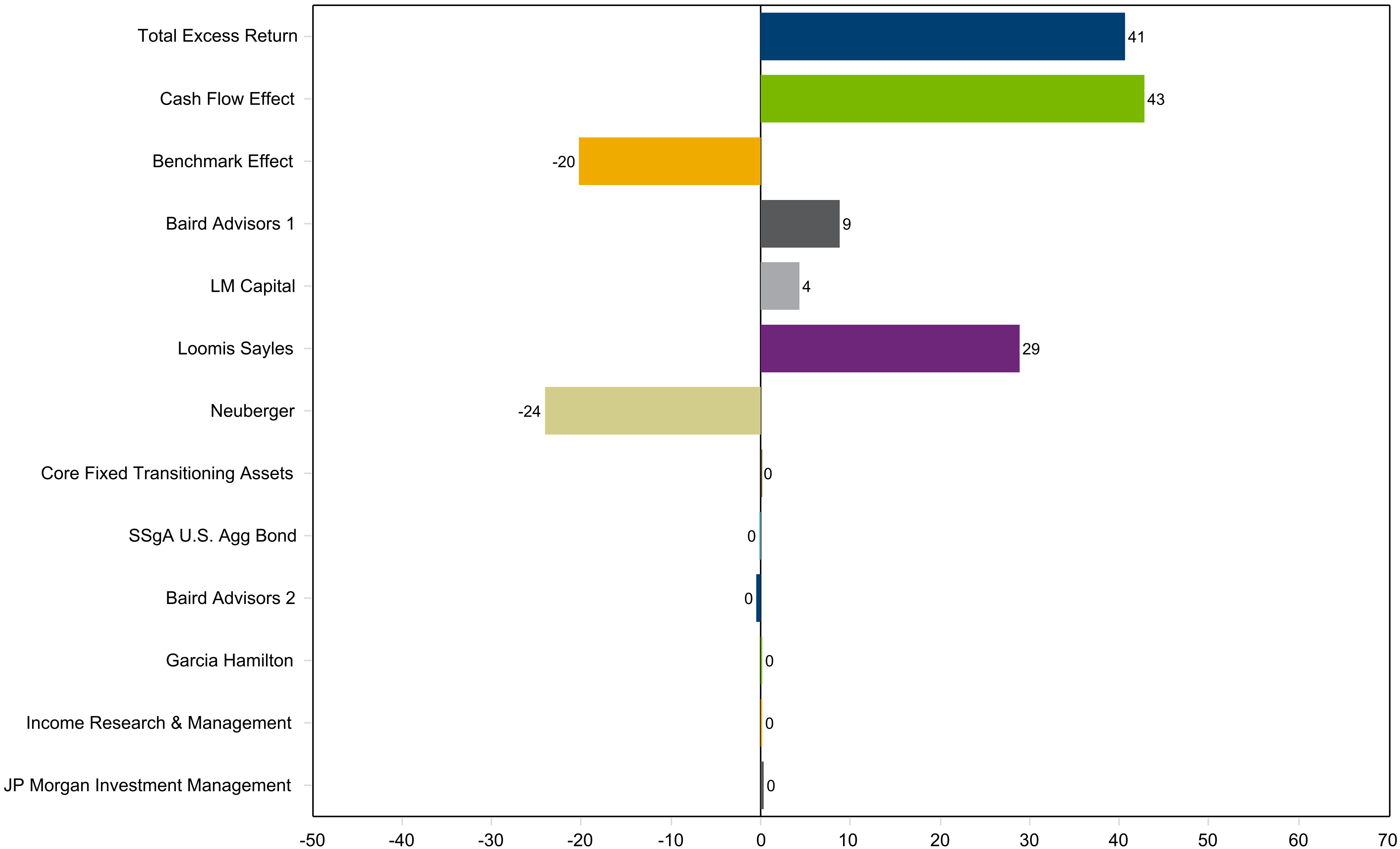
Asset Class Attribution

5 Years



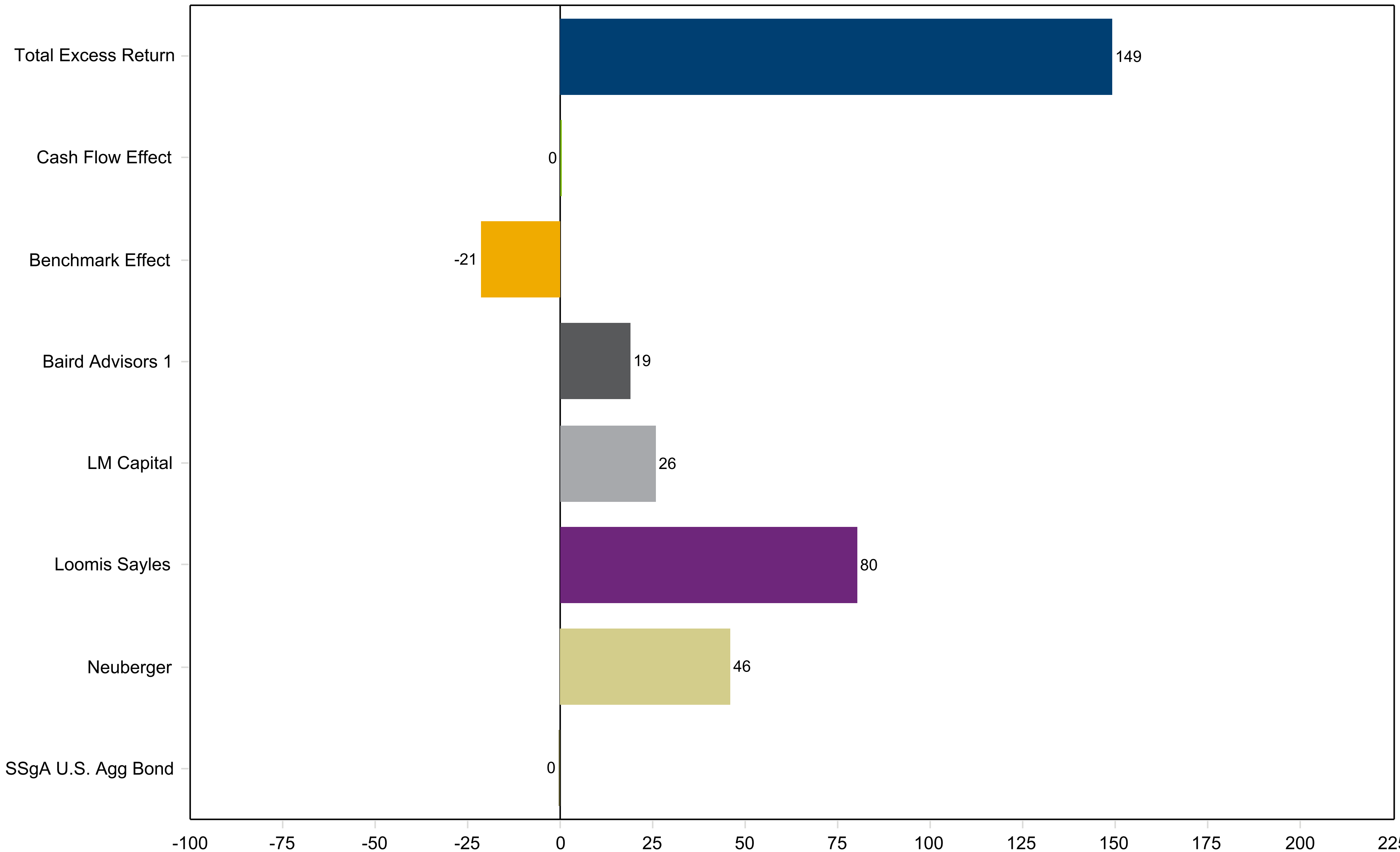
Asset Class Attribution

February 1, 2013 To September 30, 2021



Asset Class Attribution

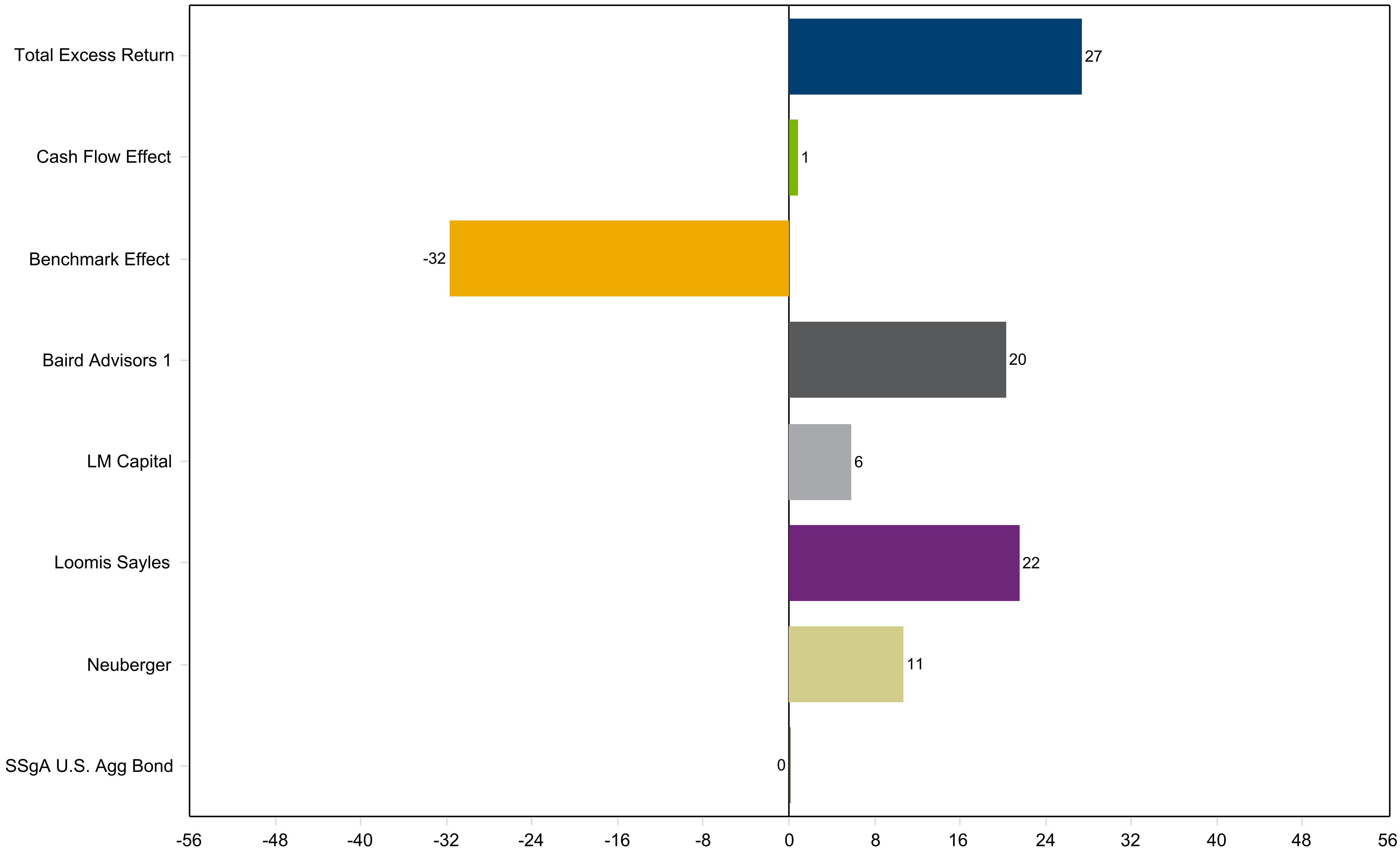
1 Calendar Year Before



Core Fixed Income **January 1, 2019 To December 31, 2019**

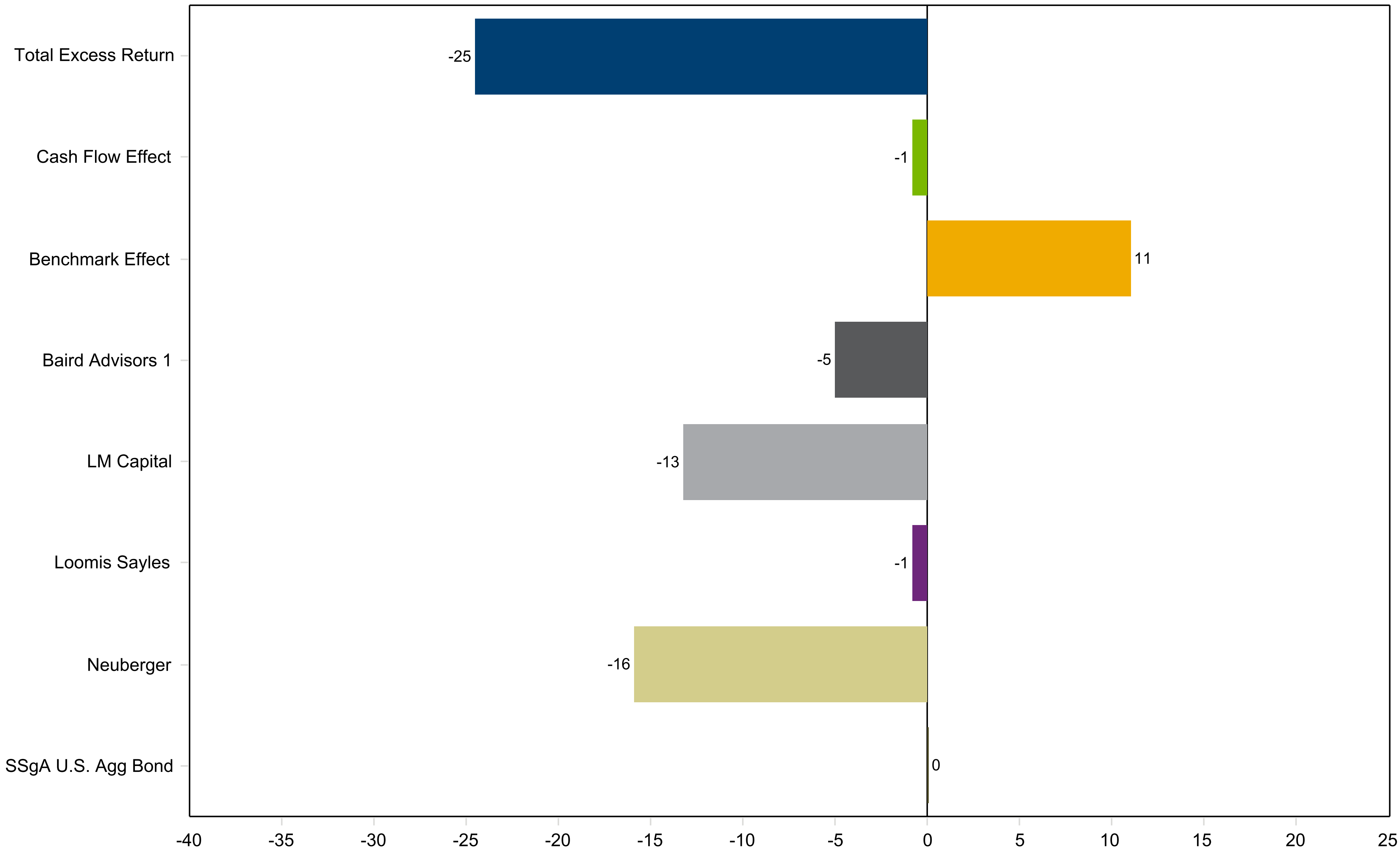
Asset Class Attribution

2 Calendar Year Before



Asset Class Attribution

3 Calendar Year Before

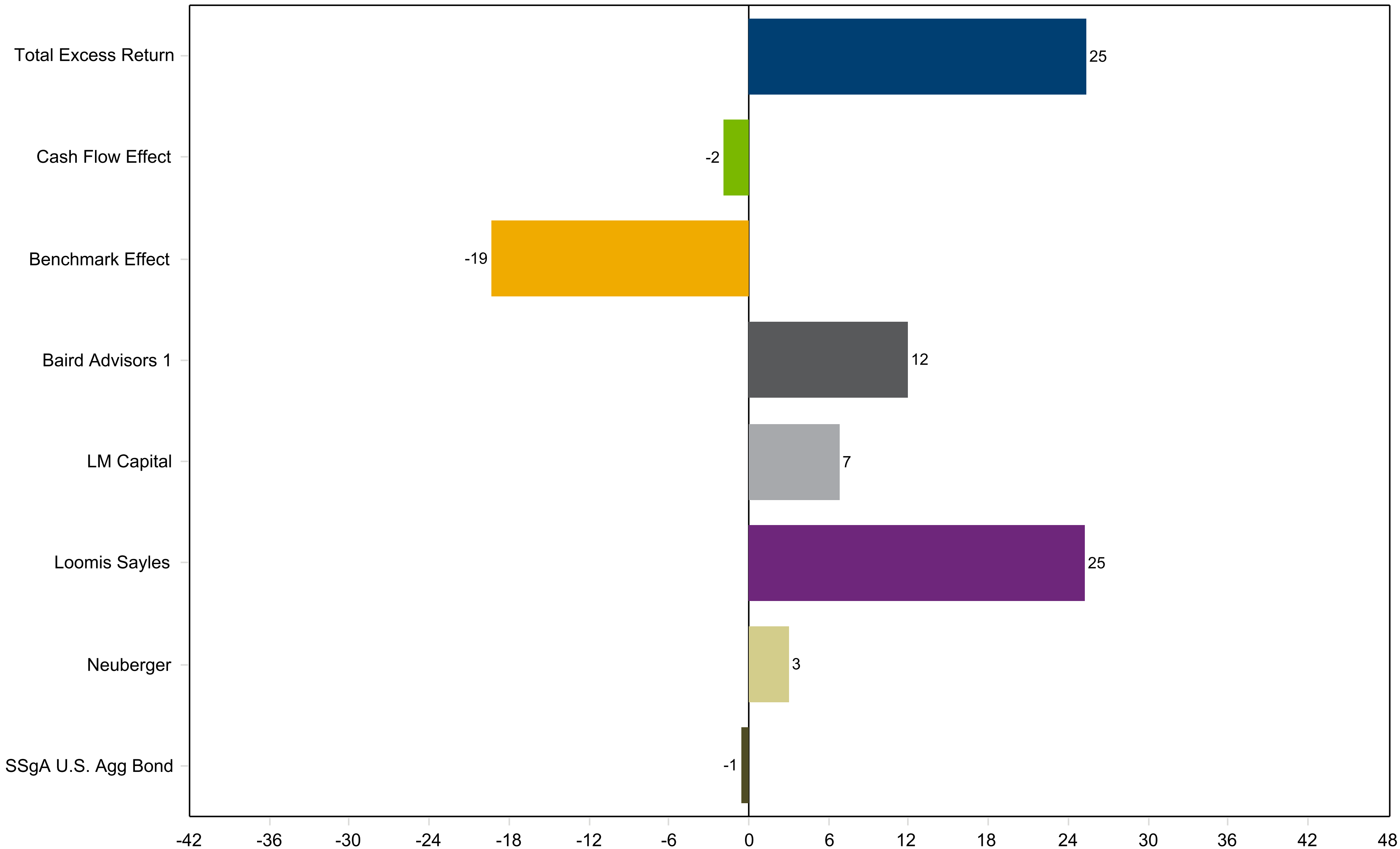


AON Empower Results®

Core Fixed Income | January 1, 2017 To December 31, 2017

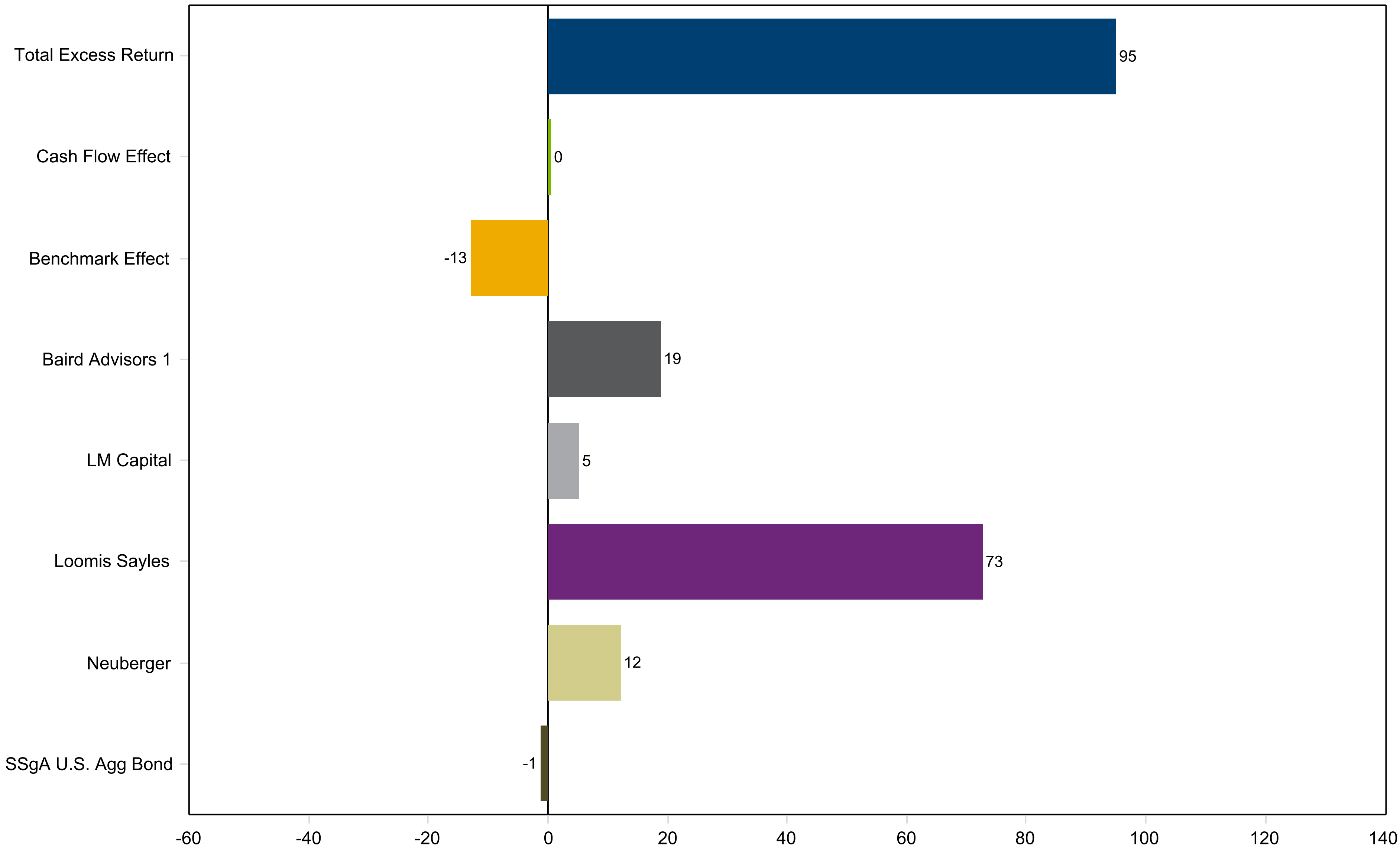
Asset Class Attribution

4 Calendar Year Before



Asset Class Attribution

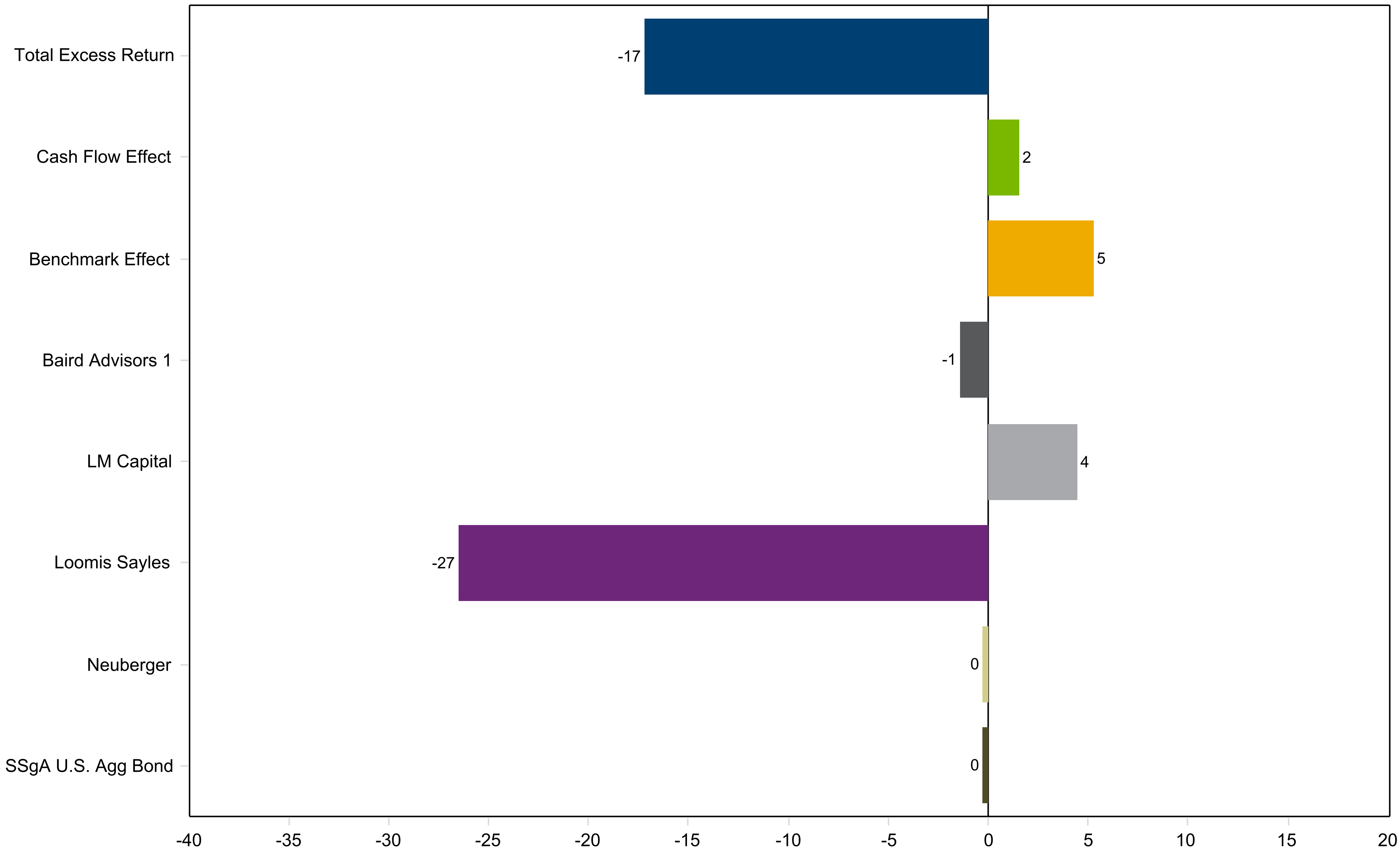
5 Calendar Year Before



Empower Results®

Asset Class Attribution

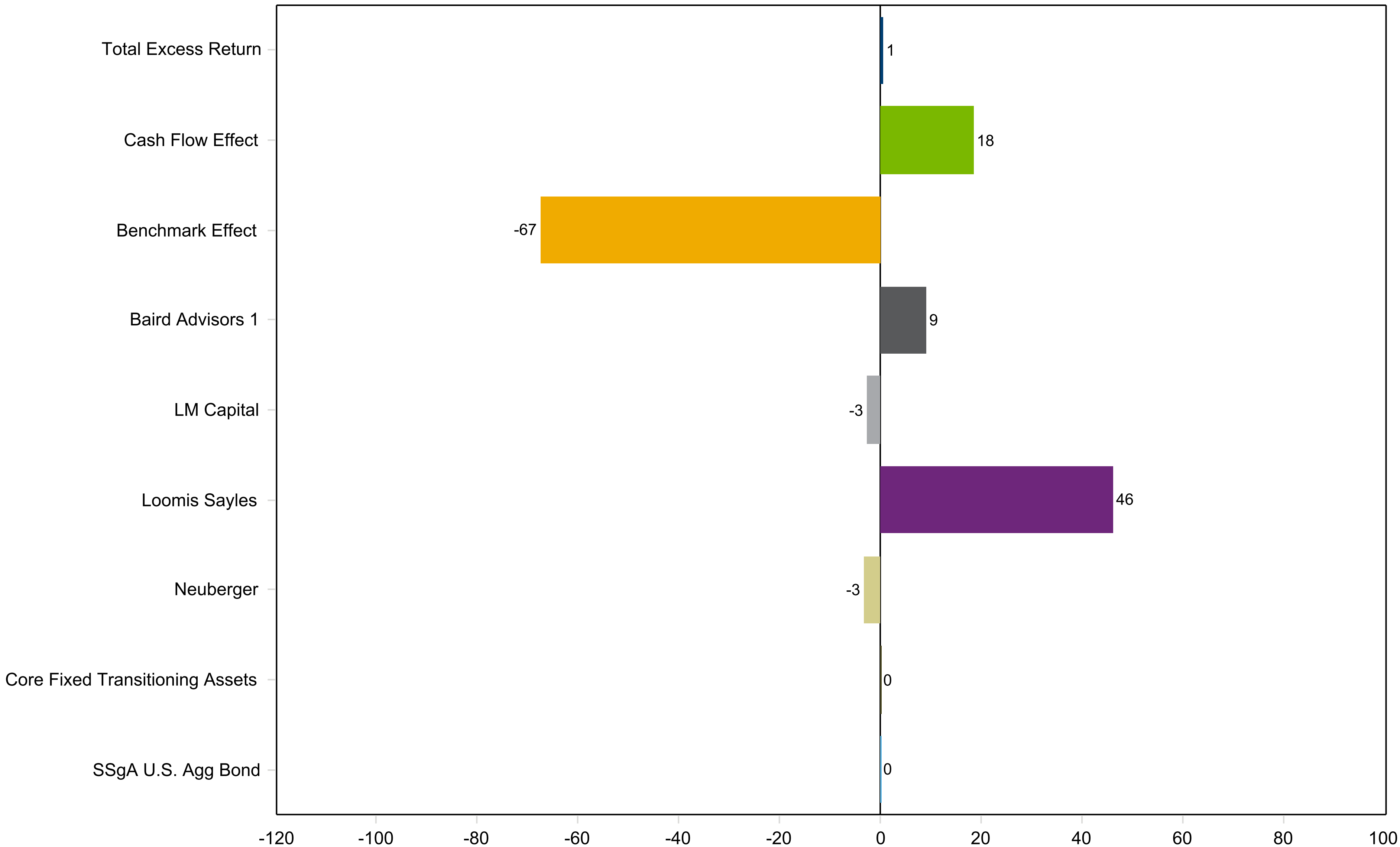
6 Calendar Year Before



Core Fixed Income January 1, 2014 To December 31, 2014

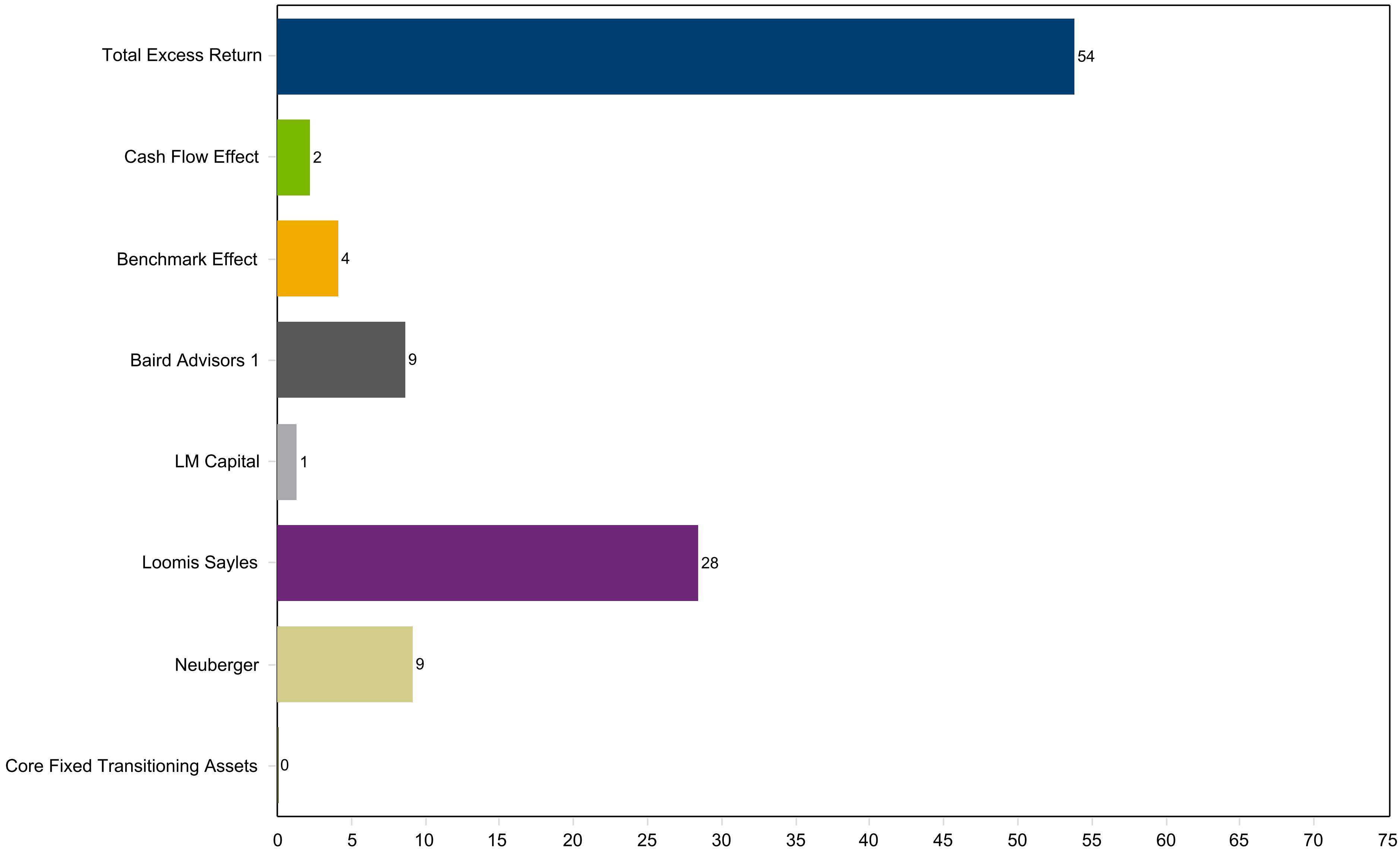
Asset Class Attribution

7 Calendar Year Before



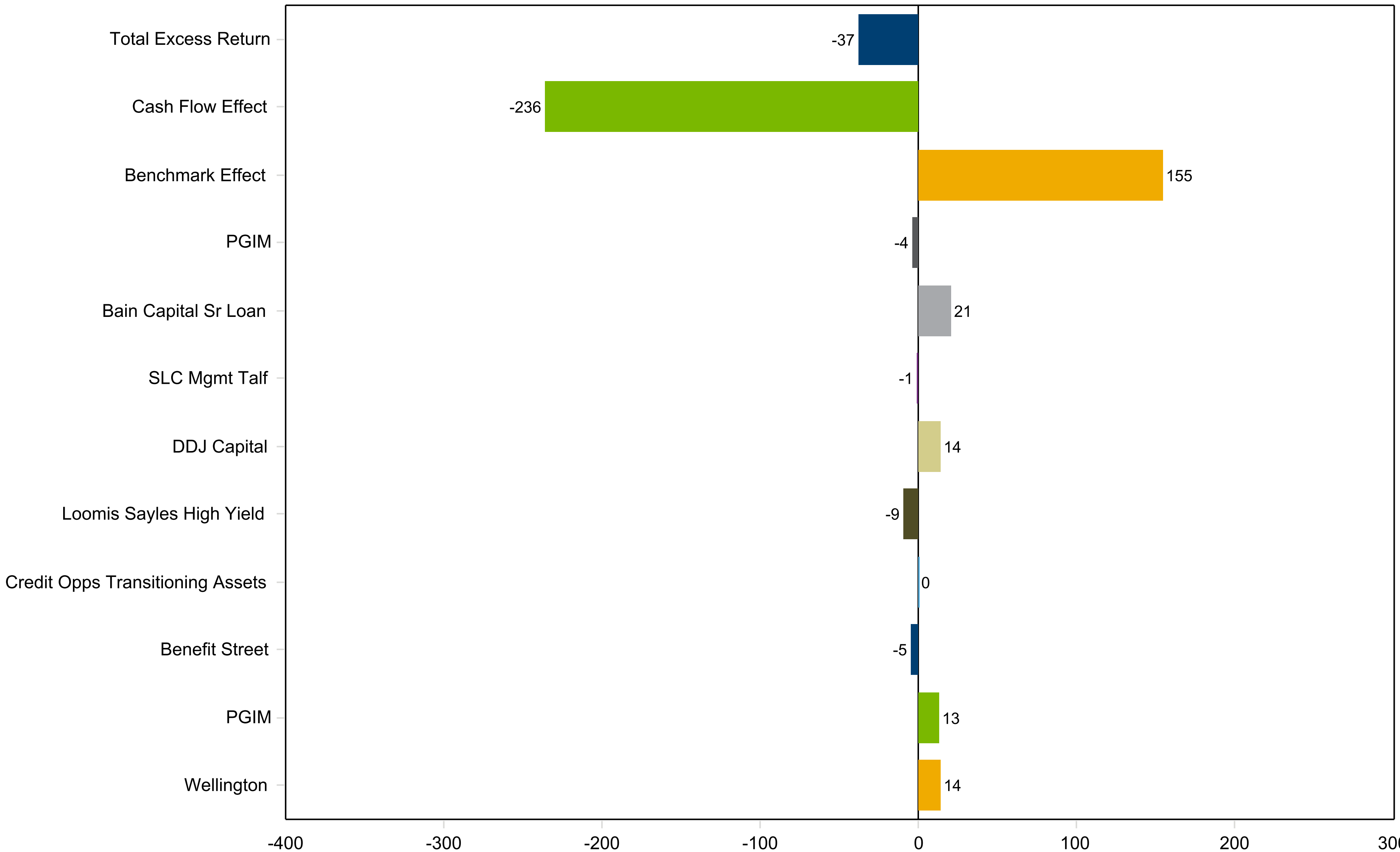
Asset Class Attribution

February 1, 2013 To December 31, 2013



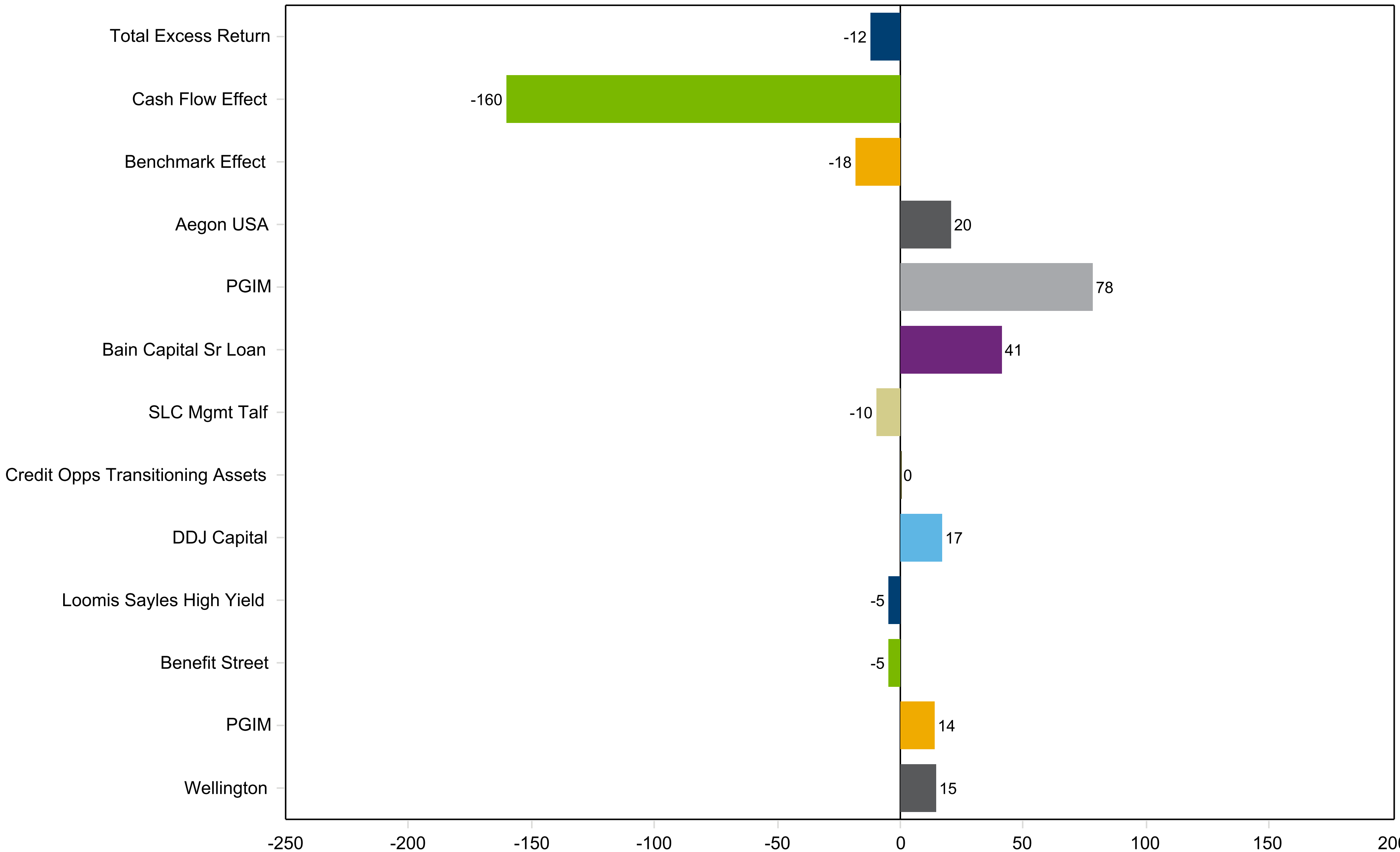
Asset Class Attribution

Year To Date



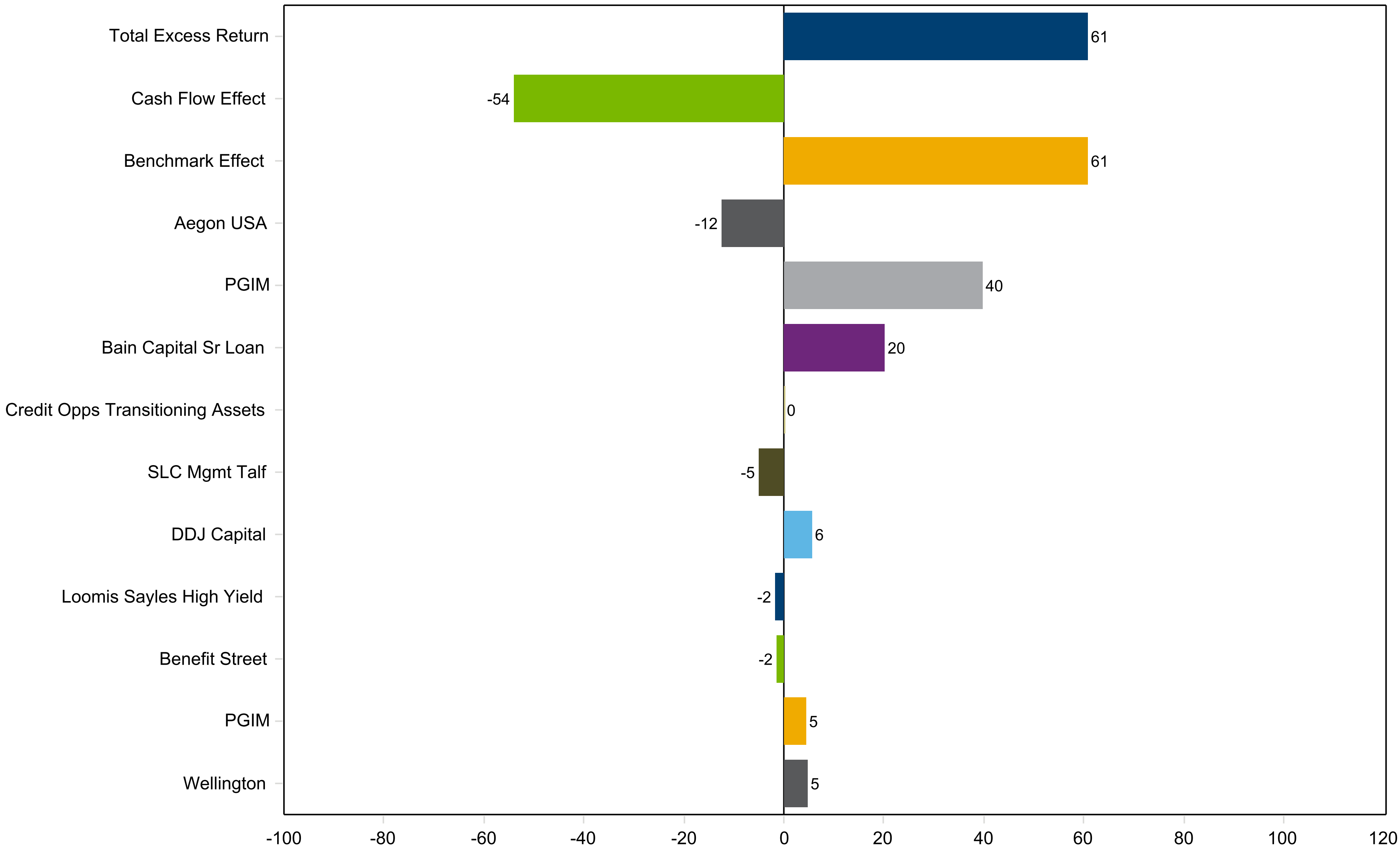
Asset Class Attribution

1 Year



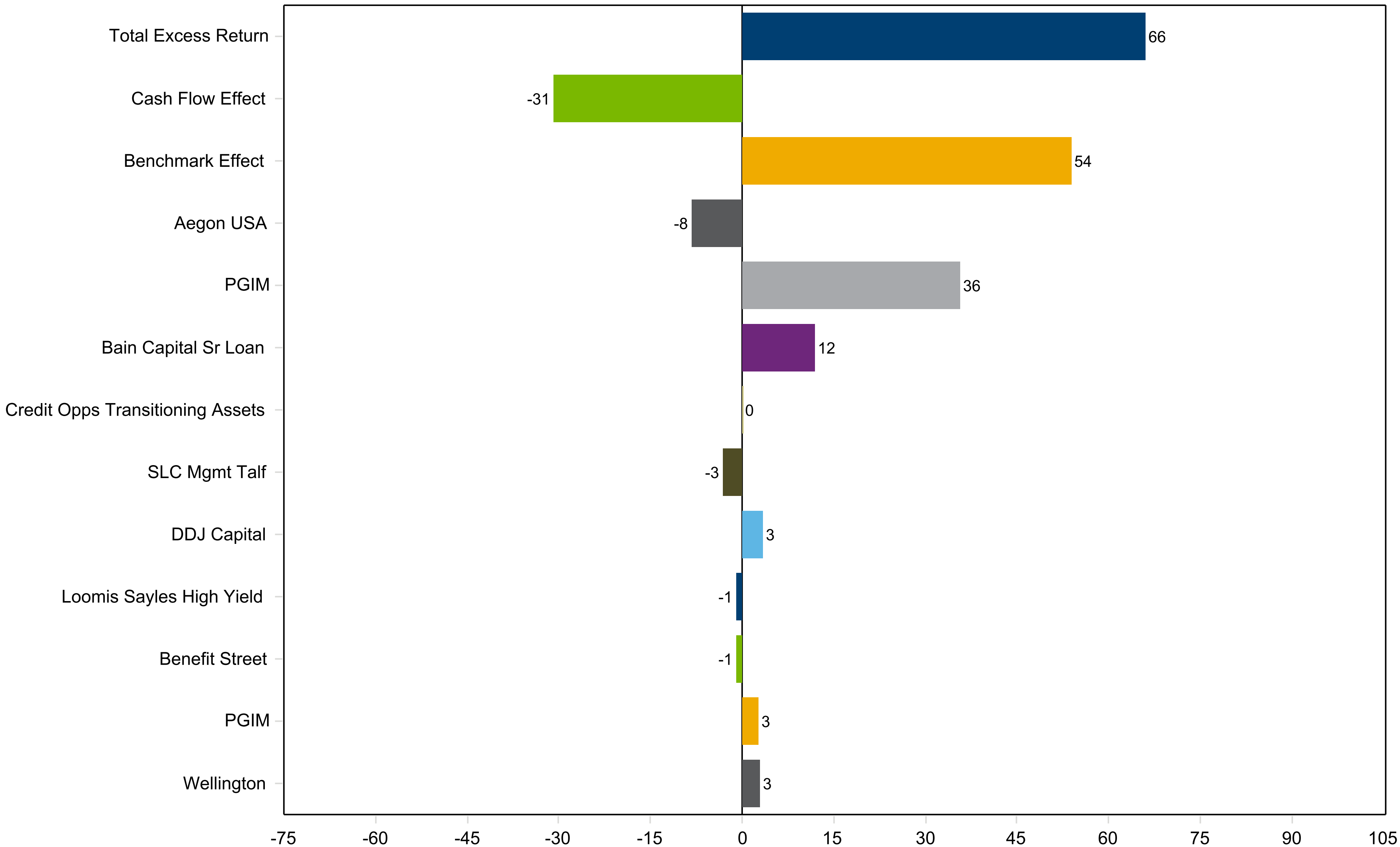
Asset Class Attribution

3 Years



Asset Class Attribution

5 Years

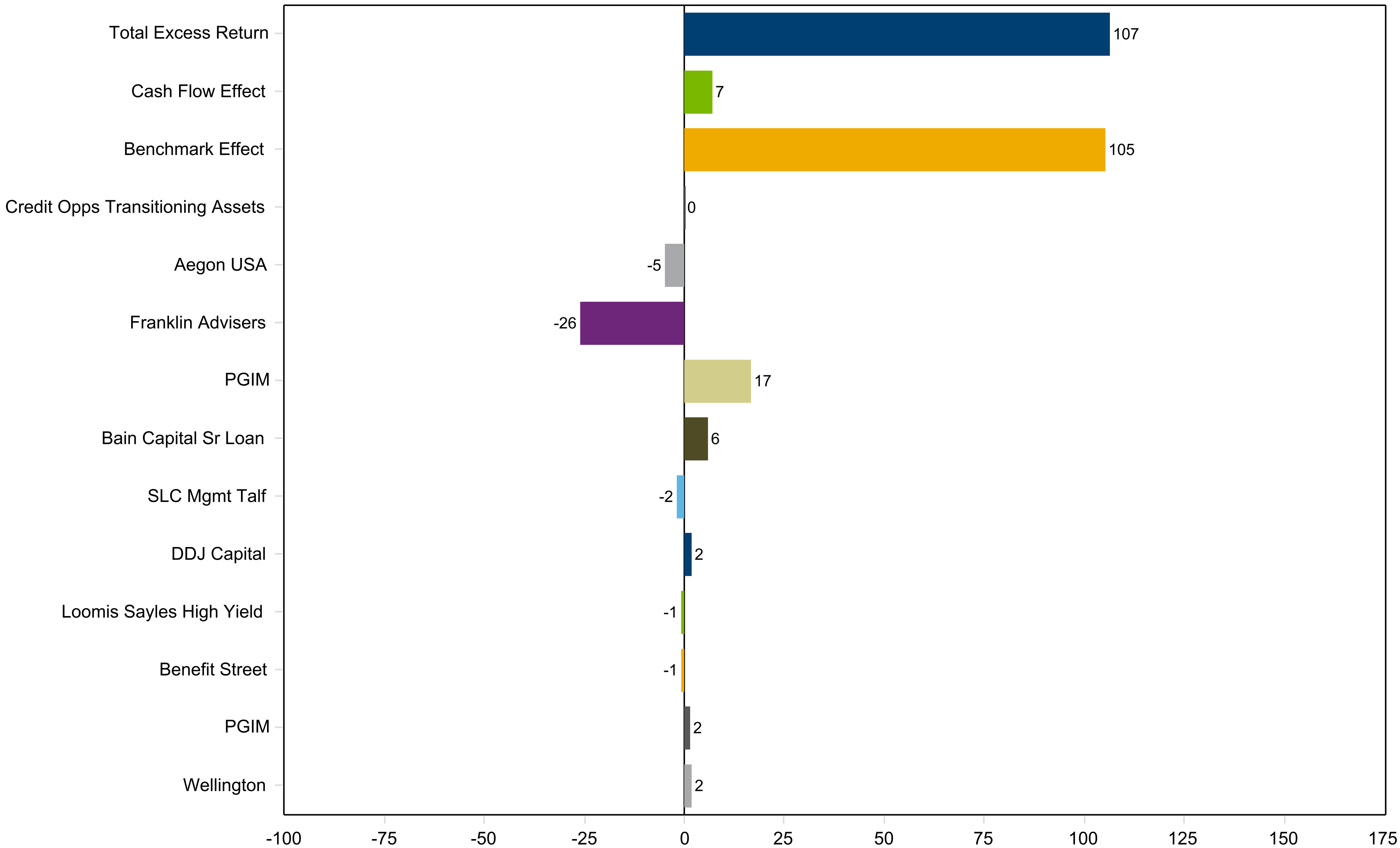


Empower Results®

Credit Opportunities **Since Inception Ending September 30, 2021**

Asset Class Attribution

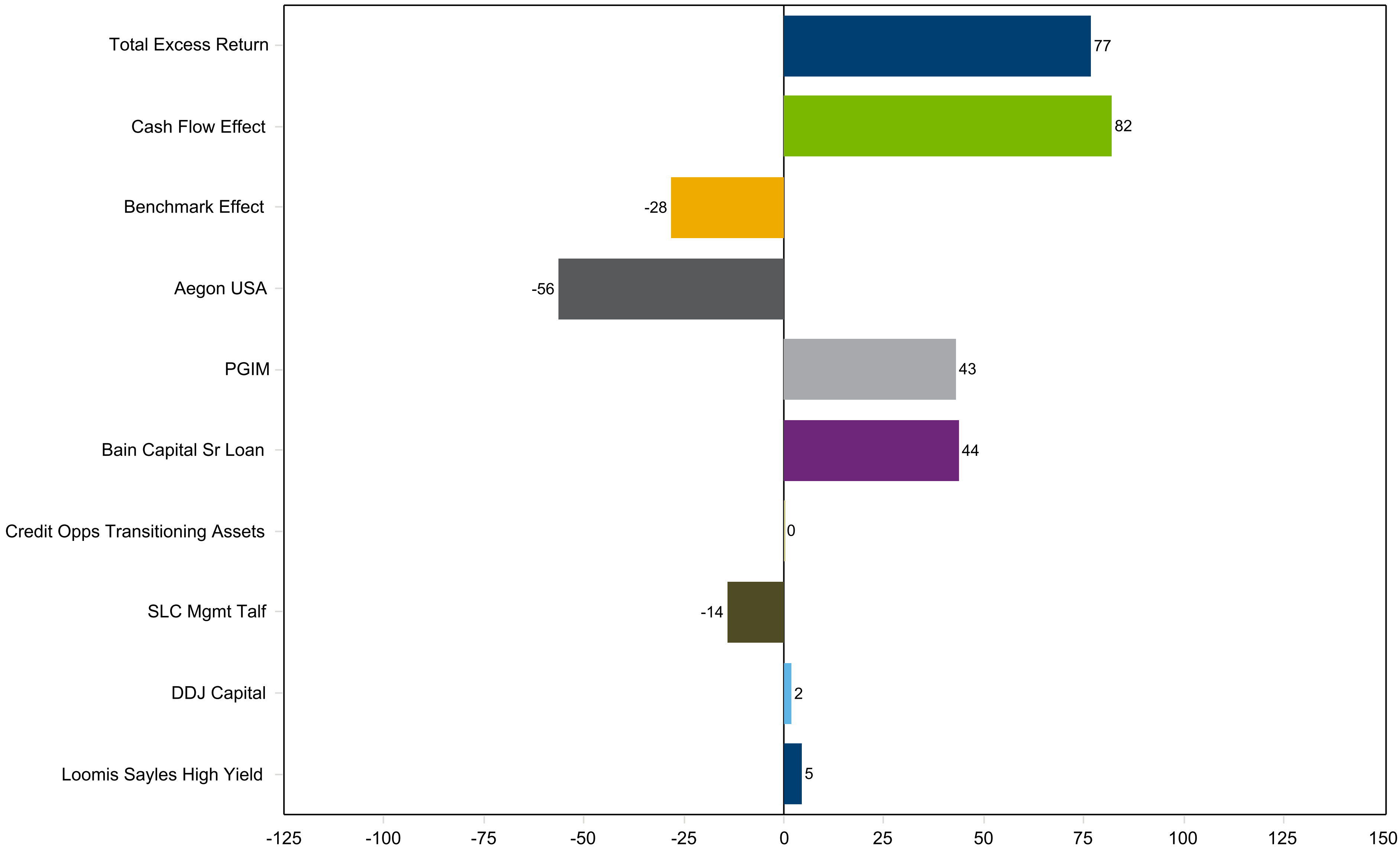
Since Inception



Empower Results®

Asset Class Attribution

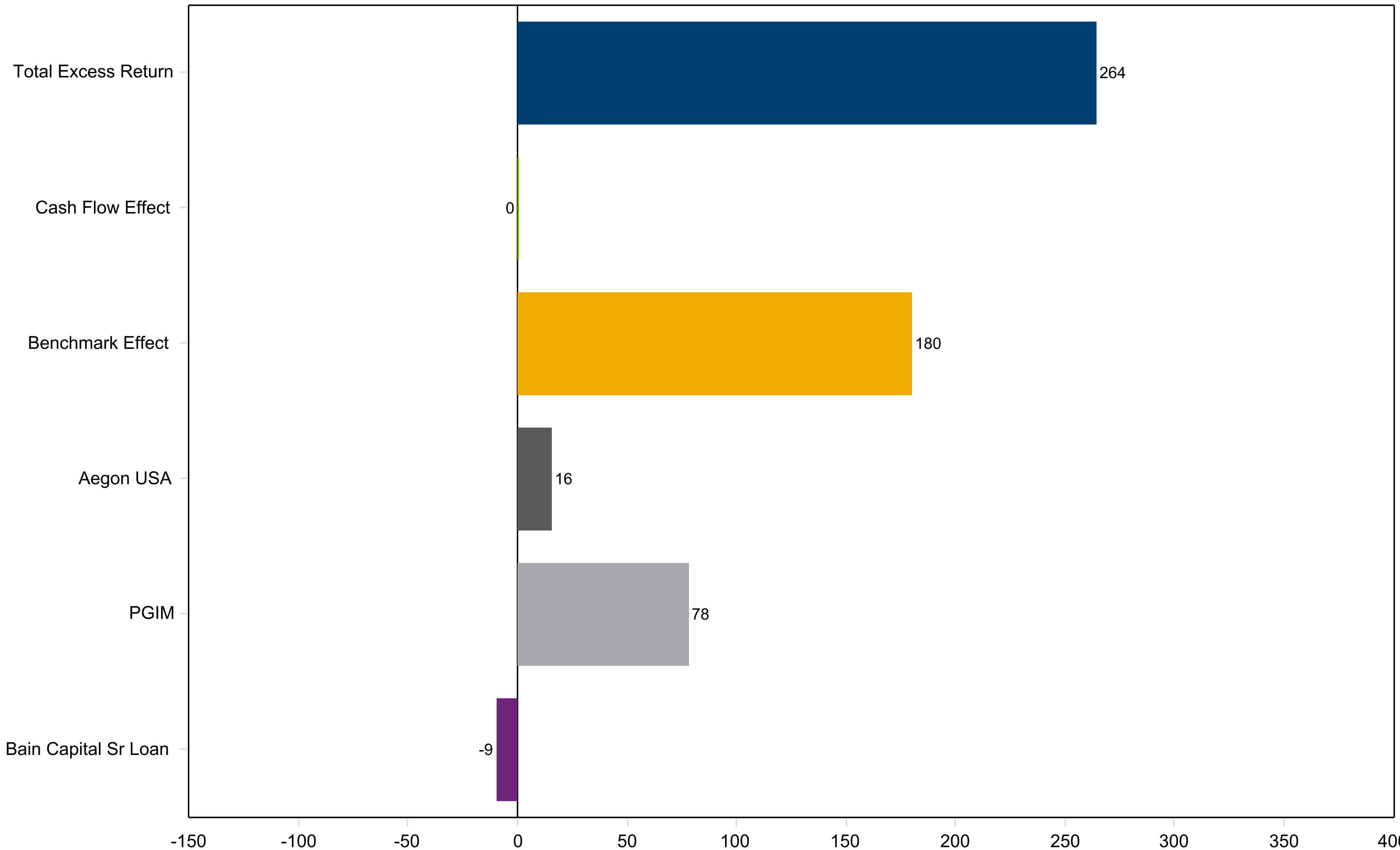
1 Calendar Year Before



Empower Results®

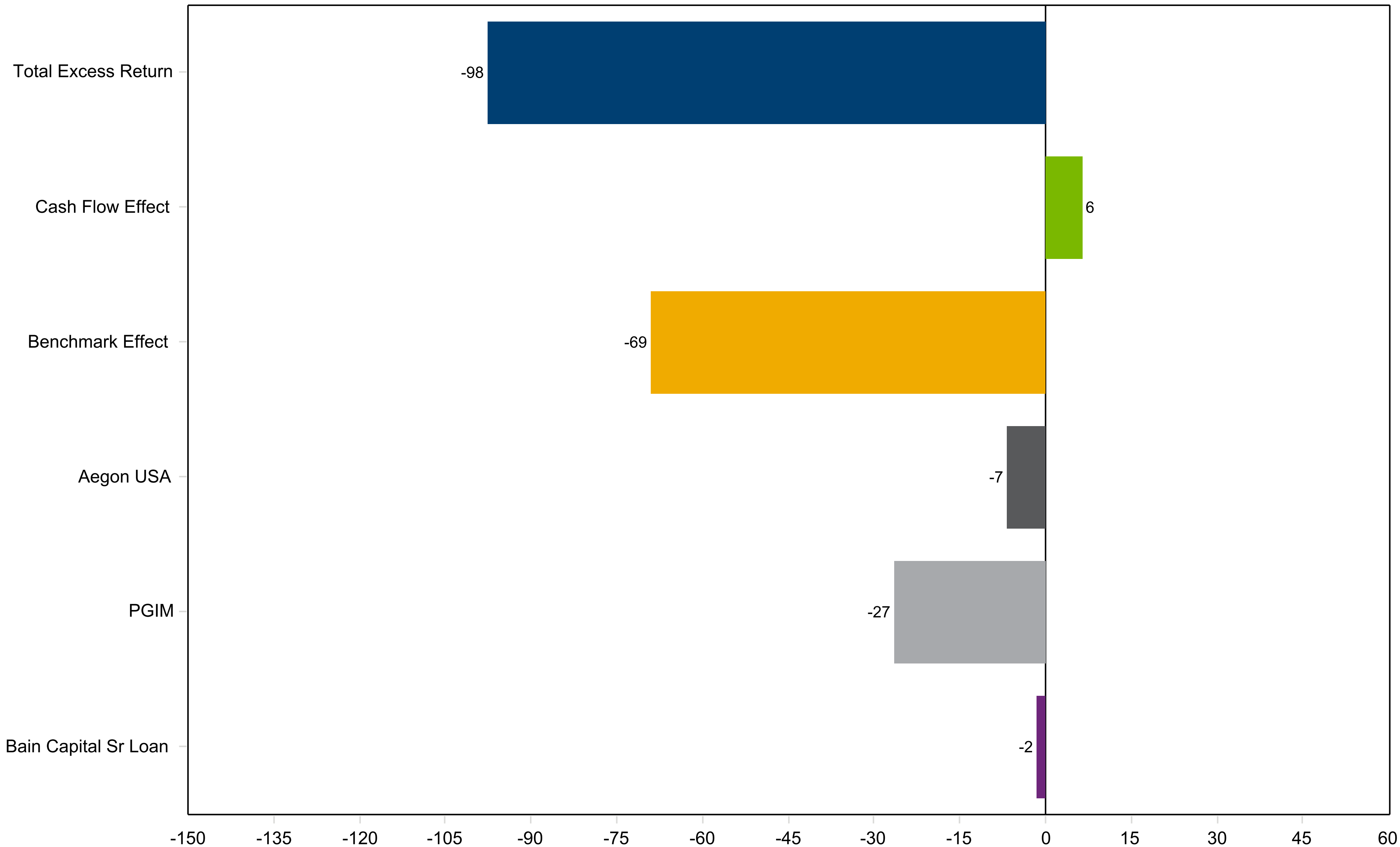
Asset Class Attribution

2 Calendar Year Before



Asset Class Attribution

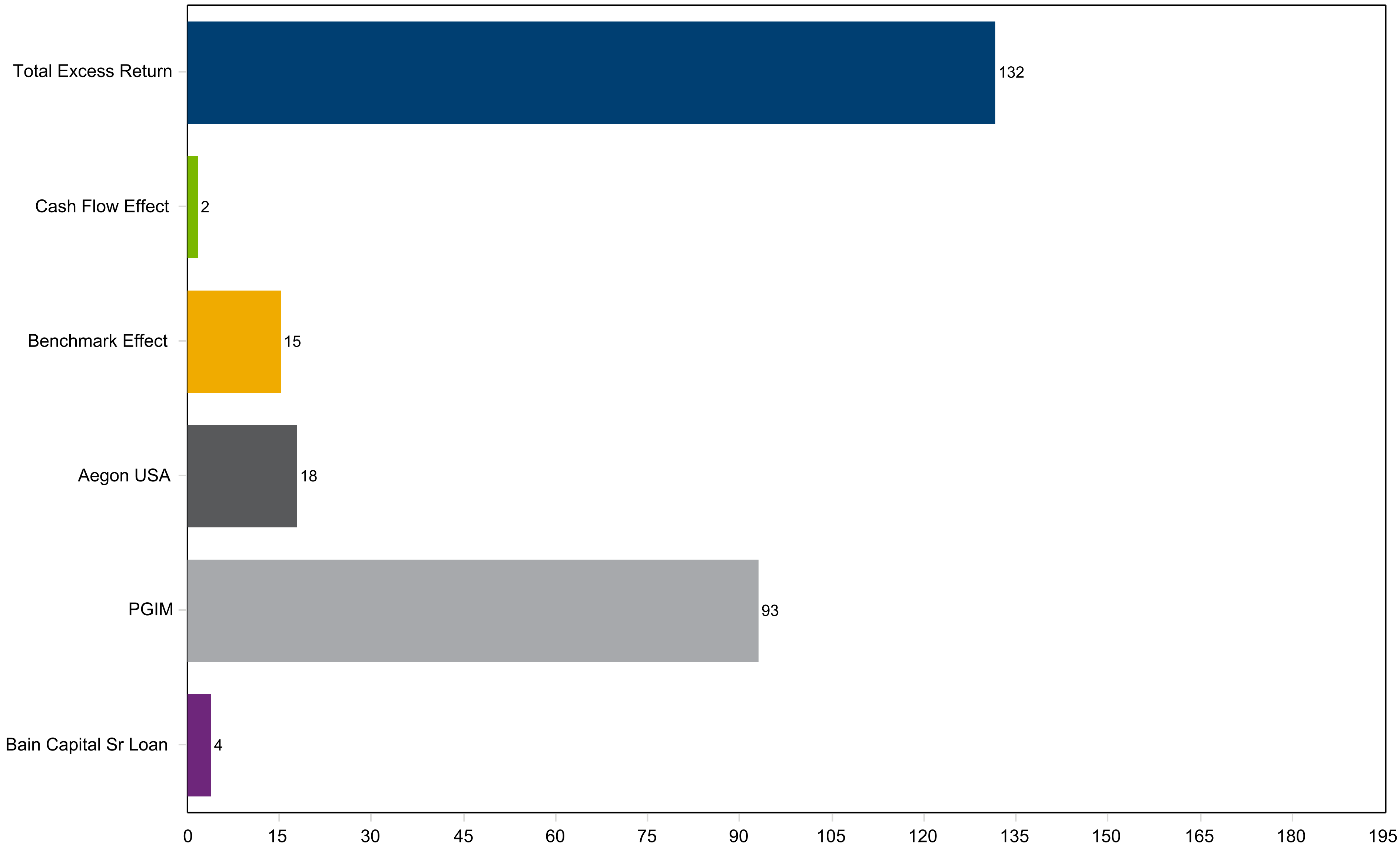
3 Calendar Year Before



Empower Results®

Asset Class Attribution

4 Calendar Year Before

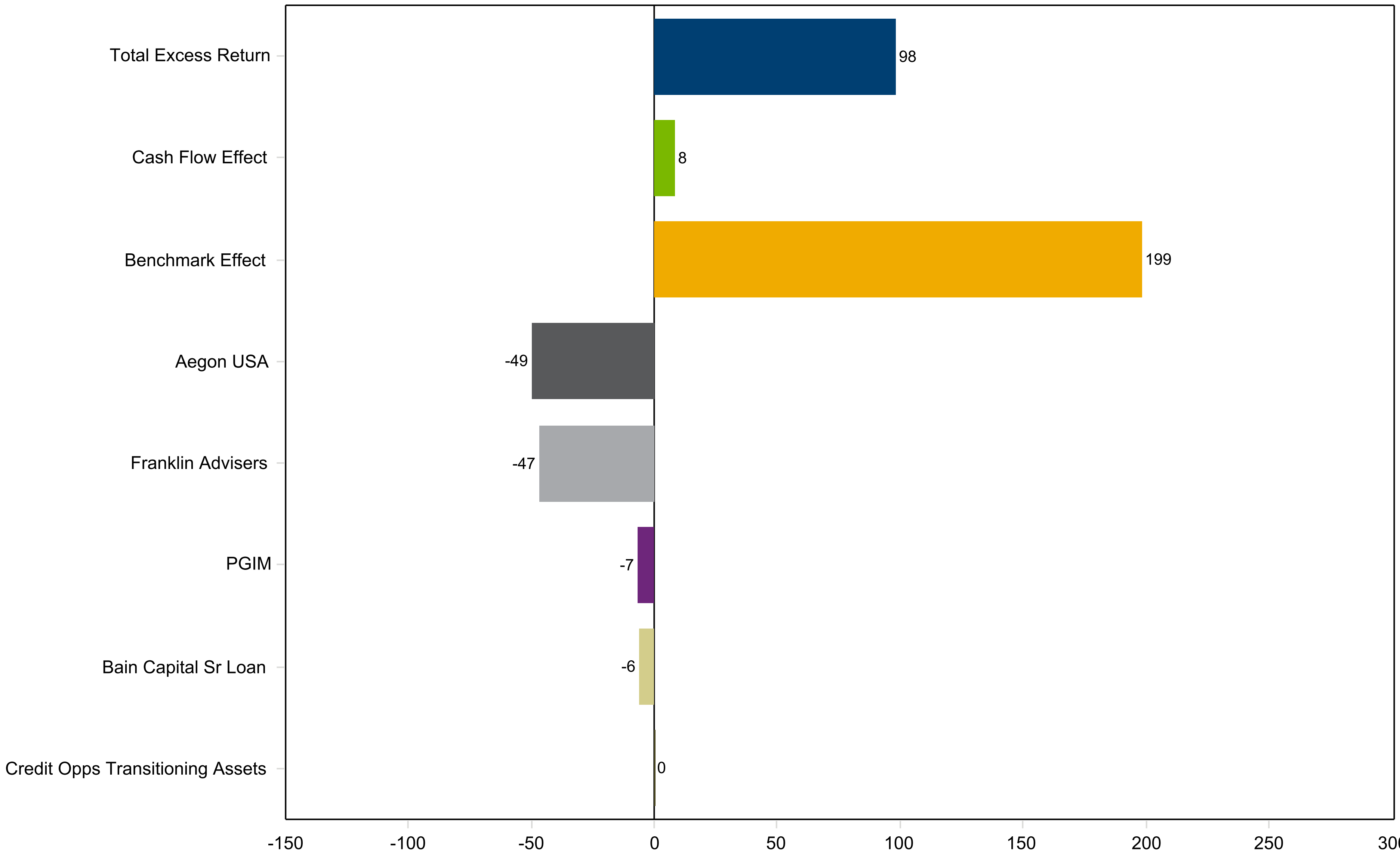


Credit Opportunities

January 1, 2016 To December 31, 2016

Asset Class Attribution

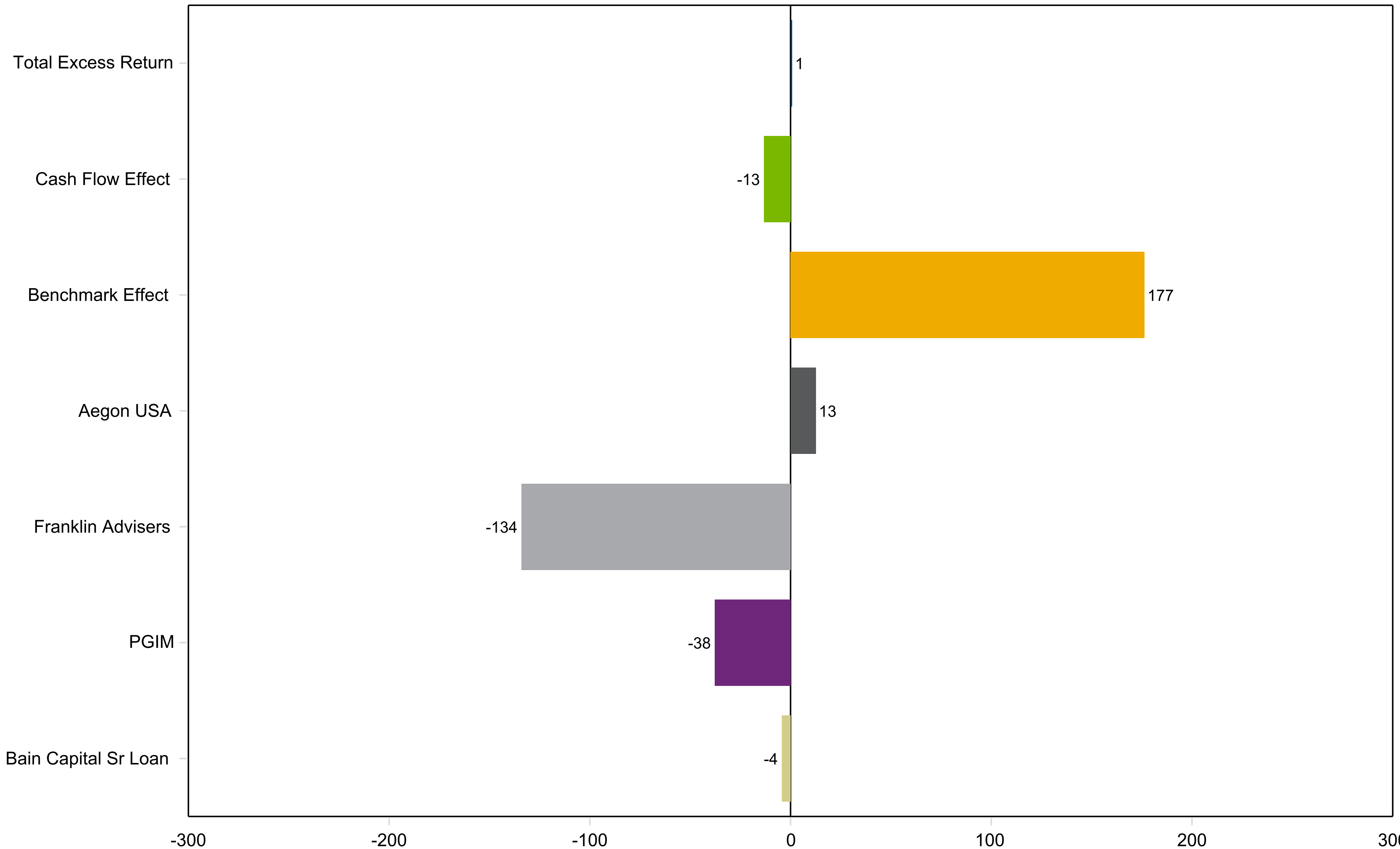
5 Calendar Year Before



Empower Results®

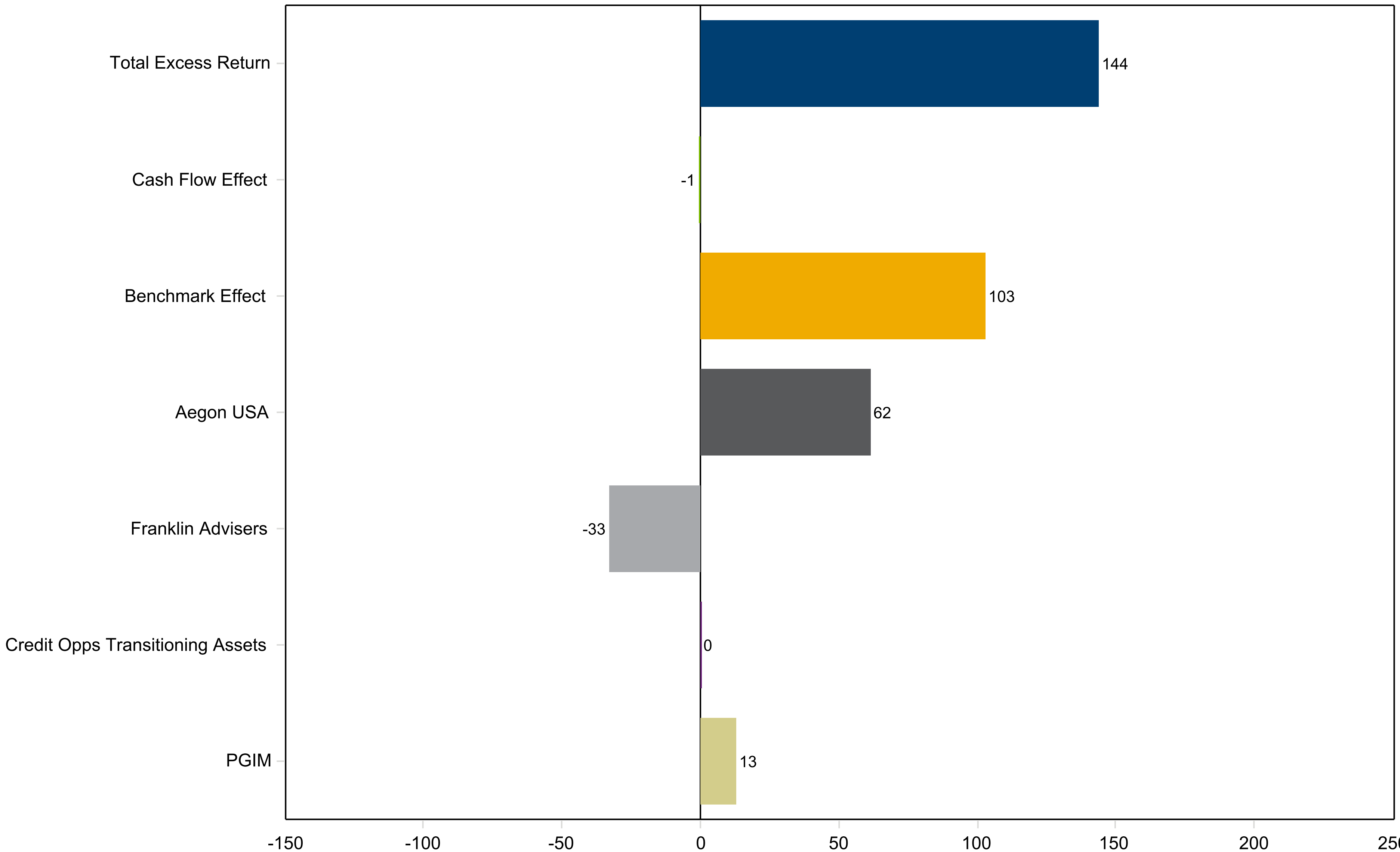
Asset Class Attribution

6 Calendar Year Before



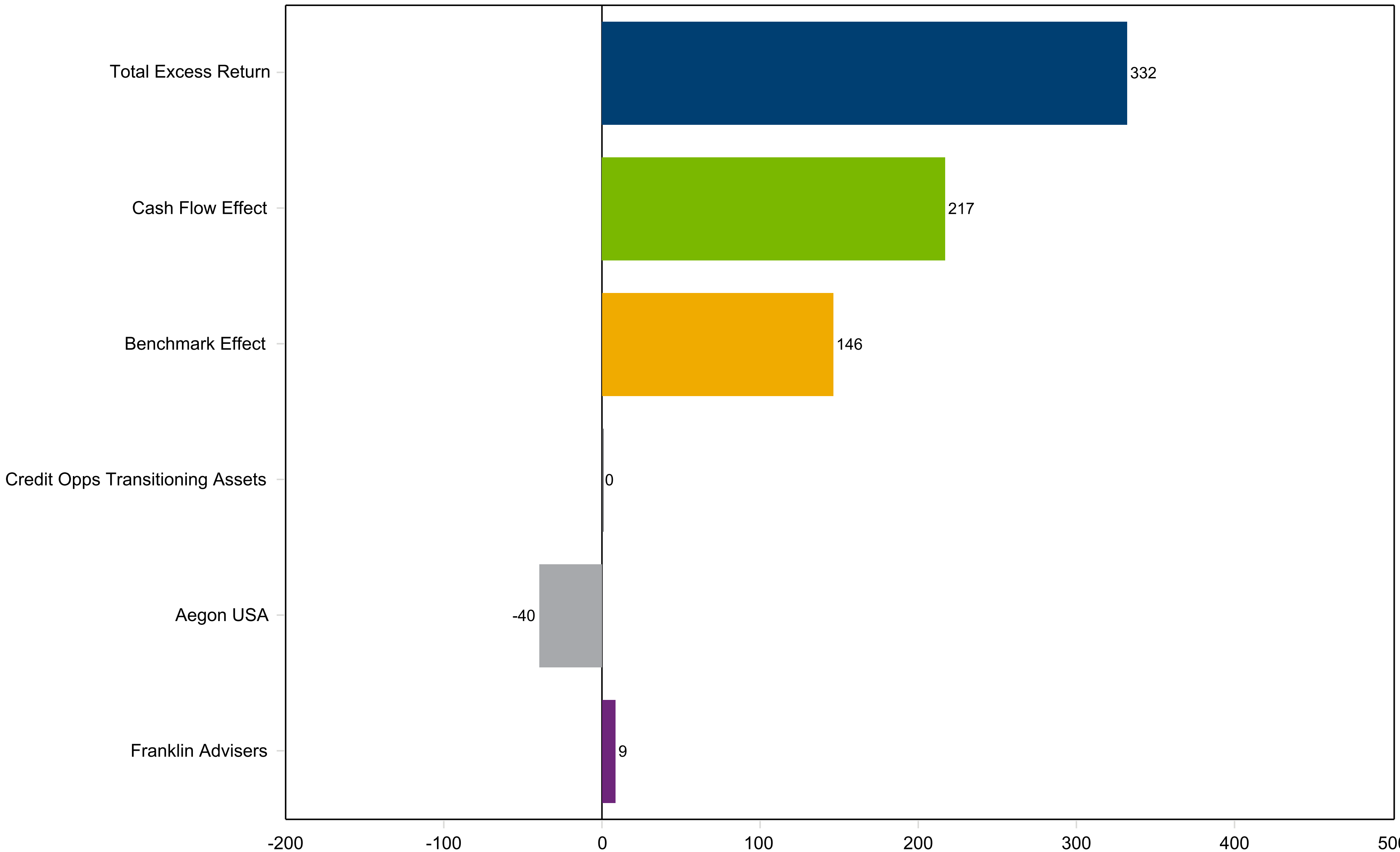
Asset Class Attribution

7 Calendar Year Before



Asset Class Attribution

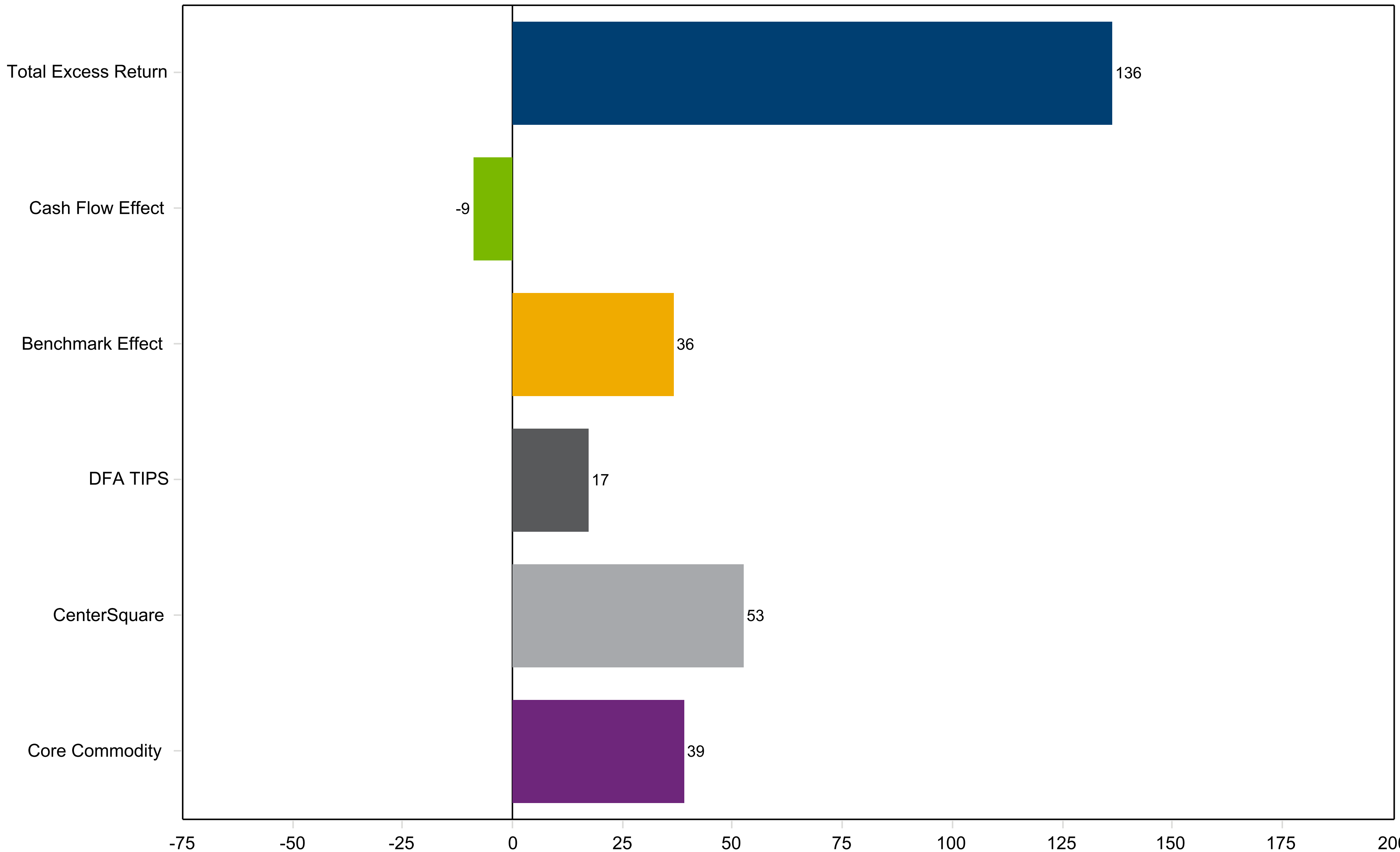
July 1, 2013 To December 31, 2013



Public Real Assets **Year To Date Ending September 30, 2021**

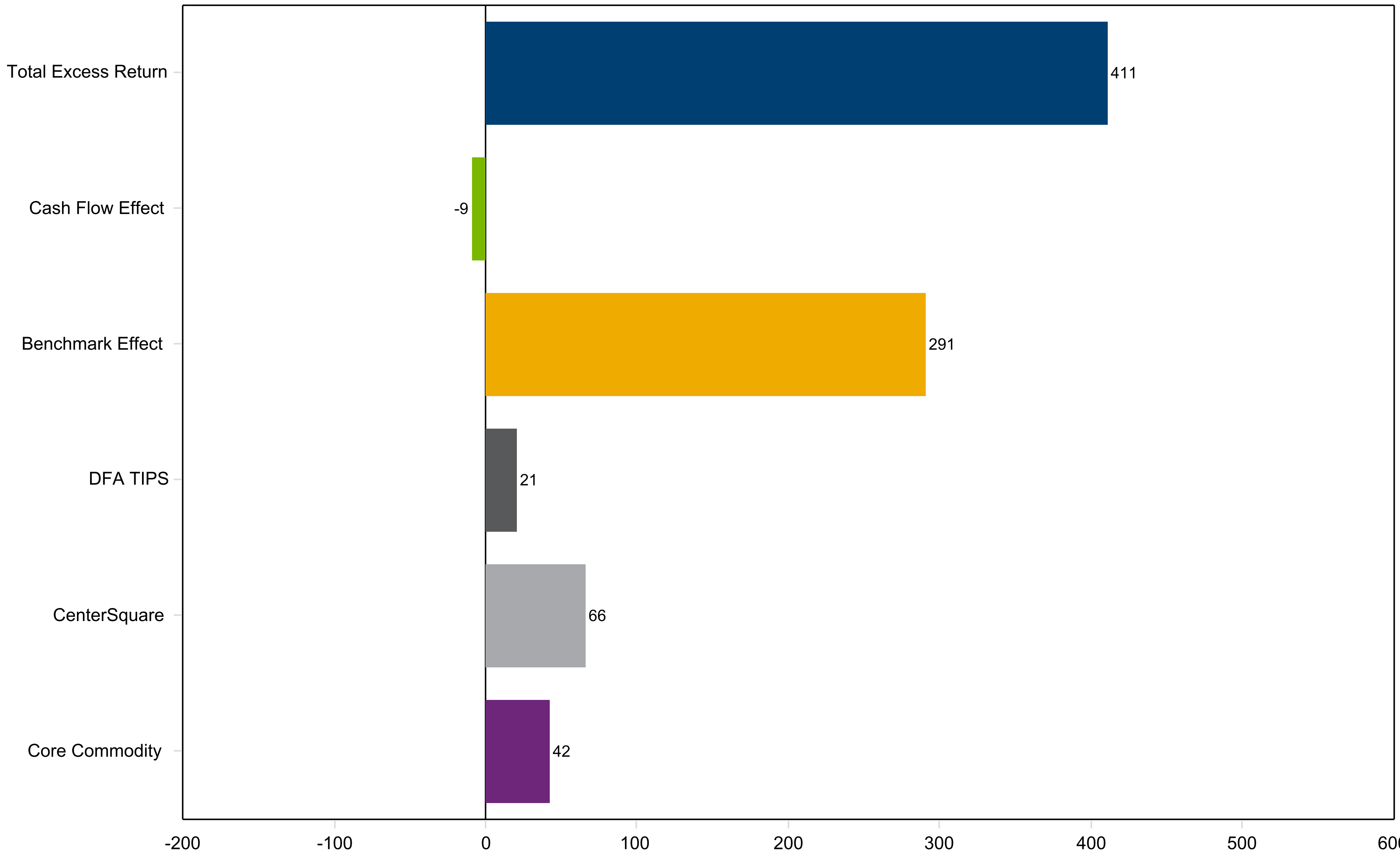
Asset Class Attribution

Year To Date



Asset Class Attribution

1 Year

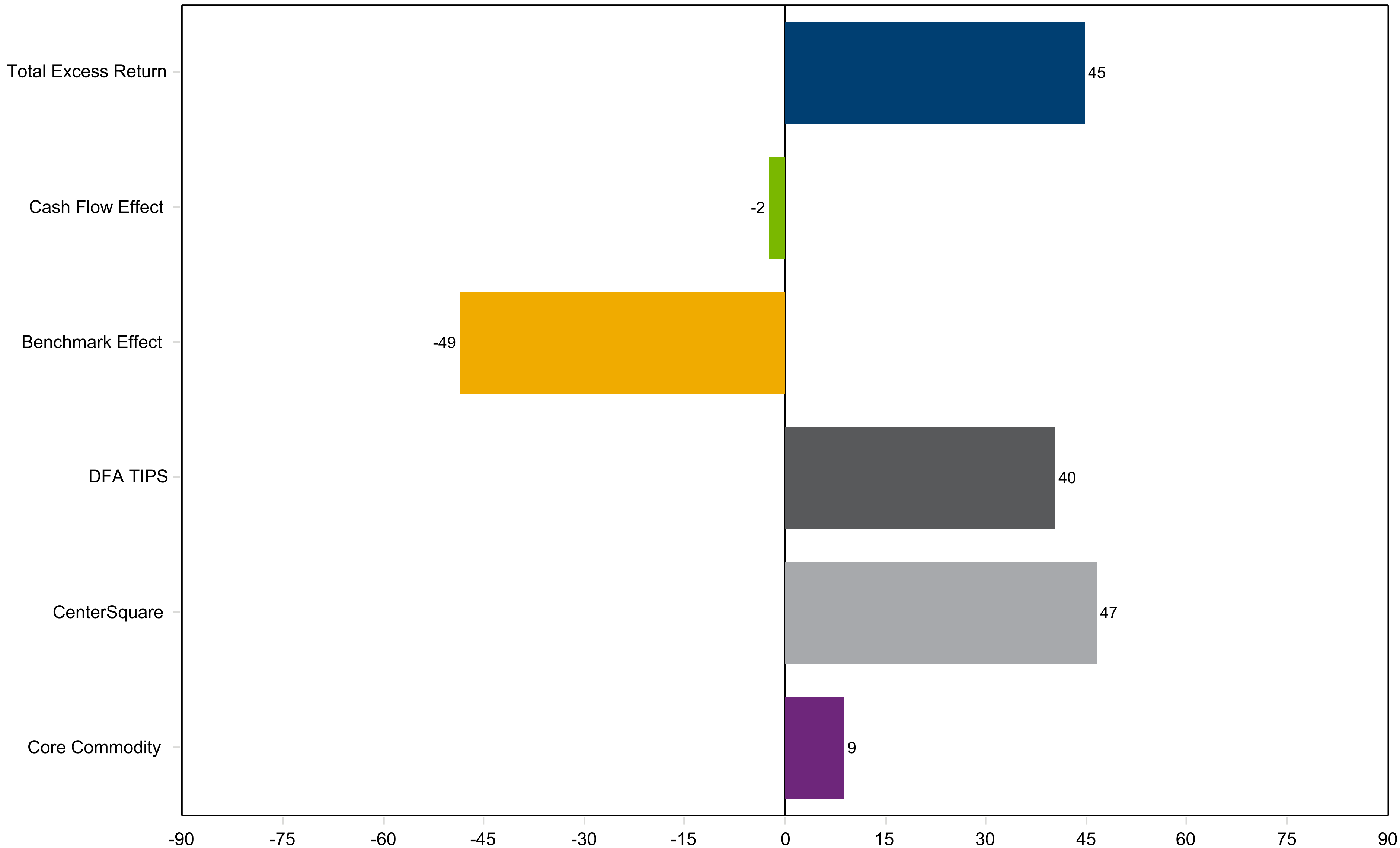


Empower Results®

Public Real Assets 3 Years Ending September 30, 2021

Asset Class Attribution

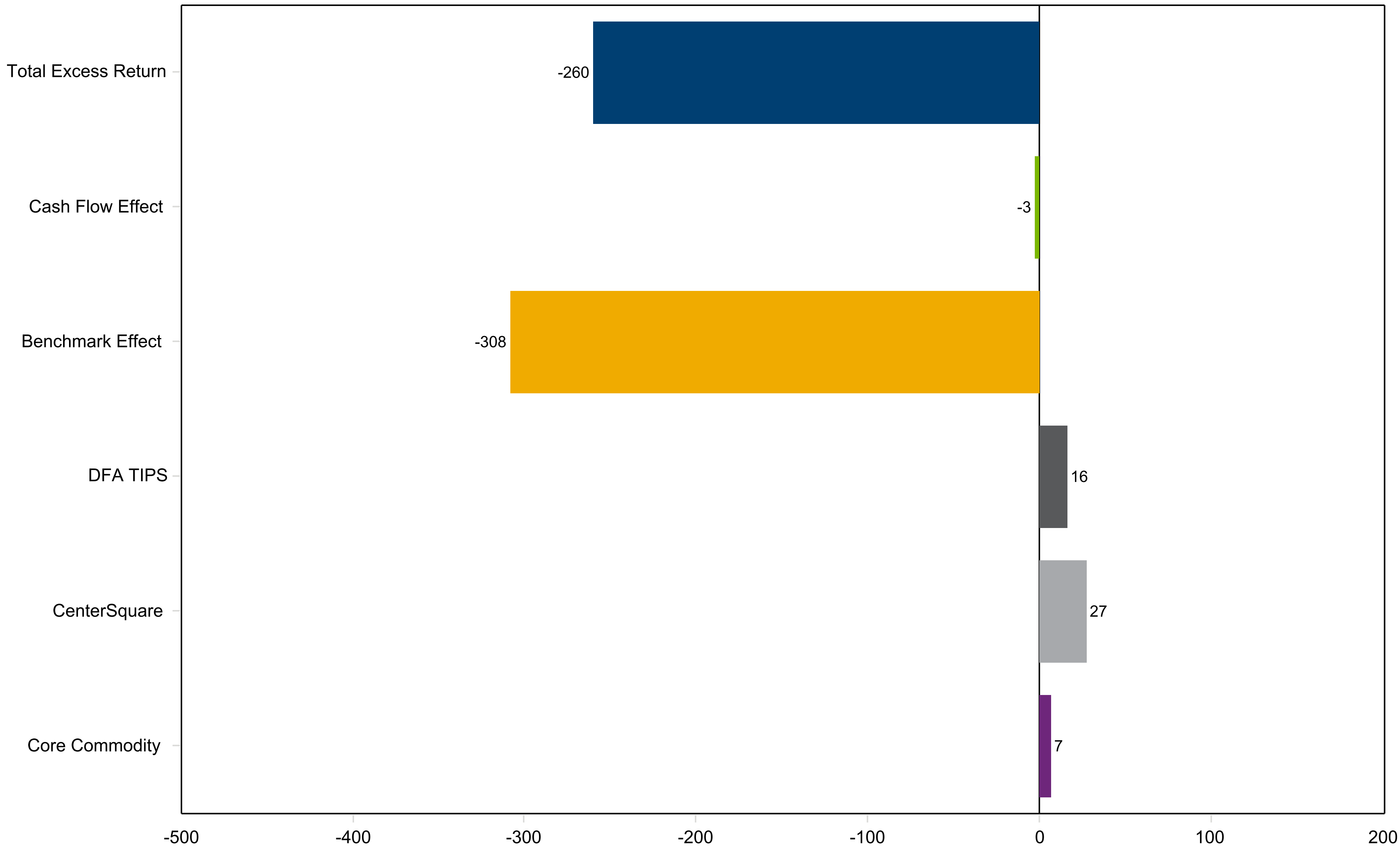
3 Years



Empower Results®

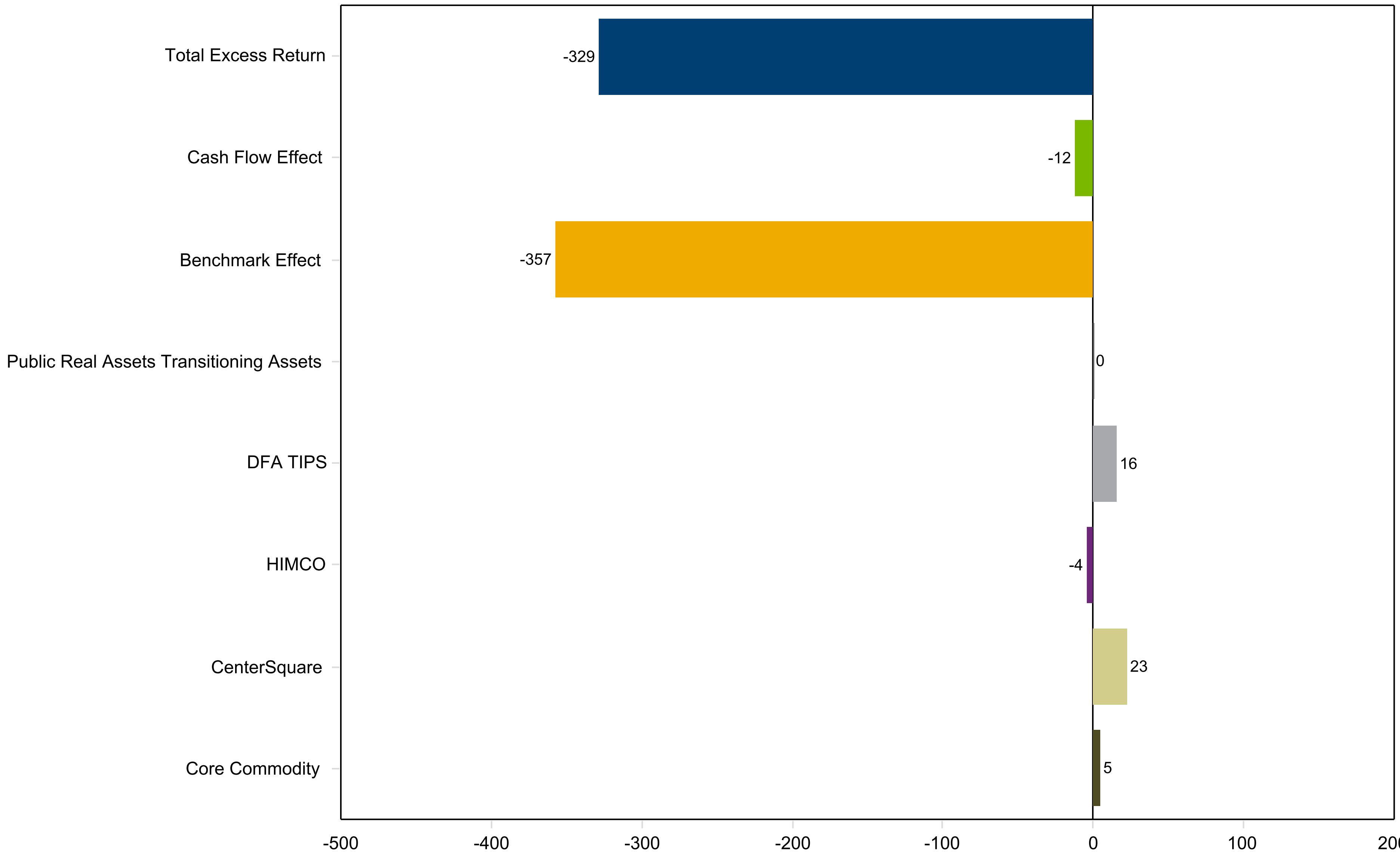
Asset Class Attribution

5 Years



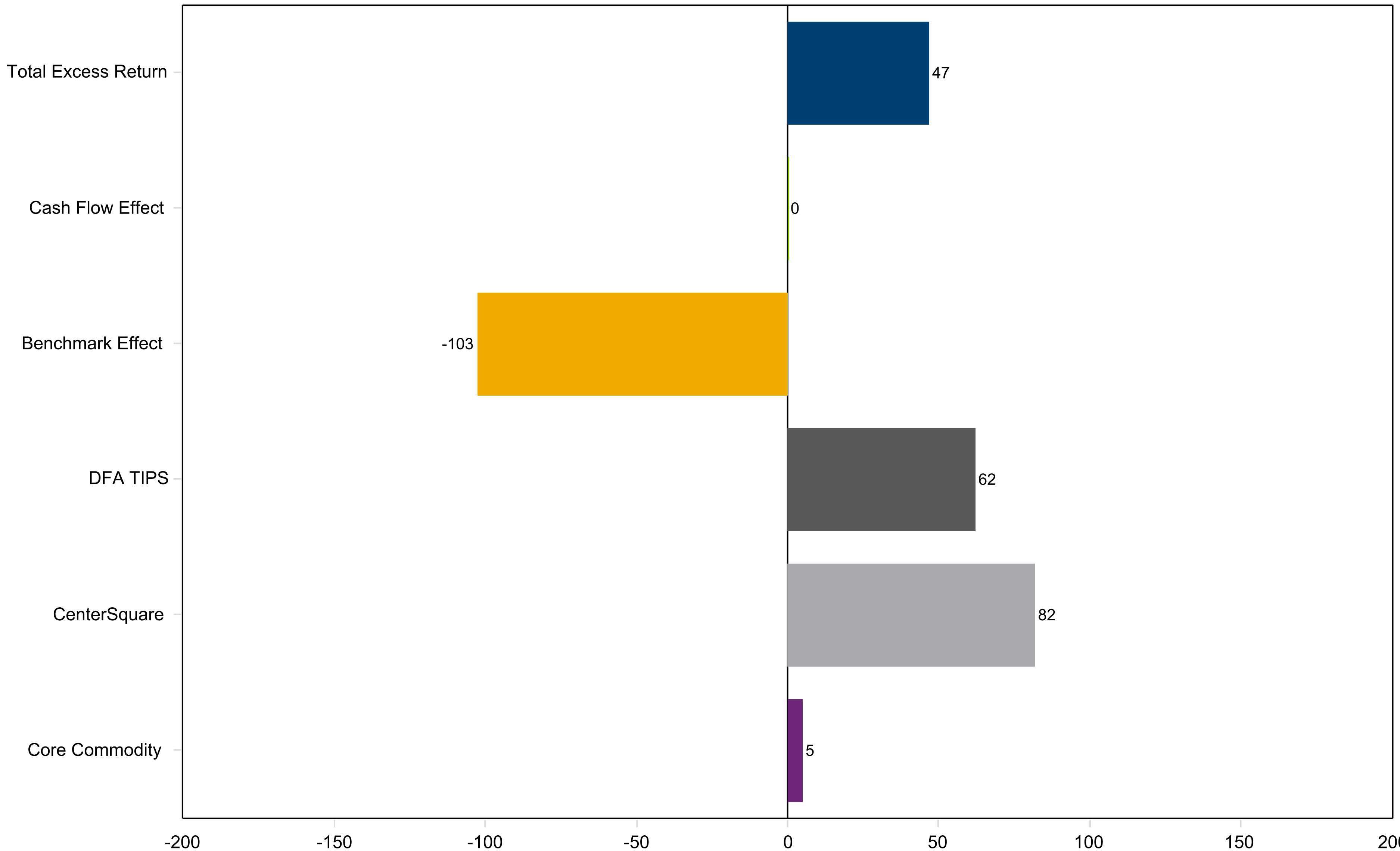
Asset Class Attribution

August 1, 2014 To September 30, 2021



Asset Class Attribution

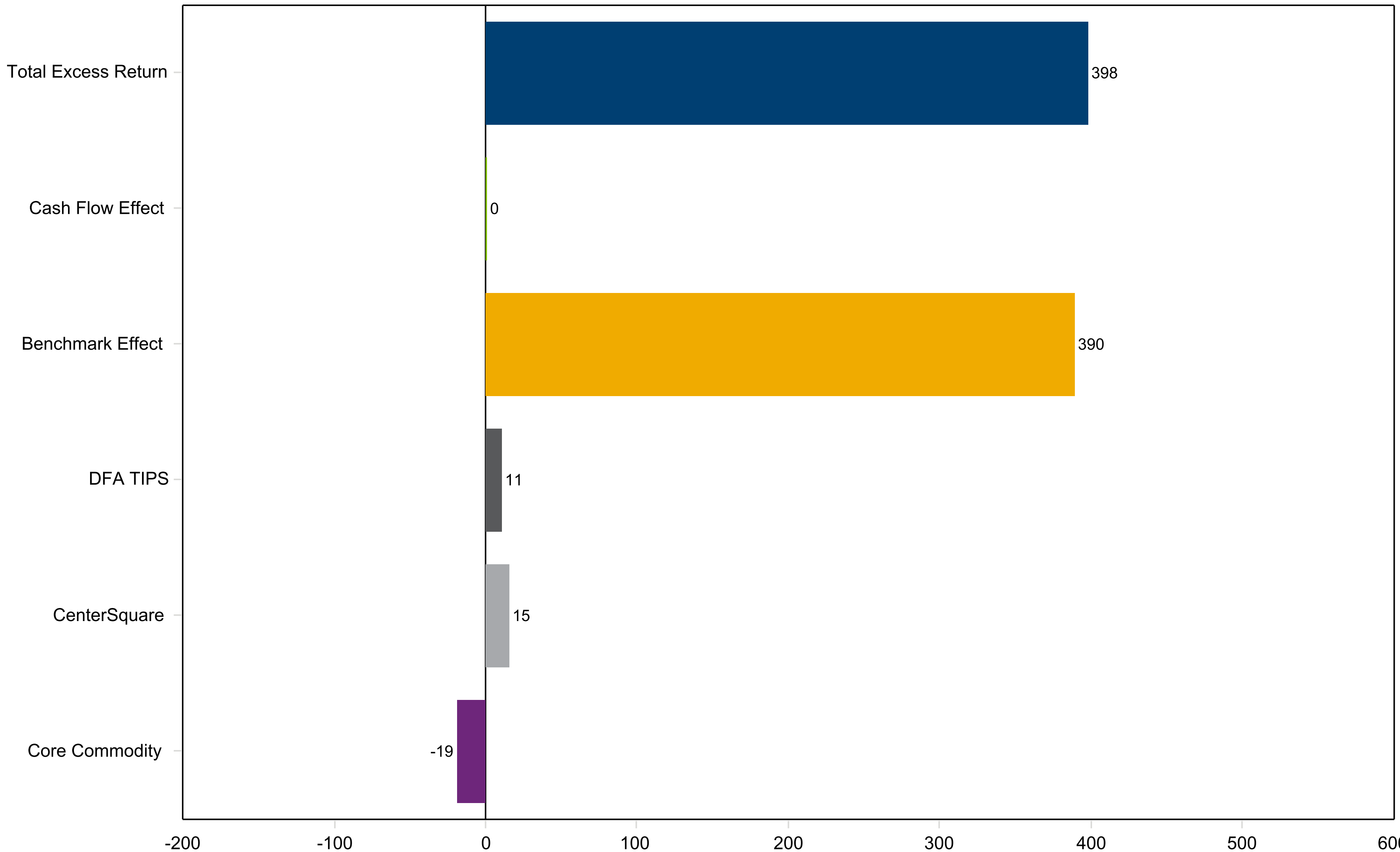
1 Calendar Year Before



Empower Results®

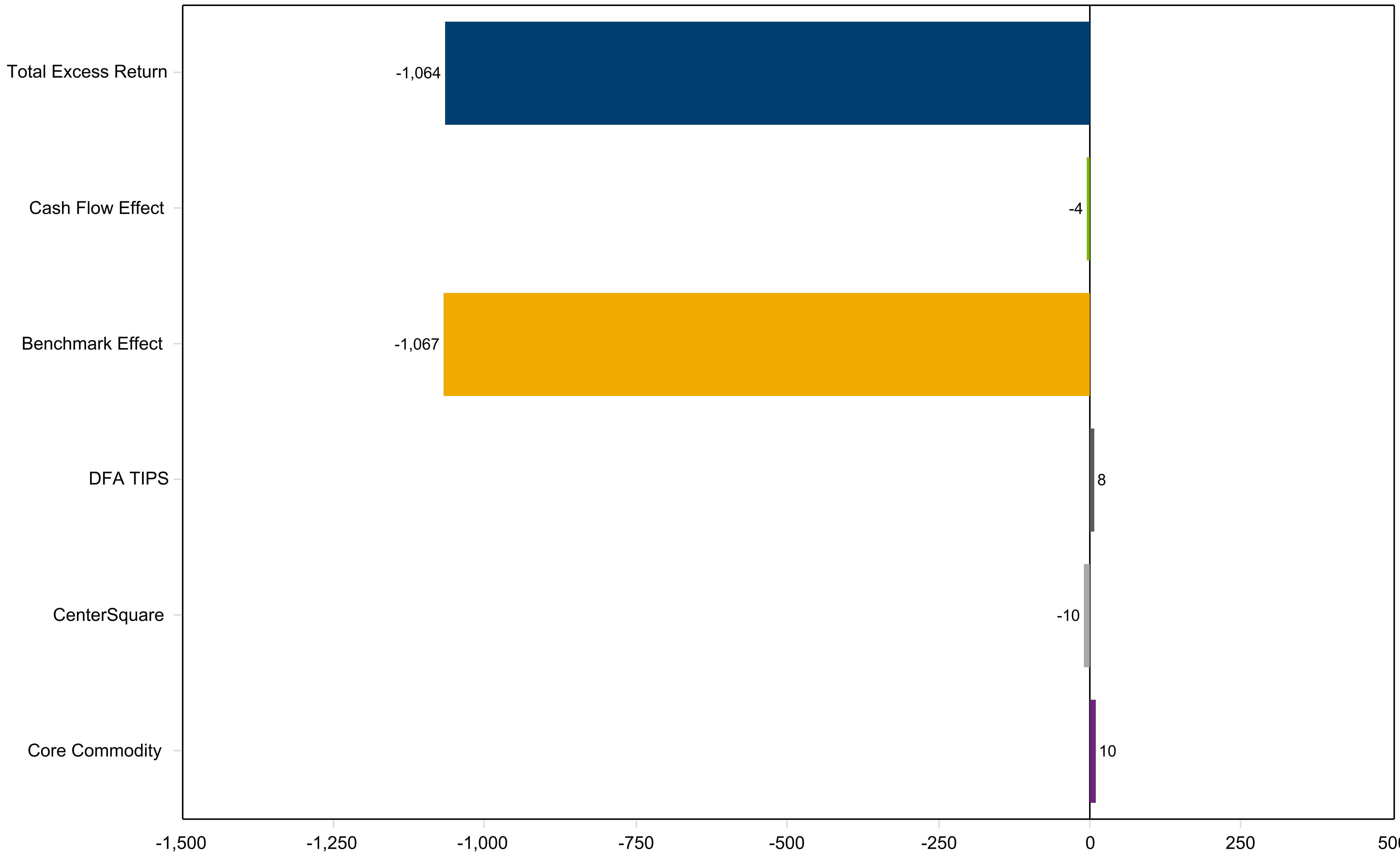
Asset Class Attribution

2 Calendar Year Before



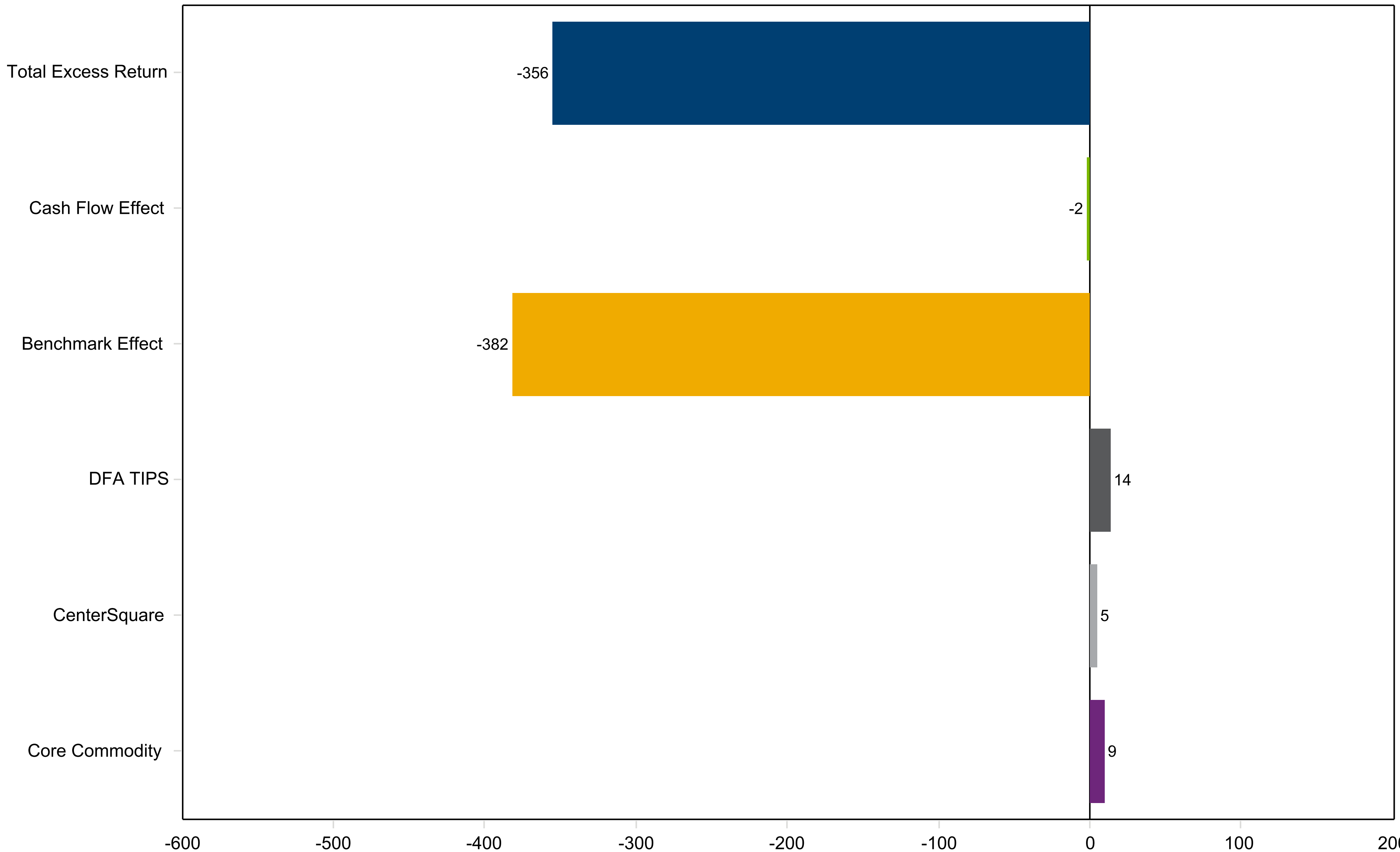
Asset Class Attribution

3 Calendar Year Before



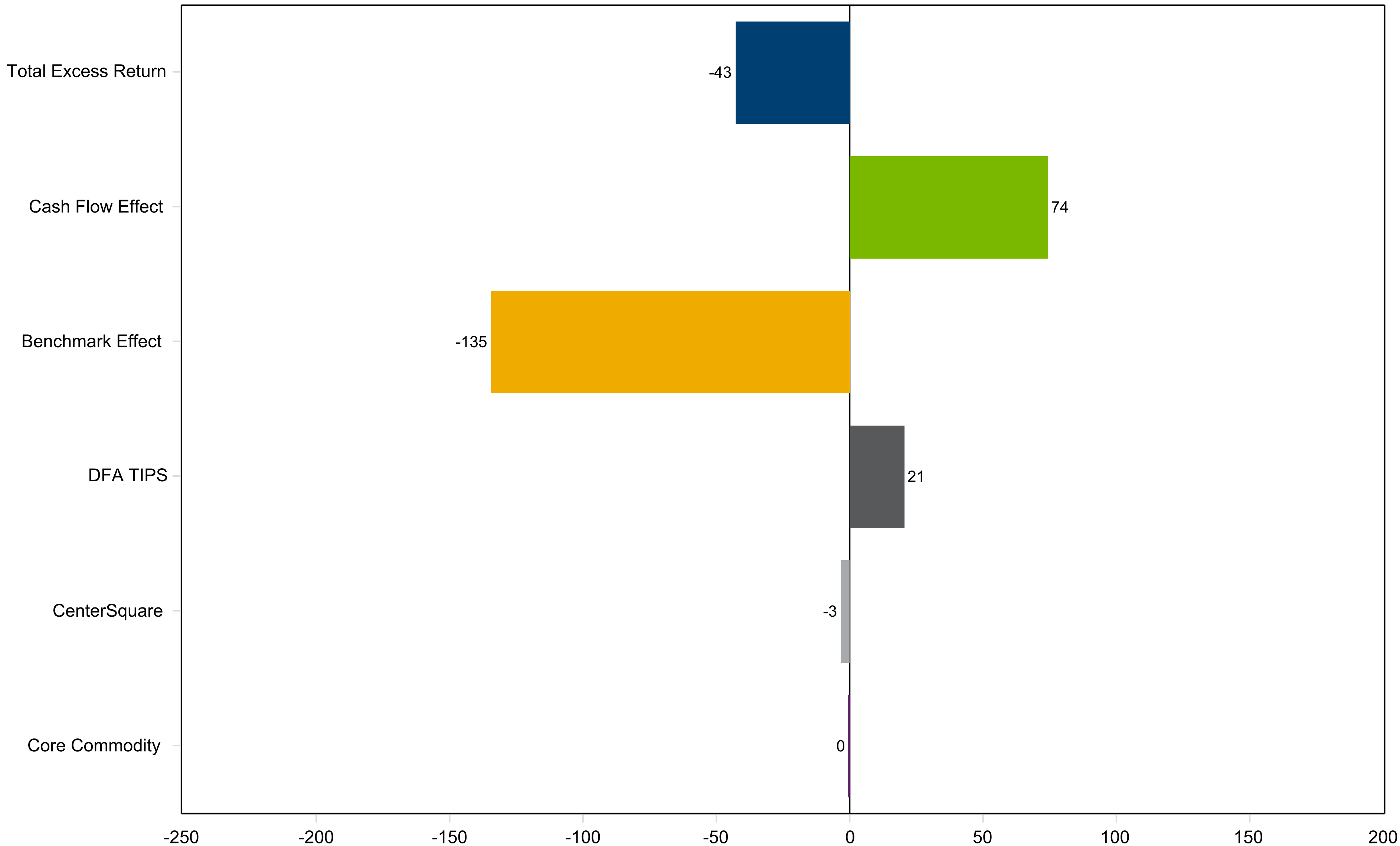
Asset Class Attribution

4 Calendar Year Before



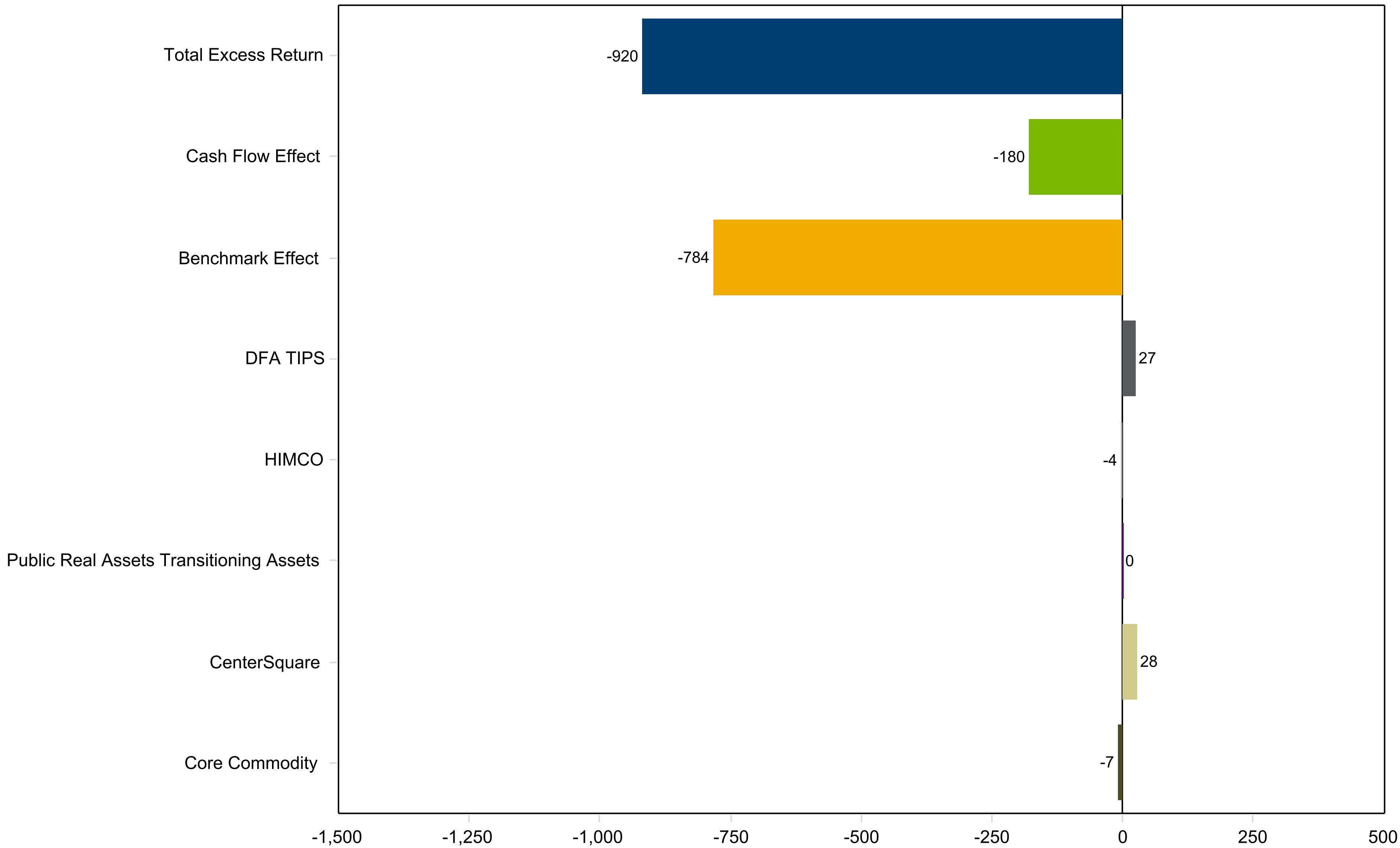
Asset Class Attribution

5 Calendar Year Before



Asset Class Attribution

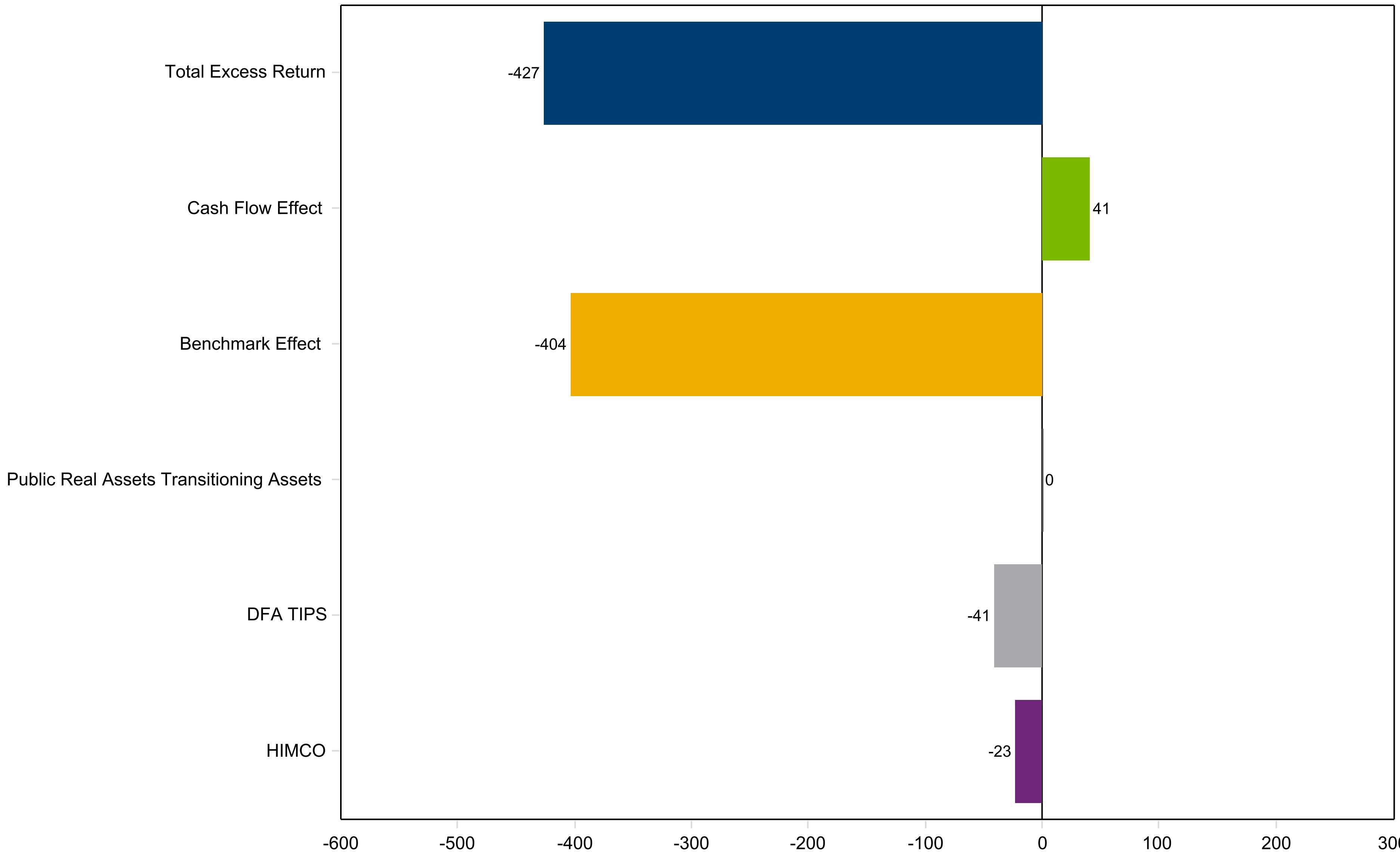
6 Calendar Year Before



Empower Results®

Asset Class Attribution

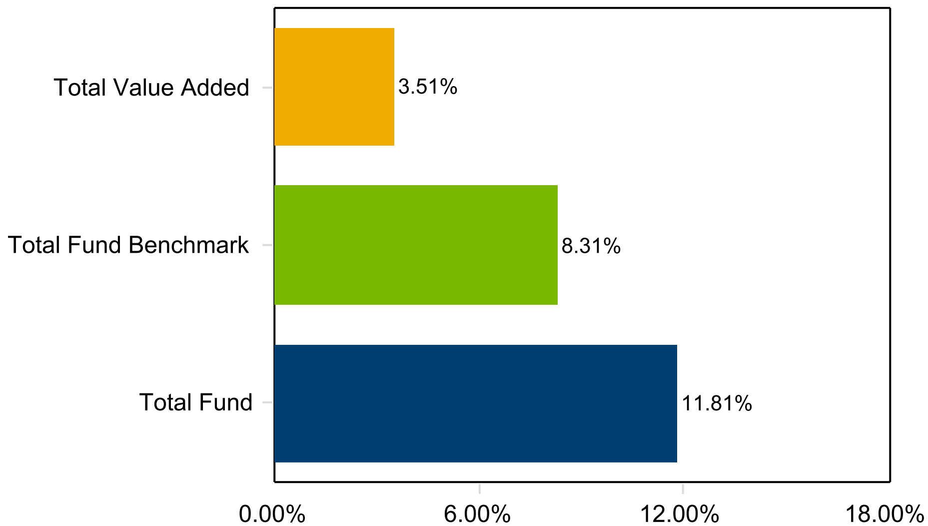
August 1, 2014 To December 31, 2014



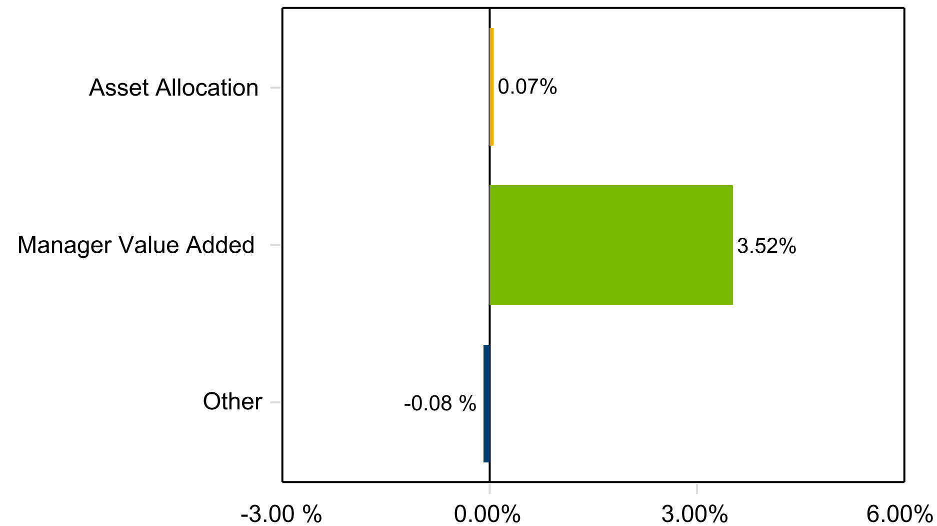
Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

Total Fund Performance

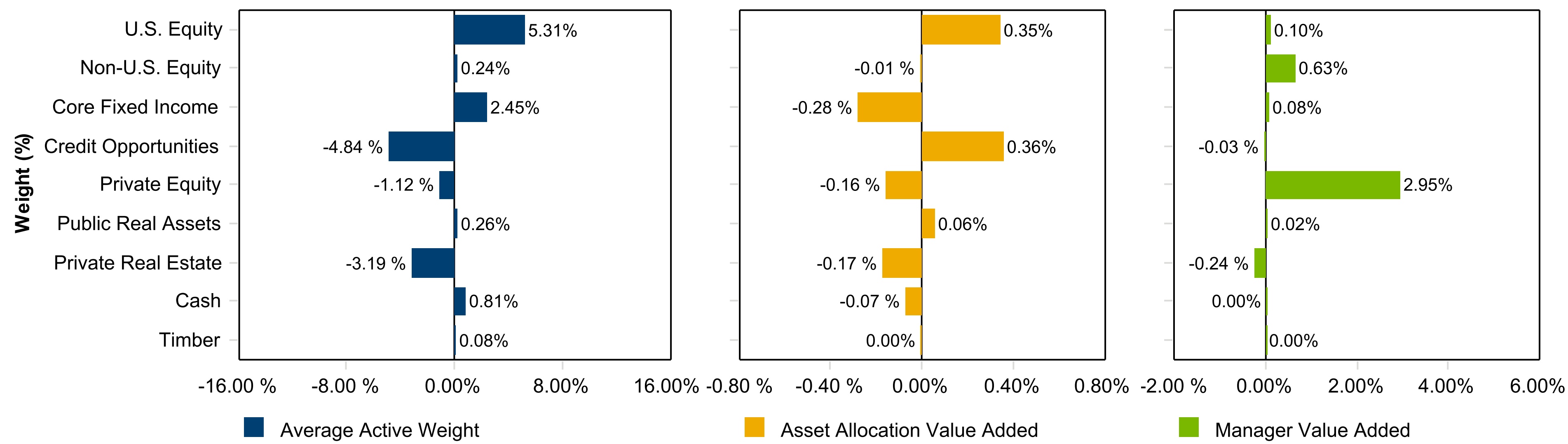


Total Value Added:3.51%



Total Asset Allocation:0.07%

Total Manager Value Added:3.52%

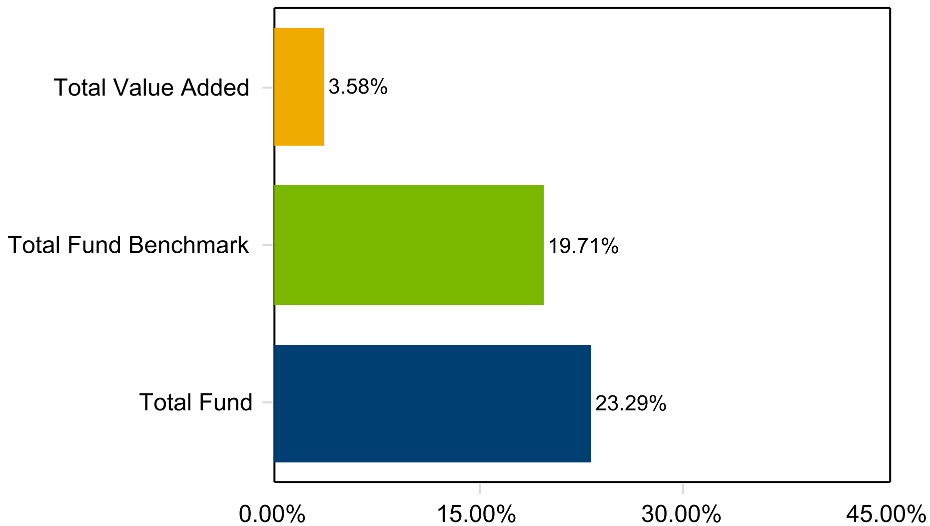


Total Fund Composite **1 Year Ending September 30, 2021**

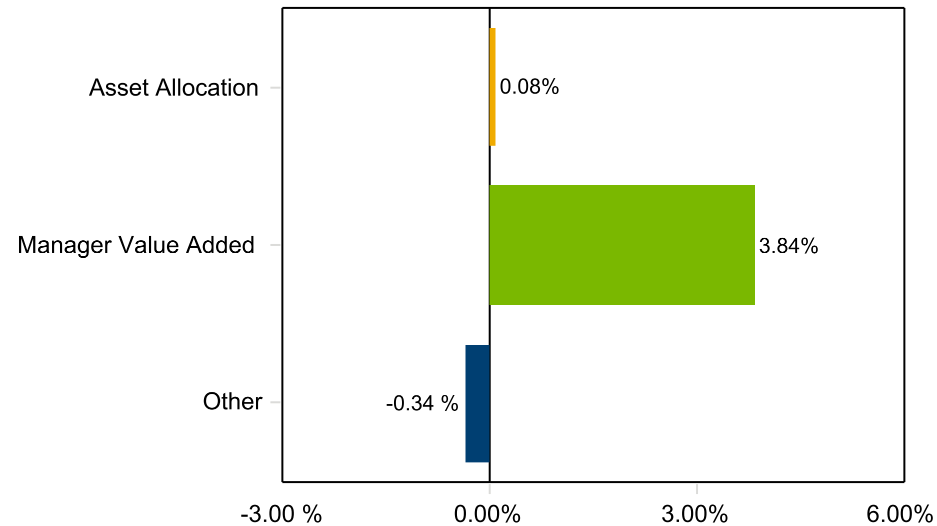
Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

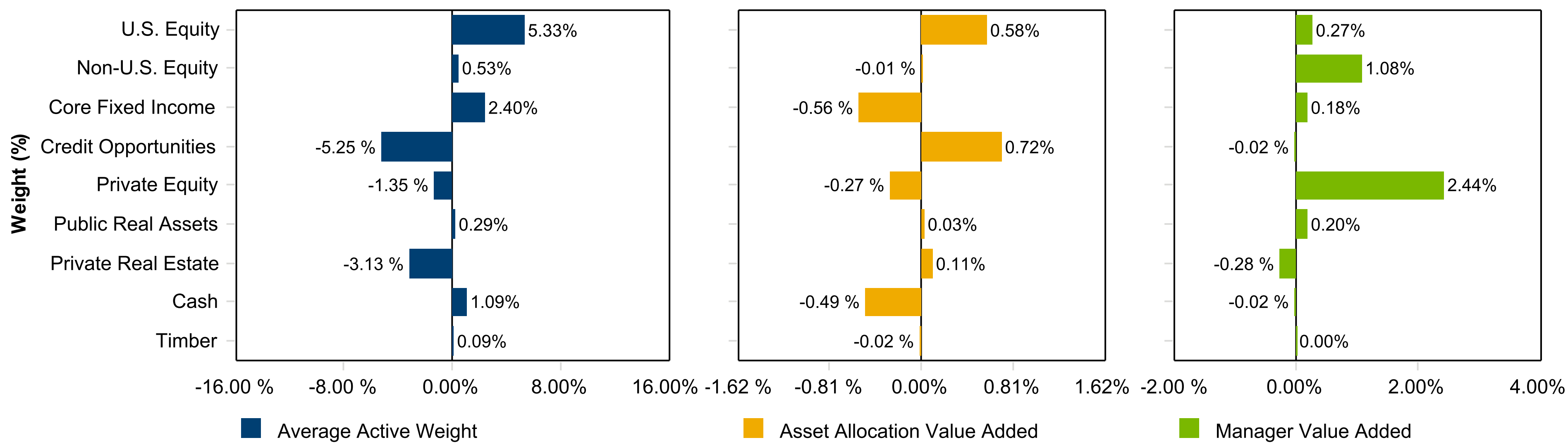
Total Fund Performance



Total Value Added:3.58%



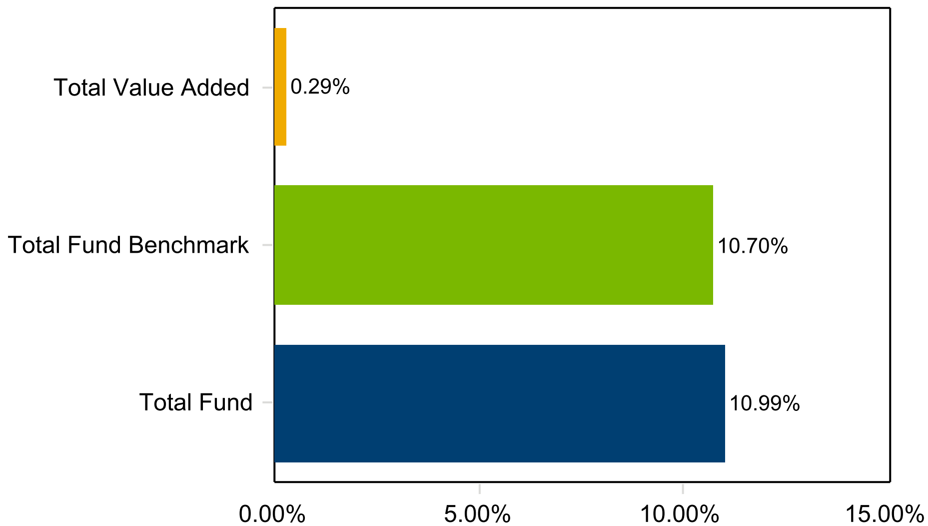
Total Asset Allocation:0.08% **Total Manager Value Added:3.84%**



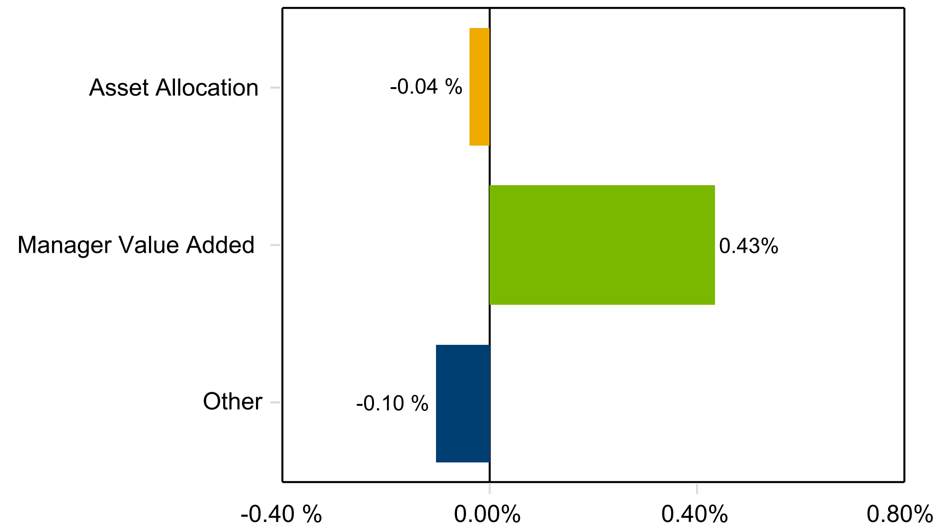
Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

Total Fund Performance

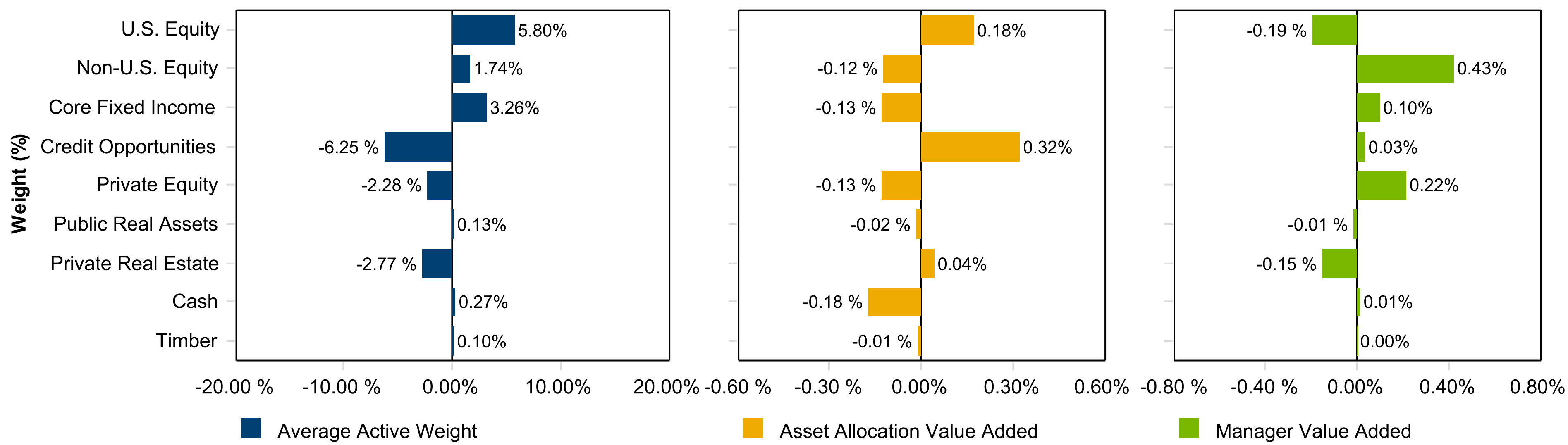


Total Value Added:0.29%



Total Asset Allocation:-0.04 %

Total Manager Value Added:0.43%

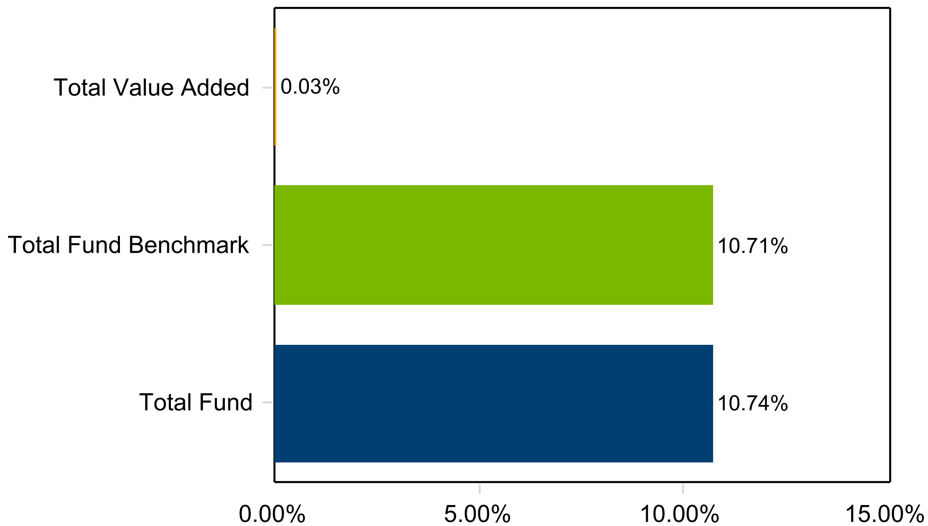


Empower Results®

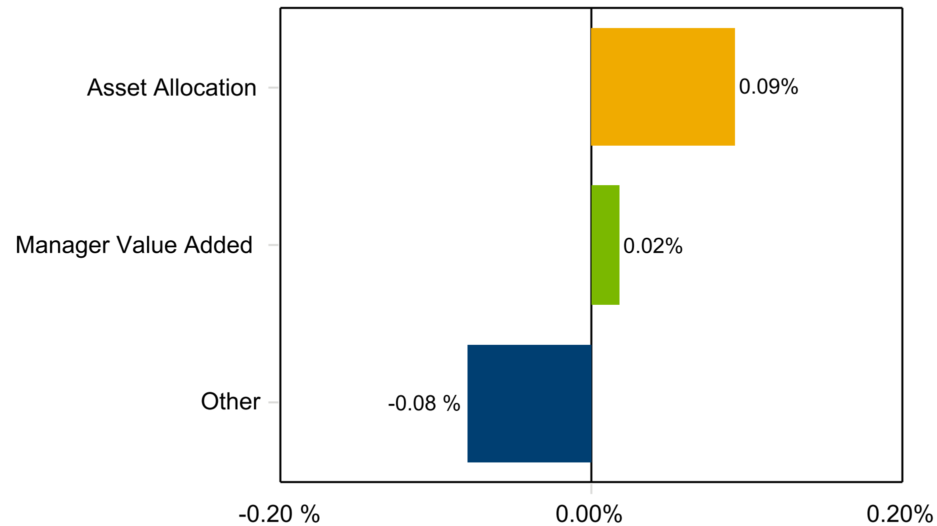
Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

Total Fund Performance

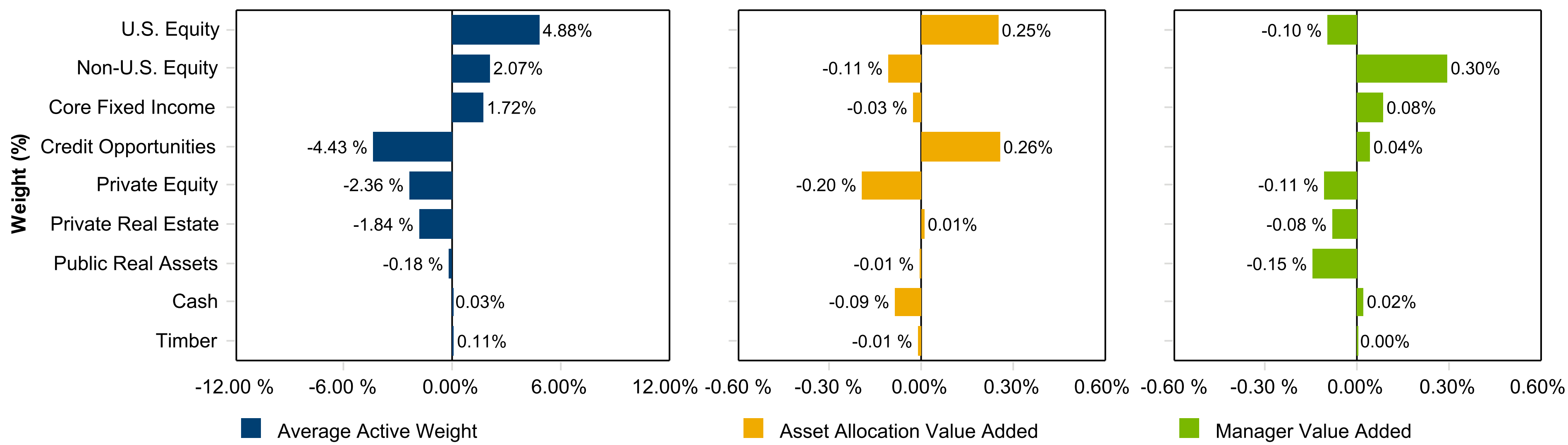


Total Value Added:0.03%



Total Asset Allocation:0.09%

Total Manager Value Added:0.02%

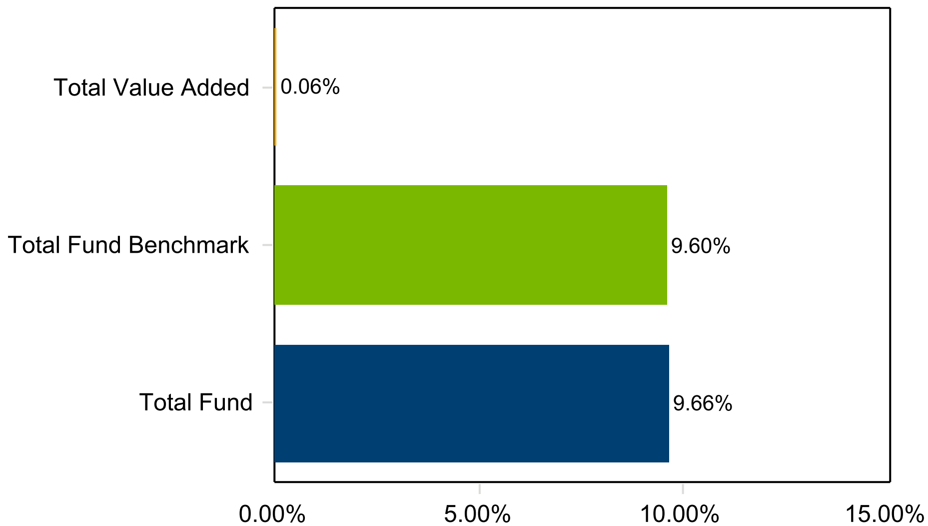


Total Fund Composite **Since Inception Ending September 30, 2021**

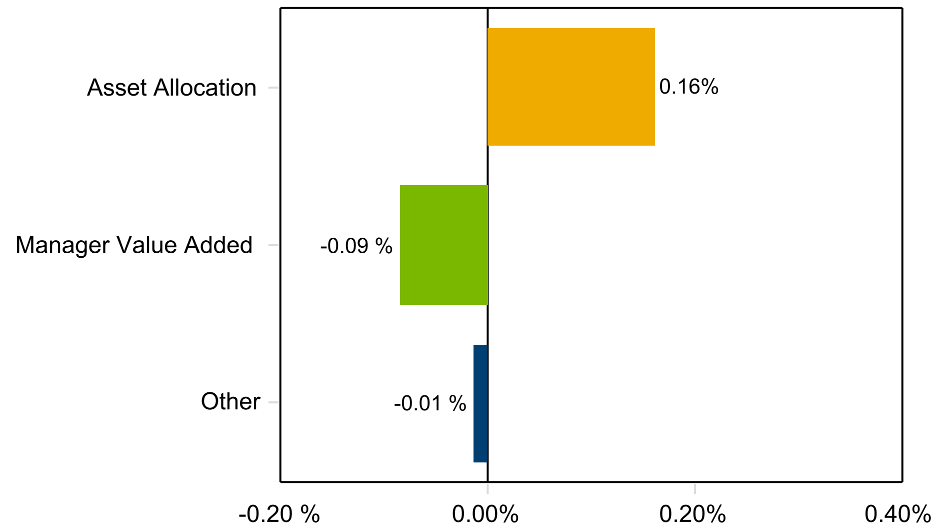
Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

Total Fund Performance

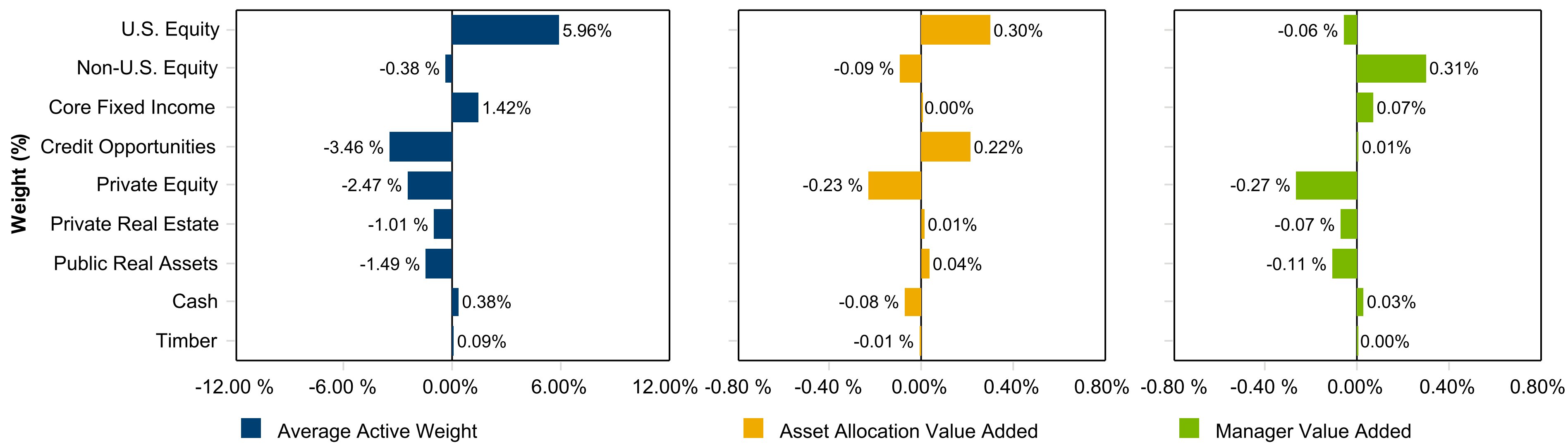


Total Value Added:0.06%



Total Asset Allocation:0.16%

Total Manager Value Added:-0.09 %

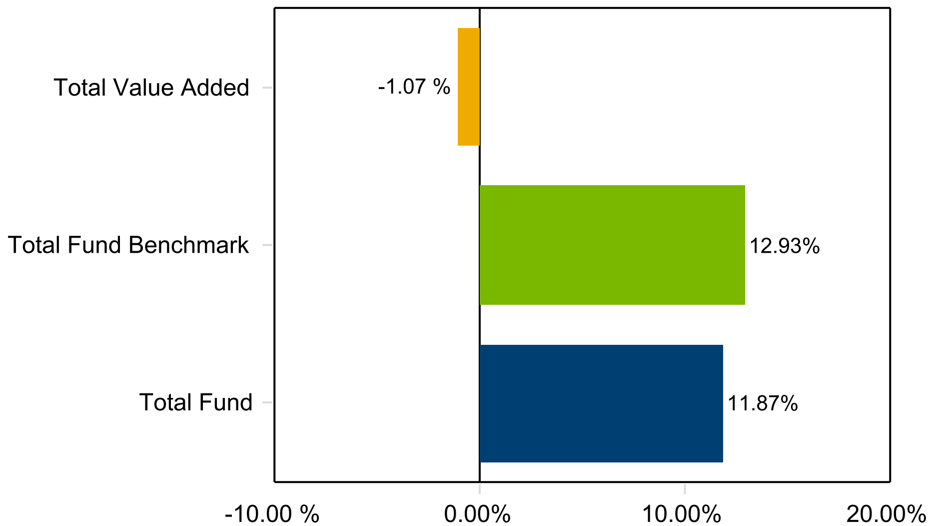


Empower Results®

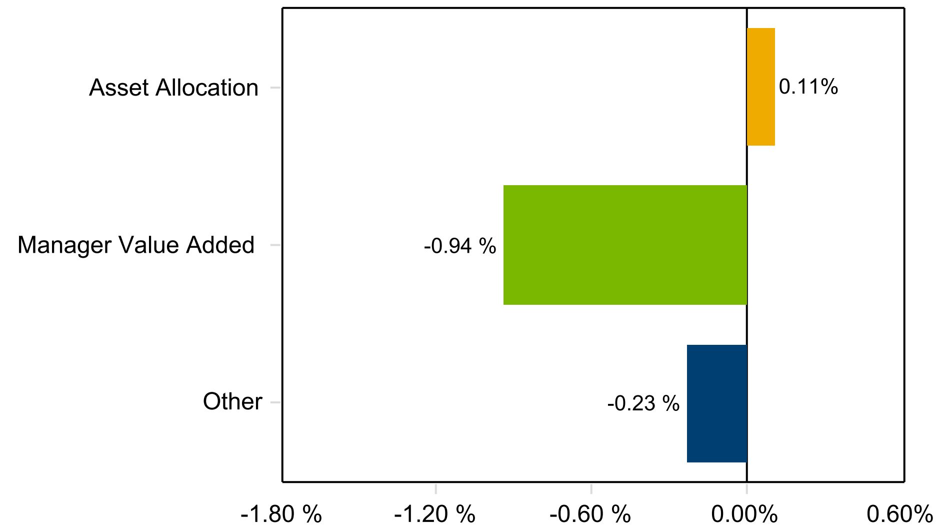
Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

Total Fund Performance

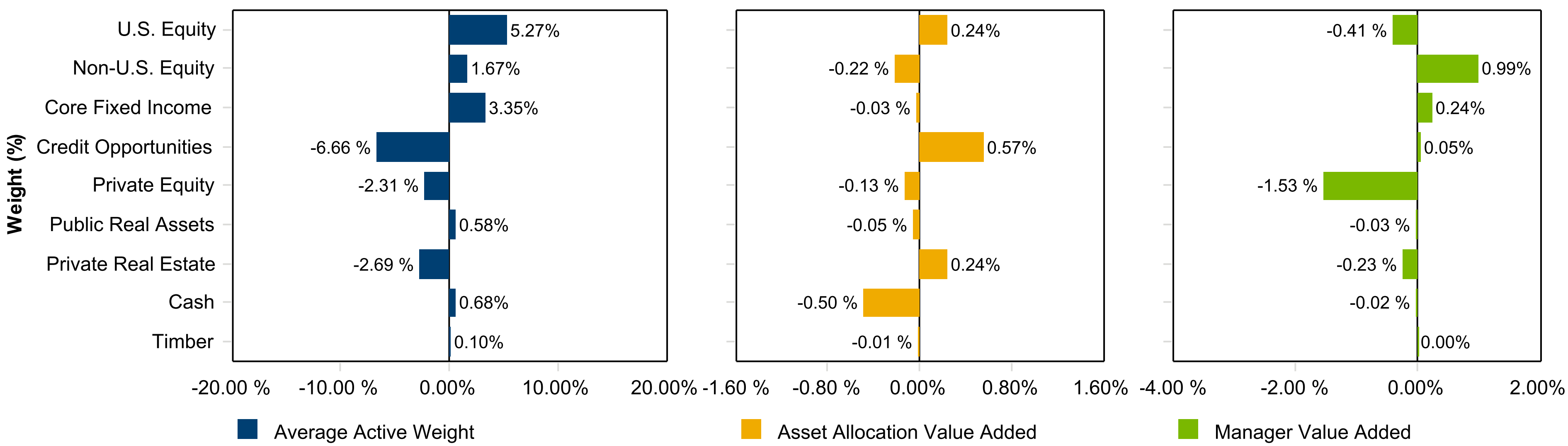


Total Value Added:-1.07 %



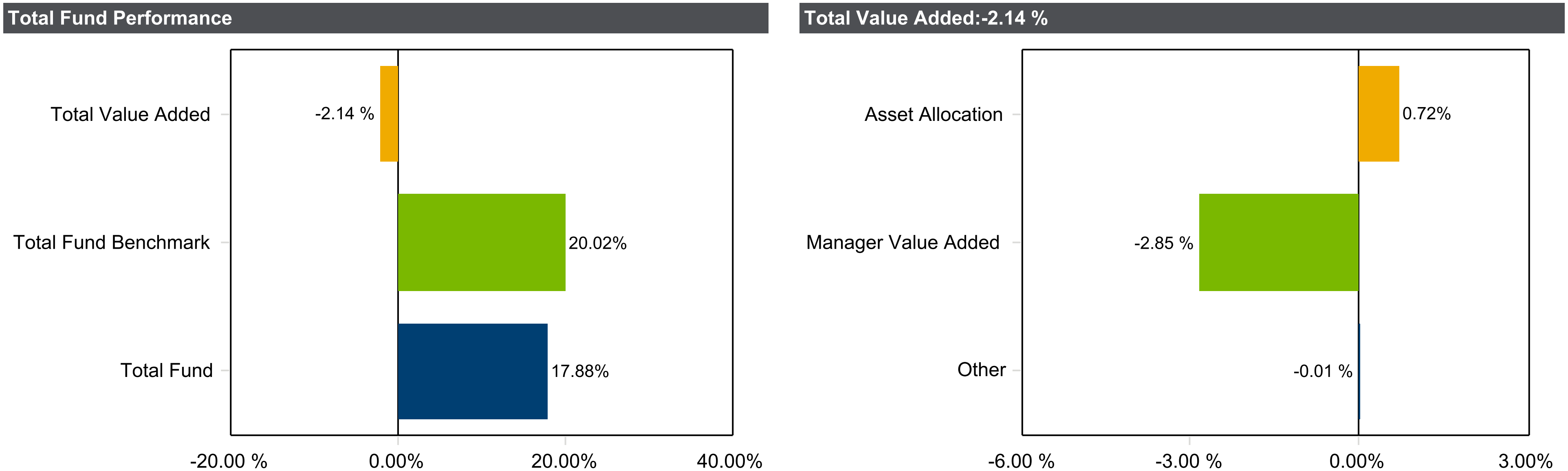
Total Asset Allocation:0.11%

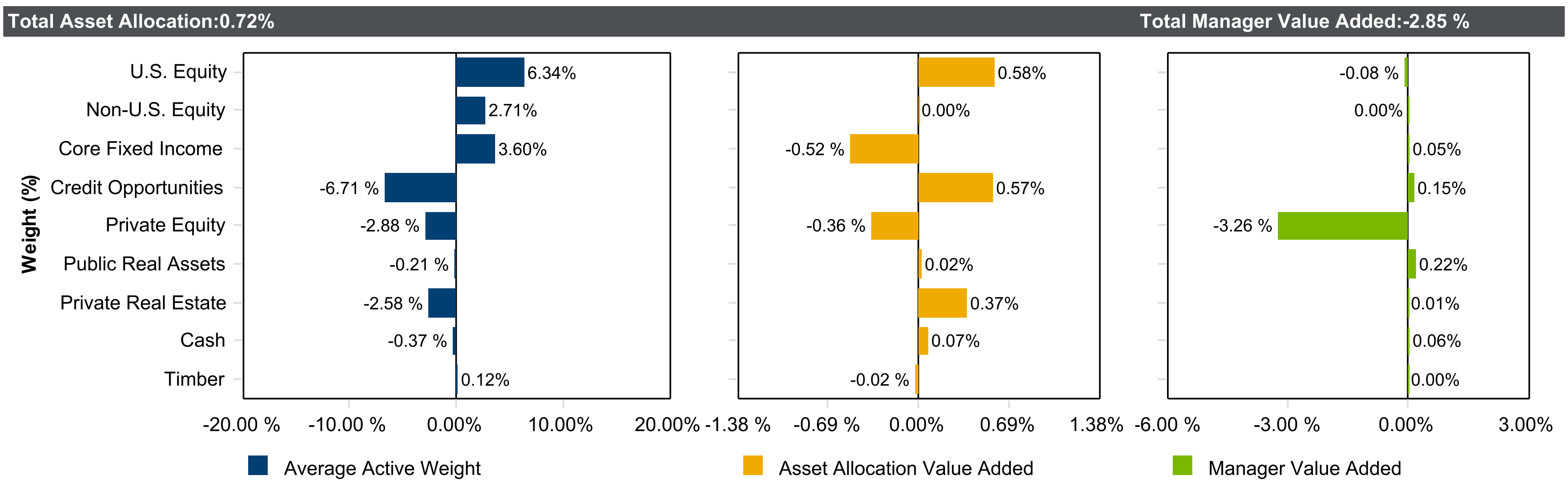
Total Manager Value Added:-0.94 %



Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

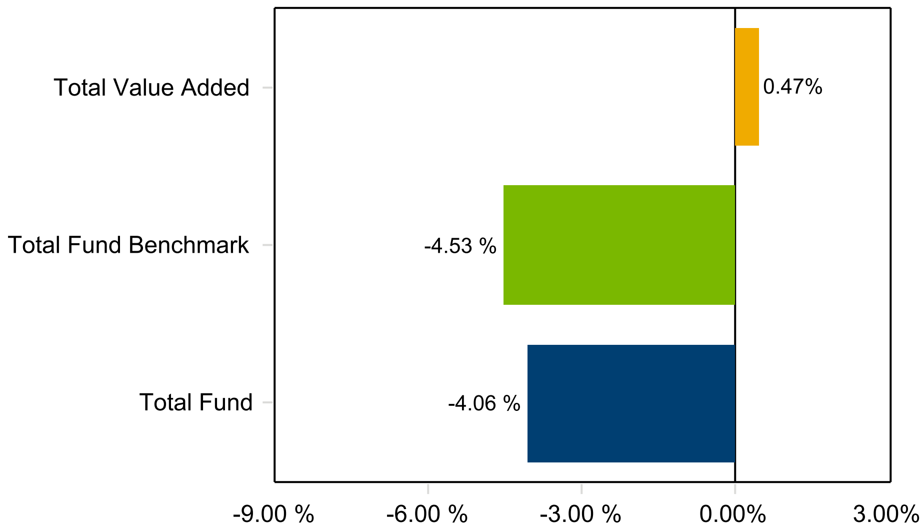




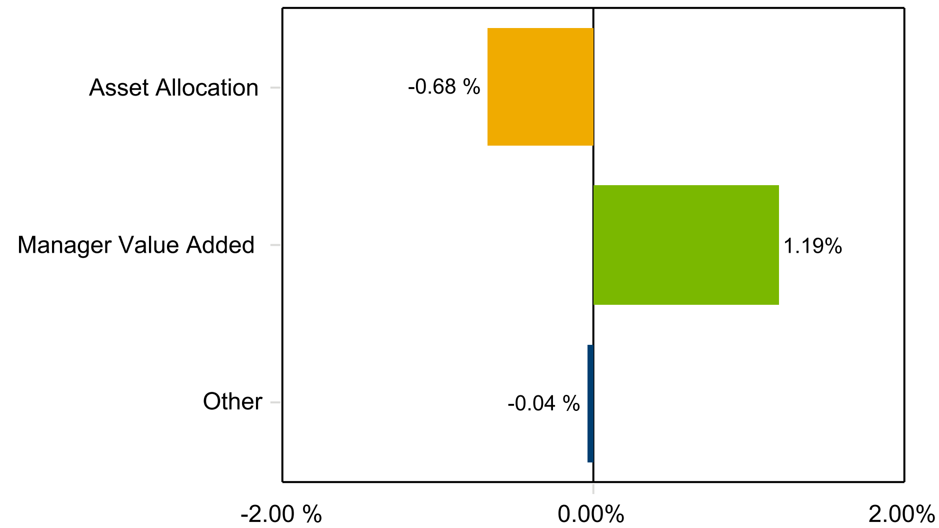
Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

Total Fund Performance

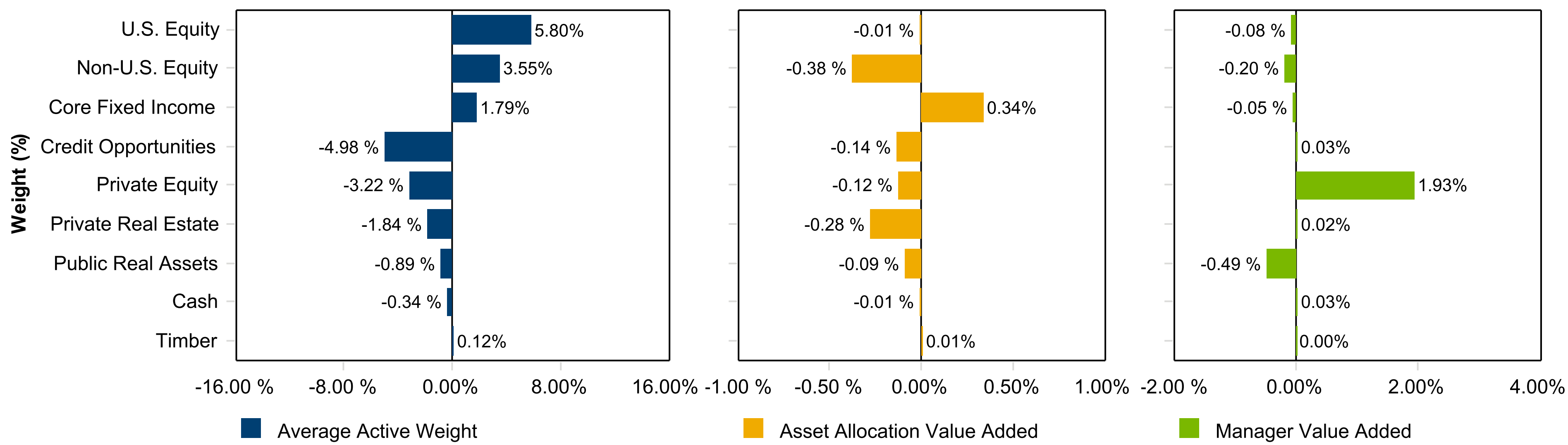


Total Value Added:0.47%



Total Asset Allocation:-0.68 %

Total Manager Value Added:1.19%



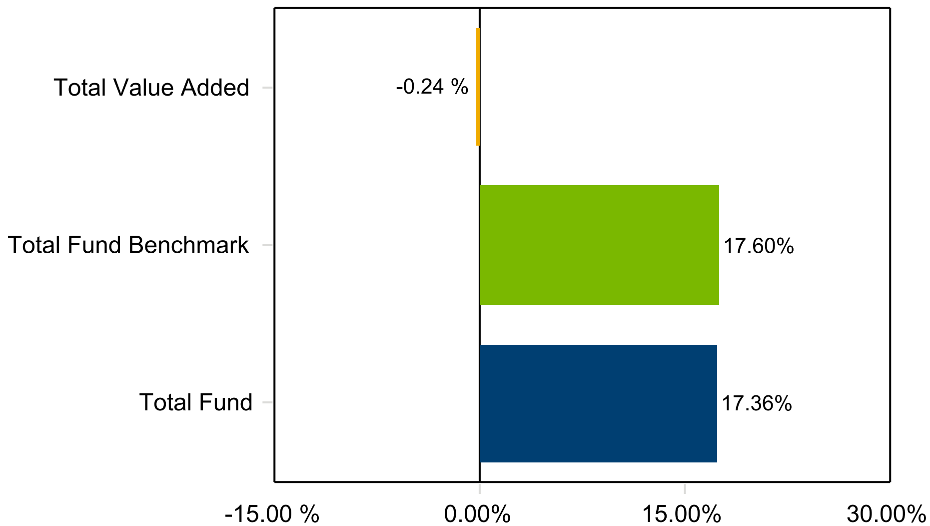
Empower Results®

Total Fund Composite January 1, 2017 To December 31, 2017

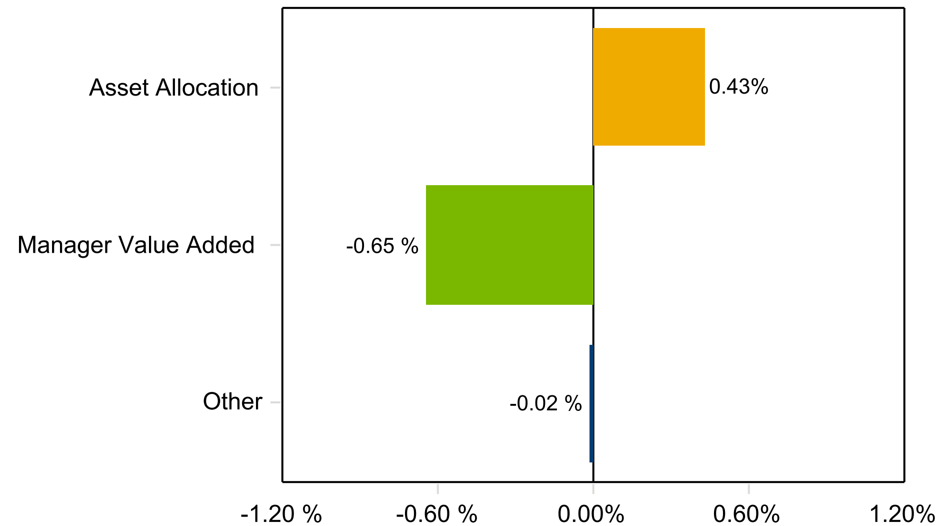
Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

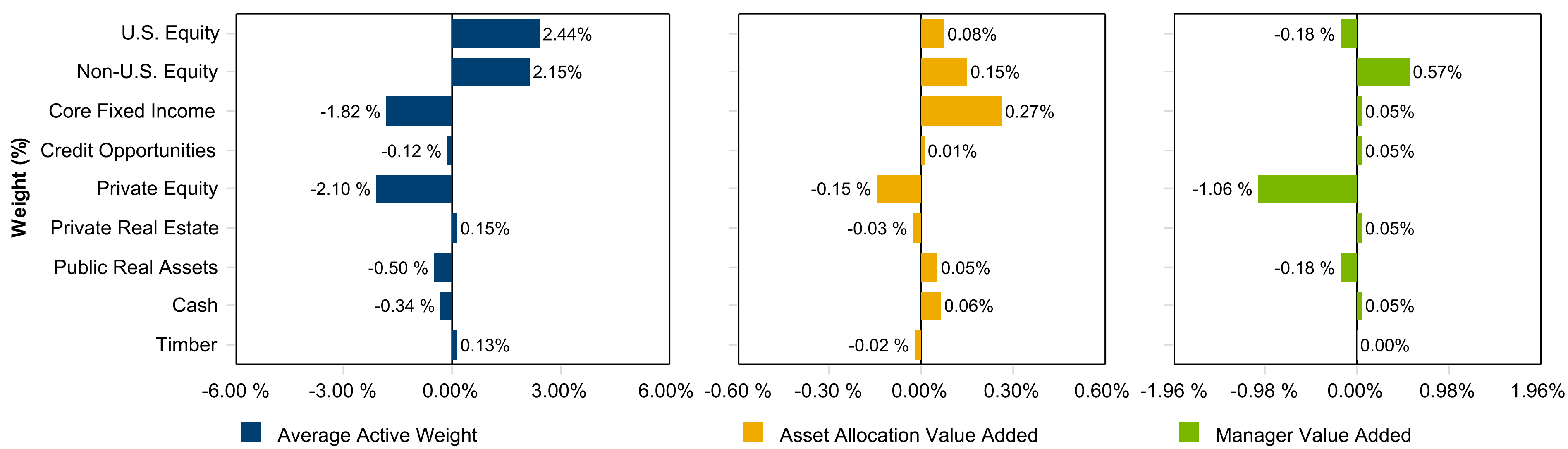
Total Fund Performance



Total Value Added:-0.24 %



Total Asset Allocation:0.43% **Total Manager Value Added:-0.65 %**



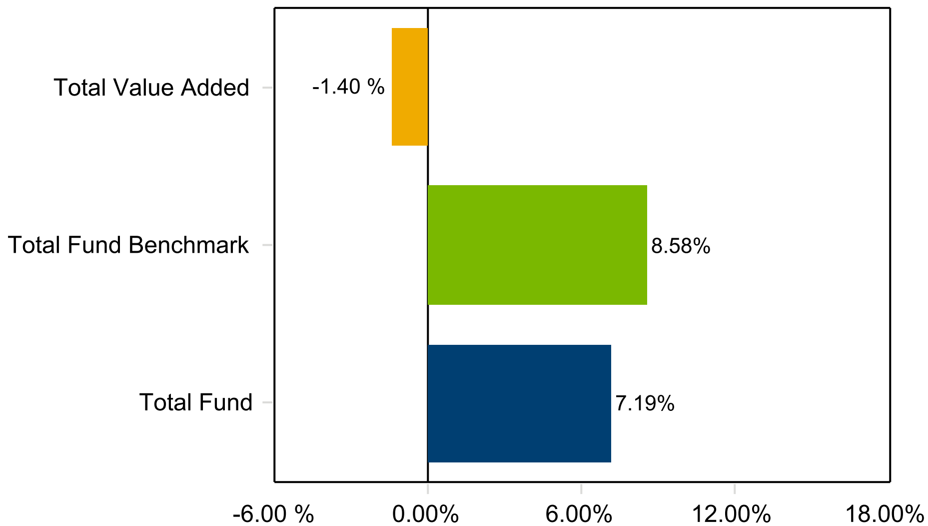
Empower Results®

Total Fund Composite January 1, 2016 To December 31, 2016

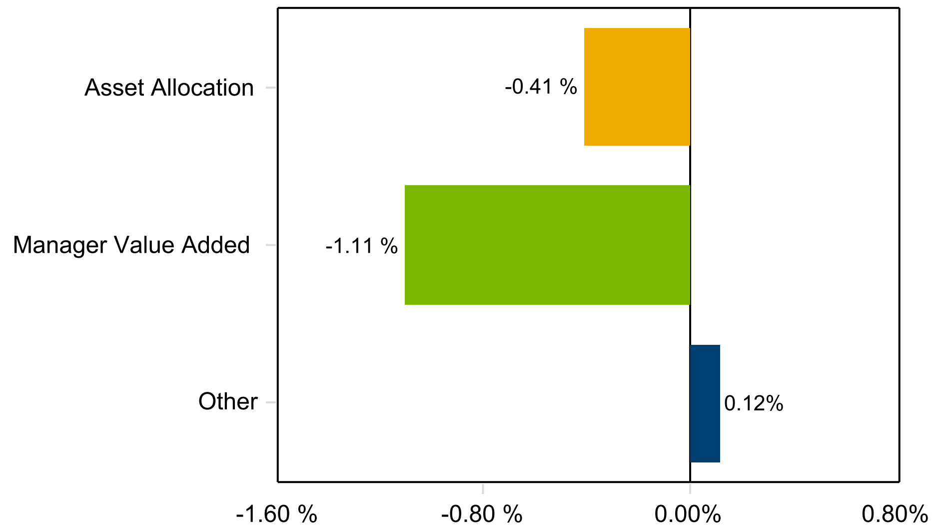
Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

Total Fund Performance

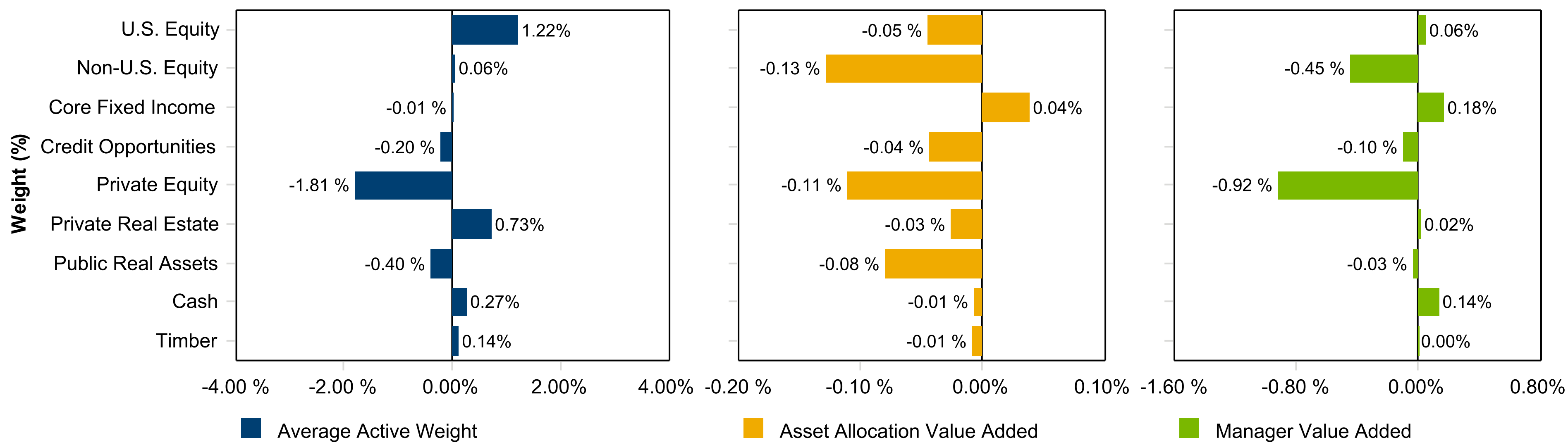


Total Value Added:-1.40 %



Total Asset Allocation:-0.41 %

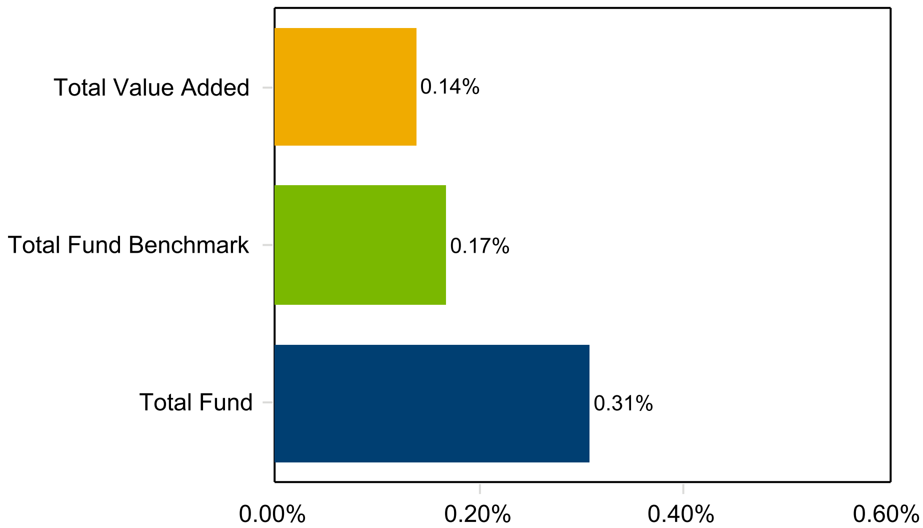
Total Manager Value Added:-1.11 %



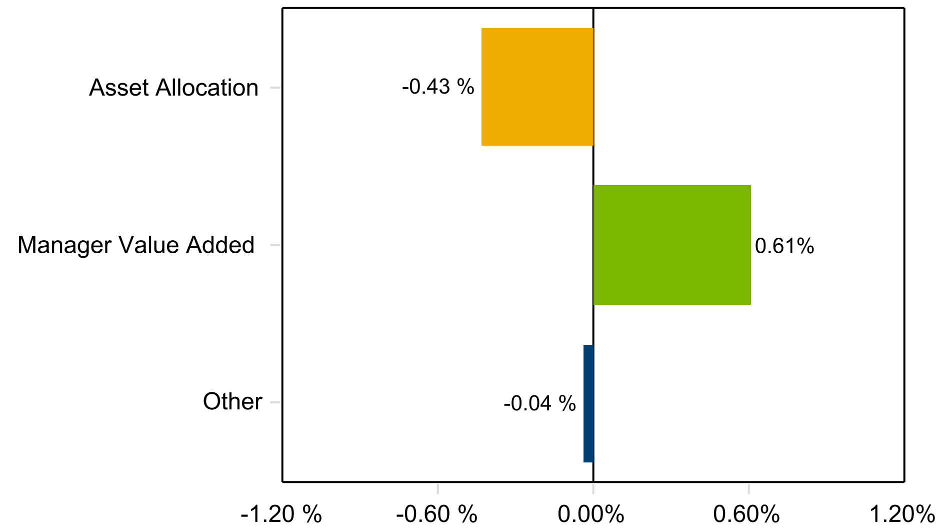
Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

Total Fund Performance

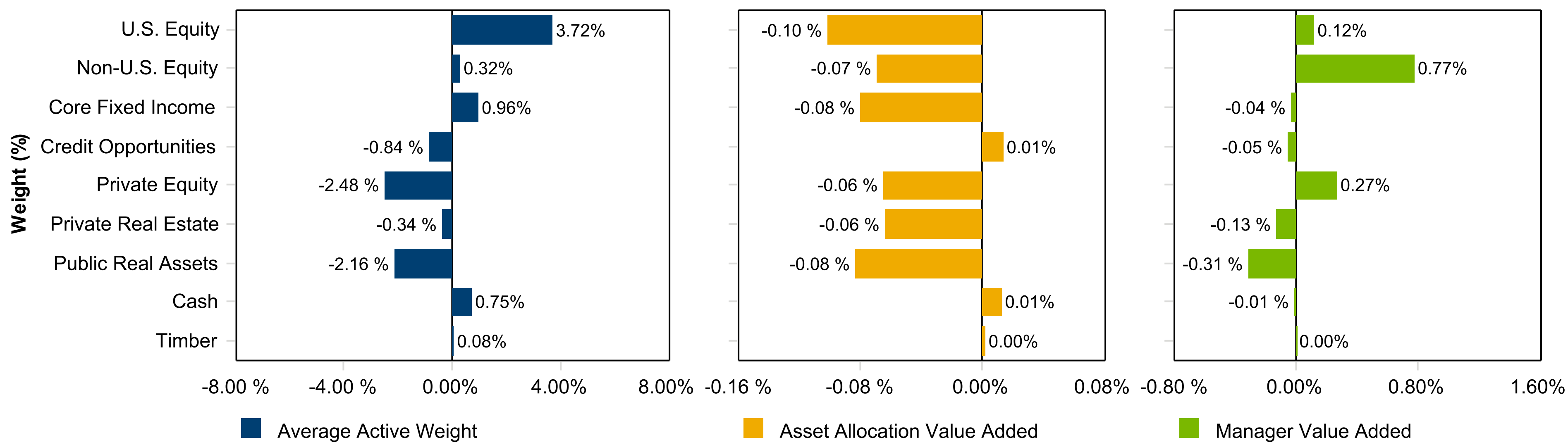


Total Value Added:0.14%



Total Asset Allocation:-0.43 %

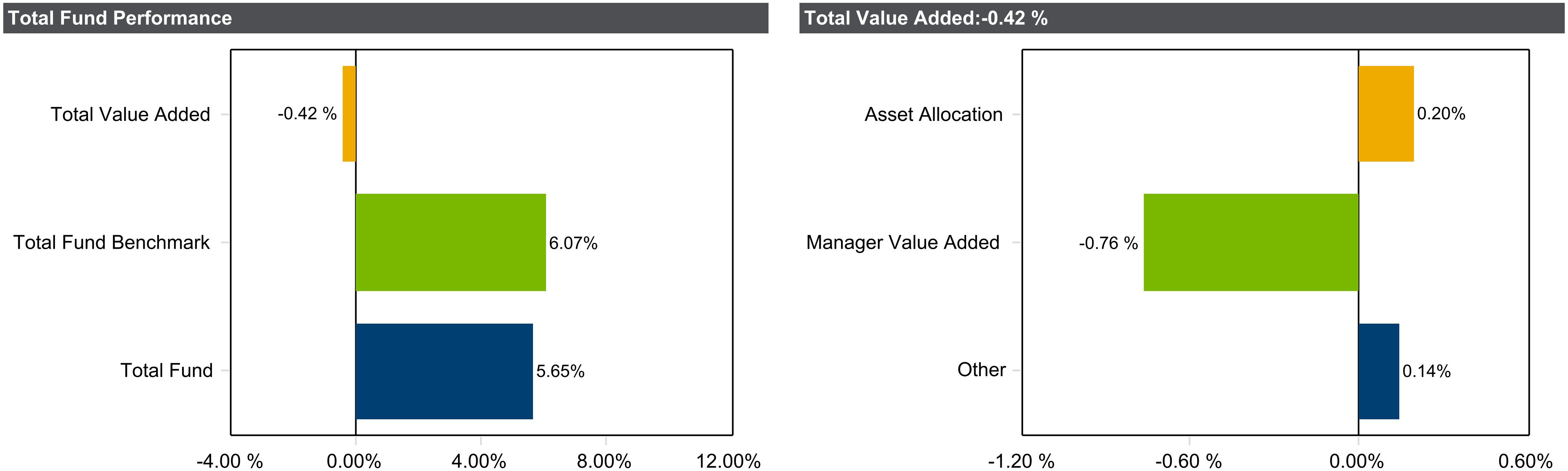
Total Manager Value Added:0.61%

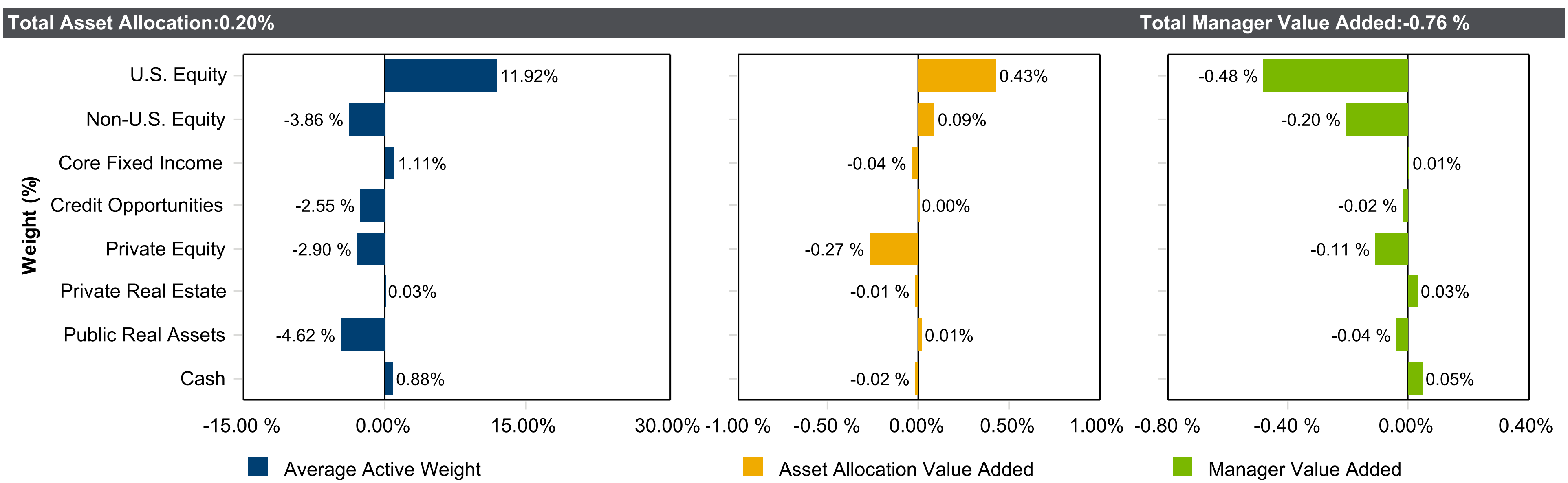


Total Fund Composite January 1, 2014 To December 31, 2014

Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

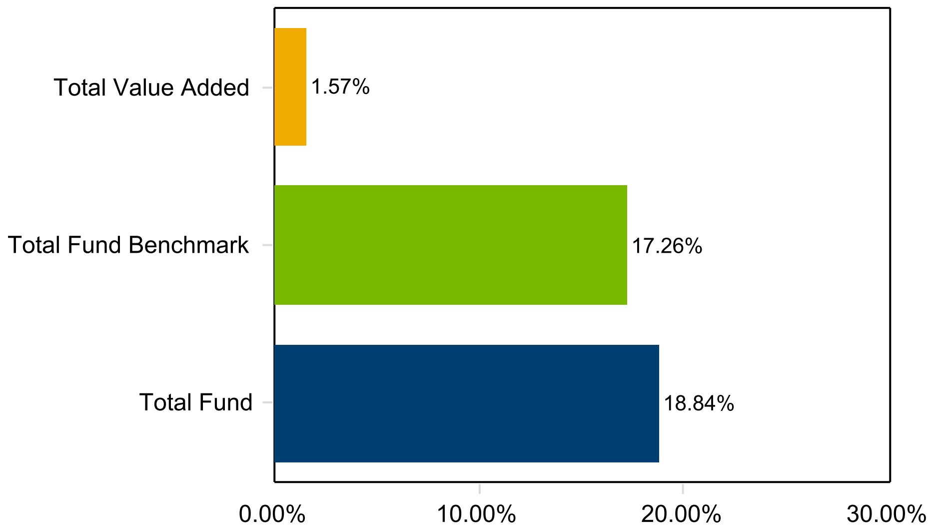




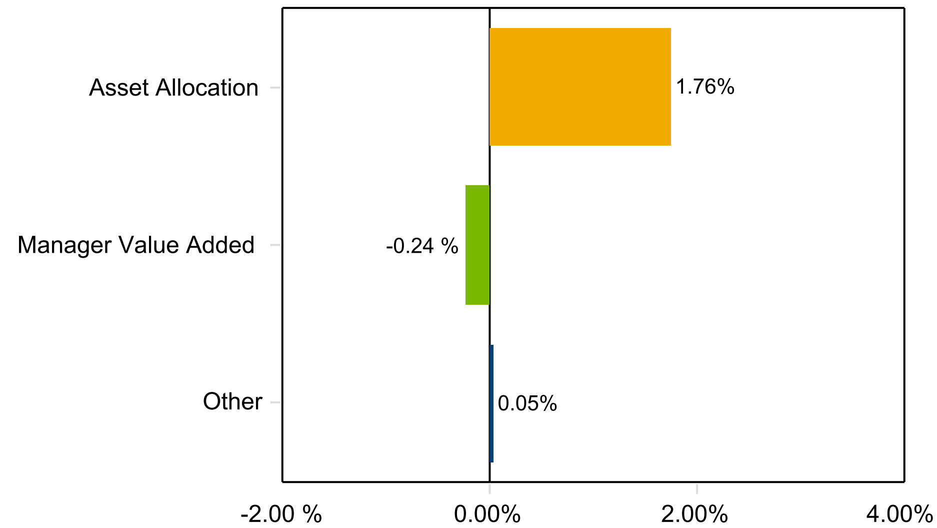
Total Fund Attribution

Total Fund Composite vs. Policy Benchmark

Total Fund Performance

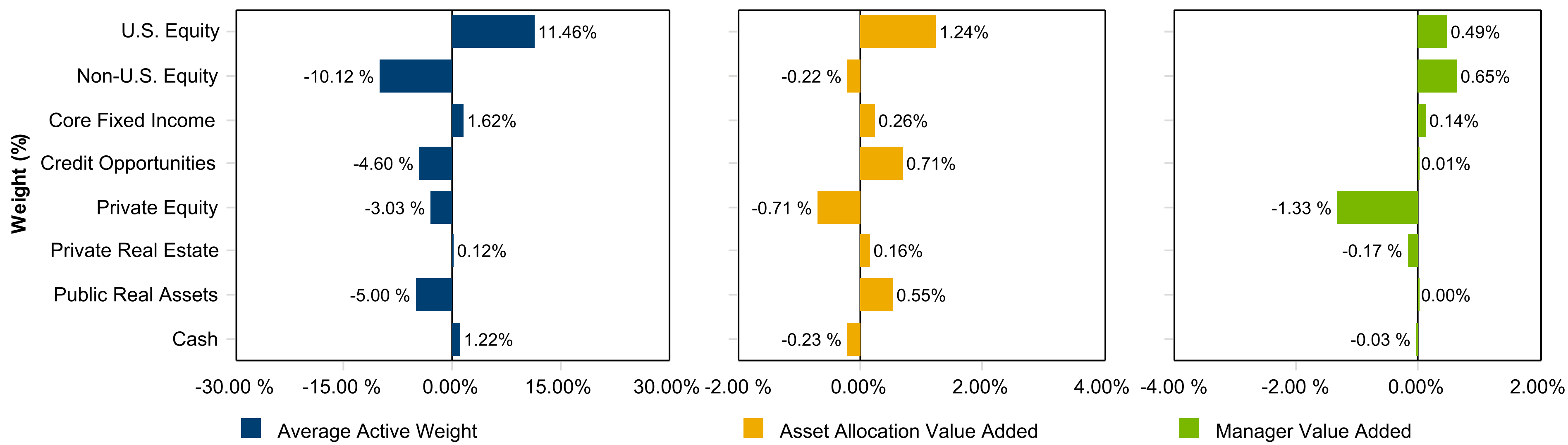


Total Value Added:1.57%



Total Asset Allocation:1.76%

Total Manager Value Added:-0.24 %



Disclaimer

Past performance is not necessarily indicative of future results.

Unless otherwise noted, performance returns presented reflect the respective fund's performance as indicated. Returns may be presented on a before-fees basis (gross) or after-fees basis (net). After-fee performance is net of each respective sub-advisors' investment management fees and include the reinvestment of dividends and interest as indicated on the notes page within this report or on the asset allocation and performance summary pages. Actual returns may be reduced by Aon Investments' investment advisory fees or other trust payable expenses you may incur as a client. Aon Investments' advisory fees are described in Form ADV Part 2A. Portfolio performance, characteristics and volatility also may differ from the benchmark(s) shown.

The information contained herein is confidential and proprietary and provided for informational purposes only. It is not complete and does not contain certain material information about making investments in securities including important disclosures and risk factors. All securities transactions involve substantial risk of loss. Under no circumstances does the information in this report represent a recommendation to buy or sell stocks, limited partnership interests, or other investment instruments.

The data contained in these reports is compiled from statements provided by custodian(s), record-keeper(s), and/or other third-party data provider(s). This document is not intended to provide, and shall not be relied upon for, accounting and legal or tax advice. Aon Investments has not conducted additional audits and cannot warrant its accuracy or completeness. We urge you to carefully review all custodial statements and notify Aon Investments with any issues or questions you may have with respect to investment performance or any other matter set forth herein.

The mutual fund information found in this report is provided by Thomson Reuters Lipper and Aon Investments cannot warrant its accuracy or timeliness. Thomson Reuters Lipper Global Data Feed provides comprehensive coverage of mutual fund information directly to Investment Metrics, Aon Investments' performance reporting vendor, via the PARis performance reporting platform. Thomson Reuters Lipper is the data provider chosen by Investment Metrics, and as such, Aon Investments has no direct relationship with Thomson Reuters Lipper.

Refer to Hedge Fund Research, Inc. www.hedgefundresearch.com for information on HFR indices.

Aon Investments USA Inc. ("Aon Investments") is a federally registered investment advisor with the U.S. Securities and Exchange Commission ("SEC"). Aon Investments is also registered with the Commodity Futures Trade Commission as a commodity pool operator and a commodity trading advisor, and is a member of the National Futures Association. The Aon Investments ADV Form Part 2A disclosure statement is available upon written request to:

Aon Investments USA Inc.
200 East Randolph Street
Suite 700
Chicago, IL 60601
ATTN: Aon Investments Compliance Officer

LACERS
LA CITY EMPLOYEES' RETIREMENT SYSTEM

REPORT TO BOARD OF ADMINISTRATION

From: **Investment Committee**
Elizabeth Lee, Chair
Janna Sidley
Thuy Huynh

MEETING: JUNE 27, 2023
ITEM: XII – B

SUBJECT: **APPROVAL OF 3-YEAR CONTRACT WITH LAZARD ASSET MANAGEMENT LLC REGARDING THE MANAGEMENT OF AN ACTIVE NON-U.S. EQUITIES DEVELOPED MARKETS CORE PORTFOLIO AND POSSIBLE BOARD ACTION**

ACTION: ☒ CLOSED: ☐ CONSENT: ☐ RECEIVE & FILE: ☐

Recommendation

That the Board:

1. Approve a three-year contract renewal with Lazard Asset Management LLC (Lazard) for management of an active non-U.S. equities developed markets core portfolio.

2. Authorize the General Manager to approve and execute the necessary documents, subject to satisfactory business and legal terms.

Discussion

On May 9, 2023, the Committee considered the attached staff report (Attachment 1) recommending a three-year contract renewal with Lazard. The firm has managed an active non-U.S. equities developed markets core portfolio for LACERS since October 2013; the current contract expires on September 30, 2023. LACERS' portfolio was valued at approximately $550 million as of May 30, 2023. Lazard is in compliance with the LACERS Manager Monitoring Policy. Since inception, LACERS has paid Lazard a total of $24.7 million in investment fees for management for the period ending December 31, 2022.

Staff discussed the organization, investment strategy, and highlighted performance and fees. The Committee acknowledged the strategy's underperformance relative to the benchmark in all periods as of April 30, 2023, and understood the impact on performance due to the style extremes the market has exhibited in the past three years. However as of May 31, 2023, Lazard's performance relative to the benchmark has outperformed the 3-month annualized performance by 1.83%, which also improved the since inception performance to outperform the benchmark by 0.23%.

In addition, Lazard has agreed to provide a fee discount, bringing LACERS' effective rate to 44 basis points (0.44%), an effective rate discount of 3 basis points. The fee ranks in the 30th percentile of fees charged by similar managers in the eVestment database (i.e. 70% of like-managers have higher fees).

Strategic Plan Impact Statement

A contract renewal with Lazard will allow the fund to maintain a diversified exposure to the non-U.S. equities developed markets, which is expected to help optimize long-term risk adjusted investment returns (Goal IV). The discussion of the investment manager's organization, strategy, performance, and management fee structure aligns with the Strategic Plan Goal to uphold good governance practices that affirm transparency, accountability, and fiduciary duty (Goal V).

<u>Prepared By:</u> Ellen Chen, ESG Risk Officer, Investment Officer II, Investment Division

NMG/RJ/WL/EC:jp

Attachments: 1. Investment Committee Recommendation Report dated June 13, 2023
2. Proposed Resolution

LACERS
LA CITY EMPLOYEES' RETIREMENT SYSTEM

REPORT TO INVESTMENT COMMITTEE **MEETING: JUNE 13, 2023**
From: Neil M. Guglielmo, General Manager **ITEM: V**

SUBJECT: **INVESTMENT MANAGER CONTRACT WITH LAZARD ASSET MANAGEMENT LLC REGARDING THE MANAGEMENT OF AN ACTIVE NON-U.S. EQUITIES DEVELOPED MARKETS CORE PORTFOLIO AND POSSIBLE COMMITTEE ACTION**

ACTION: ☒ CLOSED: ☐ CONSENT: ☐ RECEIVE & FILE: ☐

Recommendation

That the Committee recommend to the Board a three-year contract renewal with Lazard Asset Management LLC (Lazard) for management of an active non-U.S. equities developed markets core portfolio.

Executive Summary

Lazard has managed an active non-U.S. equities developed markets core portfolio for LACERS since November 2013. LACERS' portfolio was valued at $559 million as of April 30, 2023. The firm was placed on "On Watch" status as of August 27, 2021, for an initial one-year period for breaching the performance criteria of the LACERS Manager Monitoring Policy (based on performance as of June 30, 2021). Staff and NEPC, LLC (NEPC), LACERS' General Fund Consultant continued to monitor Lazard's performance and removed Lazard from "On Watch" status on September 26, 2022, based on performance as of June 30, 2022. Staff and NEPC recommend a three-year contract renewal.

Discussion

Background
Lazard has managed an active non-U.S. equities developed markets core portfolio for LACERS since November 2013, and is benchmarked against the MSCI EAFE Index. Lazard employs a fundamental research-driven investment strategy to identify companies with strong or improving financial productivity at attractive valuations. The strategy is co-led by Mark Little, Managing Director, who has 31 years of industry experience and by Robin Jones, Managing Director, who has 21 years of experience. The three other members of the team include John Reinsberg, Deputy Chairman, International and Global Strategies (42 years of experience); Michael Bennett, Managing Director (37 years of experience); and Jimmie Bork, Director (12 years of experience). LACERS portfolio was valued at $559 million as of April 30, 2023.

Lazard was hired through the 2013 Active Non-U.S. Equities Developed Markets Manager search process and an initial three-year contract was authorized by the Board on June 11, 2013. The contract became effective on October 1, 2013, and was renewed for three-year terms on June 28, 2016, and on June 11, 2019. The contract was extended on May 24, 2022, and the current contract expires on September 30, 2023. Lazard representatives Thomas Franzese and Michael Bennett most recently presented a portfolio review to the Committee on August 10, 2021.

Organization
Lazard, an indirect subsidiary of Lazard Ltd (NYSE: LAZ), manages approximately $197.4 billion across various equity and fixed income strategies for institutional and individual clients as of March 31, 2023. Lazard has offices in 17 countries across North America, Europe, Asia Pacific, and the Middle East, with over 900 employees including over 300 investment professionals. As of March 31, 2023, the firm managed over $120.6 billion in total non-U.S. equity assets, with $17.1 billion in the International Strategic Equity strategy (Lazard's product name for the strategy LACERS is invested in).

Due Diligence
Staff conducts routine due diligence of the manager. Since inception of the contract, quarterly due diligence meetings have been conducted in person and virtually. The most recent comprehensive onsite due diligence meeting at Lazard's headquarters was conducted in September 2022; staff and NEPC found no adverse findings as result of this meeting.

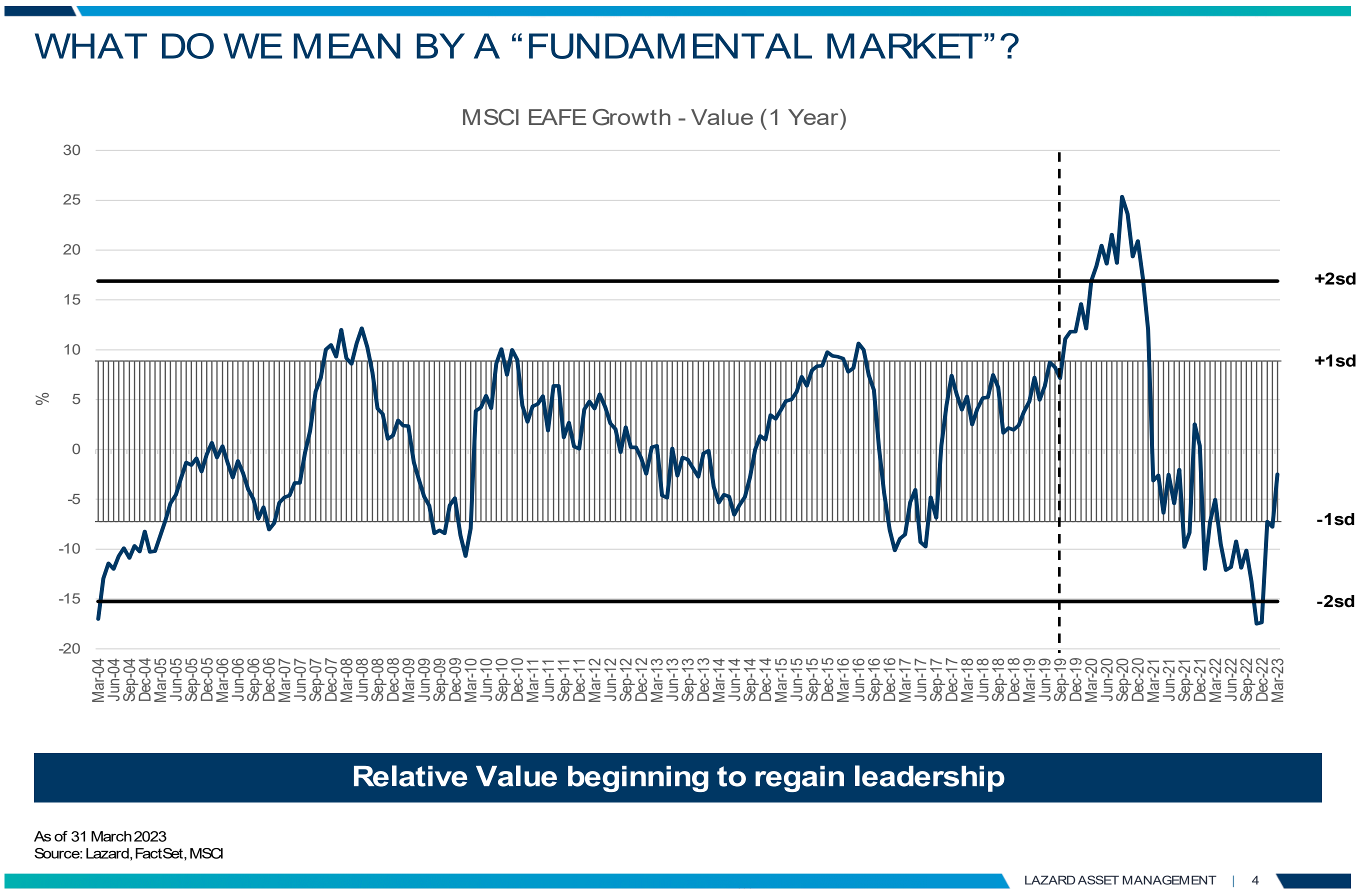
In March 2023, Lazard acquired Truvvo Partners, a US-based firm with $3.8 billion of assets under management dedicated to wealth planning and investment solutions to families. In April 2023, Lazard announced plans to cut 10% of its workforce in a cost-cutting effort. There was no impact to the portfolio management team for LACERS' account and the strategy continues to be well-resourced. In addition, Lazard announced in May 2023 that Lazard Ltd's CEO, Ken Jacobs, will be retiring effective October 1, 2023, and will be succeeded by Peter Orszag, the current CEO of Financial Advisory at Lazard. Evan Russo continues to be the CEO of Lazard. Staff and NEPC do not anticipate these organizational changes to have material impact on the portfolio Lazard manages for LACERS.

Performance
As of April 30, 2023, Lazard has underperformed the benchmark over all periods, as presented in the table below.

Annualized Performance as of 4/30/23 (Net-of-Fees)							
	3-Month	1-Year	2-Year	3-Year	5-Year	7-Year	Since Inception*
Lazard	1.65	3.86	-5.21	9.41	2.48	4.87	4.15
MSCI EAFE	3.17	8.42	-0.21	11.68	3.63	6.20	4.22
% of Excess Return	*-1.52*	*-4.56*	*-5.00*	*-2.27*	*-1.15*	*-1.33*	*-0.07*

**Since Inception Date: November 5, 2013*

Lazard's relative value approach of identifying companies with high financial productivity at attractive valuations performs best when markets are fundamentally driven and reward higher quality companies like those held in Lazard's portfolio. The strategy generally lags in markets dominated by style extremes when the markets strongly favor growth stocks over value stocks and vice versa. Such market environments may occur when investors preference expensive growth stocks or low-quality stocks. The chart below depicts the instances of style extremes between March 2004 and March 2023. When the blue trend is above the horizontal +1sd (+1 standard deviation) line, growth stocks are strongly favored; when the blue trend line is below the horizontal -1sd (-1 standard deviation) line, value stocks are strongly favored. The shaded area between the +1sd and -1sd lines indicates a more balanced, fundamentally driven market and tends to be Lazard's sweet spot for generating excess returns over its benchmark.



As shown in the chart, extreme style biases have become more influential on the market since the Covid-19 pandemic. Two extreme periods of low-quality stock rallies in late 2020 and 2022 due to factors tied primarily to Covid, the Russia-Ukraine war, and high inflation and government actions to address these issues, presented significant headwinds to Lazard's performance.

Looking forward, Lazard believes the portfolio is positioned to outperform the benchmark. Policymakers are now focused on maintaining a balance between avoiding economic and financial stress and containing inflation, which should result in a less extreme market that is favorable to Lazard's strategy.

While LACERS' account has slightly underperformed the benchmark by 7 basis points annualized and net of fees since inception in November 2013, Lazard's composite (aggregate of all client accounts managed in the strategy), has outperformed the benchmark by 167 basis points annualized and net of fees since inception in October 2001 and has demonstrated long-term value added over various market cycles.

Calendar year performance of LACERS' account is presented in the table below as supplemental information.

Calendar Year Performance as of 12/31/22 (Net-of-Fees)										
	2022	2021	2020	2019	2018	2017	2016	2015	2014	11/5/13-12/31/13
Lazard	-16.48	7.30	11.50	20.56	-10.77	27.25	-4.95	0.48	-0.25	4.24
MSCI EAFE ND	-14.45	11.26	7.82	22.01	-13.79	25.03	1.00	-0.81	-4.90	3.23
% of Excess Return	*-2.03*	*-3.96*	*3.68*	*-1.45*	*3.02*	*2.22*	*-5.95*	*1.29*	*4.65*	*1.01*

Fees
LACERS pays Lazard an effective fee of 47 basis points (0.47%), which is approximately $2.6 million annually based on the value of LACERS' assets as of April 30, 2023. The fee ranks in the 35th percentile of fees charged by similar managers in the eVestment database (i.e., 65% of like-managers have higher fees). Staff is currently in negotiations with Lazard to obtain a more favorable fee structure. Since inception, LACERS has paid Lazard a total of $24.7 million in investment management fees for the period ending December 31, 2022.

General Fund Consultant Opinion
NEPC concurs with this recommendation.

Strategic Plan Impact Statement

A contract renewal with Lazard will allow LACERS to maintain a diversified exposure to the non-U.S. equities developed markets, which is expected to help optimize long-term risk adjusted investment returns (Goal IV). The discussions of the investment manager's profile, strategy, performance, and management fee structure are consistent with Goal V (uphold good governance practices which affirm transparency, accountability, and fiduciary duty).

Prepared by: Ellen Chen, ESG Risk Officer, Investment Officer II, Investment Division.

NMG/RJ/BF/EC:jp

Attachment: 1. Consultant Recommendation – NEPC, LLC

To: Los Angeles City Employees' Retirement System Investment Committee

From: NEPC, LLC

Date: June 13, 2023

Subject: Lazard Asset Management, LLC

Recommendation

NEPC recommends the Los Angeles City Employees' Retirement System ('LACERS') renew the contract that is currently in place with Lazard Asset Management, LLC . ('Lazard') for a period of three years from the date of contract expiry.

Background

Lazard was hired into the Non-U.S. Equity asset class in 2013 to provide the Plan with public equity exposure across international developed countries/markets. The portfolio has a performance inception date of December 1, 2013. As of March 31, 2023, Lazard managed $553.9 million, or 2.6% of Plan assets. The performance objective is to outperform the MSCI EAFE Index, net of fees, annualized over a full market cycle (normally three-to-five years). The account is currently in good standing based on LACERS' Manager Monitoring Policy.

Lazard Asset Management is a wholly-owned subsidiary of Lazard Ltd, which went public in 2005. Lazard has $197.4 billion in assets (as of March 31, 2023). About 30% of the firm is owned by Lazard employees and the rest is publicly owned. Lazard has more than 300 investment personnel and offices in over 20 cities around the globe. They offer investment solutions across the public and alternative investments landscape. In March 2023, Lazard Asset Management acquired Truvvo Partners, a US-based firm with $3.8 billion of assets under management dedicated to providing strategic advice, wealth planning, and investment management solutions to families. The addition of Truvvo expands Lazard's existing private client business, forming Lazard Family Office Partners, which combined manages approximately $8 billion in assets, and provides advice and investment solutions across public and private markets. NEPC is currently evaluating the business impact on Lazard in relation to the Tuvvo acquisition. While we do not believe this acquisition will impact the portfolio that Lazard manages for LACERS, we will report back once our evaluation is complete. In April, 2023 Lazard announced plans to cut 10% of its workforce in a cost-cutting effort. NEPC will continue to monitor Lazard for any negative effects on the international equity business line that may impact the LACERS relationship. In May 2023, Lazard announced that Lazard Ltd.'s CEO, Ken Jacobs, will be retiring effective October 1, 2023 and he will be succeeded by Peter Orszag, currently CEO of Financial Advisory at Lazard. Evan Russo continues to be the CEO of Lazard Asset Management. NEPC expects that there will be no impact to the International Equity portfolio as a result of this change.

The LACERS account sits within the Lazard International Strategic Equity product, which is a multi-capitalization strategy. The strategy typically invests in 50-70 securities of non-US companies, including those from emerging markets. The benchmark is the MSCI EAFE Index. The portfolio is managed by four portfolio managers, however, day-to-day, the portfolio is overseen by Lead

Portfolio Manager Robin Jones and Jimmie Bork, Director, Portfolio Manager/ Analyst. Mark Little, who was in charge of the day-to-day management of the portfolio moved to an oversight role within the firm's international and global equity lines of business effective December 31, 2022. Mr. Little is therefore still involved in the product. Messrs. Jones and Bork are supported by Michael Bennett, Portfolio Manager/Analyst and John Reinsberg, Deputy Chairman International and Global Strategies, who act in client facing roles on the strategy and work from the firm's New York City office.

Lazard employs a bottom-up approach to equity investing. The process seeks to invest in companies that exhibit three characteristics of financial productivity: high and compounding free cash flow, high return on equity, and low valuation. The research process focuses on 1) understanding a company's path to profitability and management's role in sustaining it, and 2) validating the company's accounting statements to verify profitability. Idea generation can come from a variety of sources. Dedicated analysts research industry trends and the long-term impact on profitability. They assess the impact of strategic or management change and seek to identify companies that are earning less than their potential or that have valuations that imply a significant change in returns. In addition, screens on pricing multiples are used by the strategy team to identify ideas at the sector and industry levels. Depending on the groups, different valuation metrics are emphasized. For non-cyclical stocks, they look at Price/Earnings, for financials Price/Book, for capital intensive Price/Cash Flow, and for deep cyclical Price/Sales. They will consider absolute cheapness and relative cheapness.

Portfolio construction is driven by stock selection. The portfolio management team builds the portfolio by selecting one stock at a time. Inclusion of a stock in the portfolio is primarily dependent on a new idea's attractiveness relative to existing portfolio holdings. Sector and regional exposures are a residual of the investment process.

Performance

Referring to Exhibit 1 Performance Summary Net of Fees Ended March 31, 2023, since December 1, 2013, the strategy has outperformed the MSCI EAFE Index by 0.1%, returning 3.9%, net of fees. The portfolio ranked in the 61st percentile in its peer universe since inception. In the five-year period ended March 31, 2023, the portfolio underperformed the index by 1.0% and ranked in the 63rd percentile in its peer universe. Over the last three-year period the portfolio has underperformed its benchmark by 1.3% and ranked in the 71st percentile in its peer group. Over the past one-year period ended March 31, 2023, the portfolio has underperformed its benchmark by 0.9% and ranked in the 50th percentile. Broadly, underperformance across time periods ended March 31, 2023, has been driven by stock selection and the value style tilt in the portfolio. The portfolio tends to underperform in market environments where there are large differences in performance between growth and value stocks. On a regional basis the portfolio has been overweight North America and emerging markets and underweight the United Kingdom, Japan and Asia ex-Japan. On an economic sector basis, stock selection across the Consumer Discretionary, Consumer Staples and Utilities sectors detracted from performance.

Fees

The portfolio has an asset-based fee of 0.47% annually. This fee ranks in the 35th percentile among its peers in the eVestment All EAFE Universe. In other words, 65% of the products in the peer universe have a higher fee than the LACERS account.

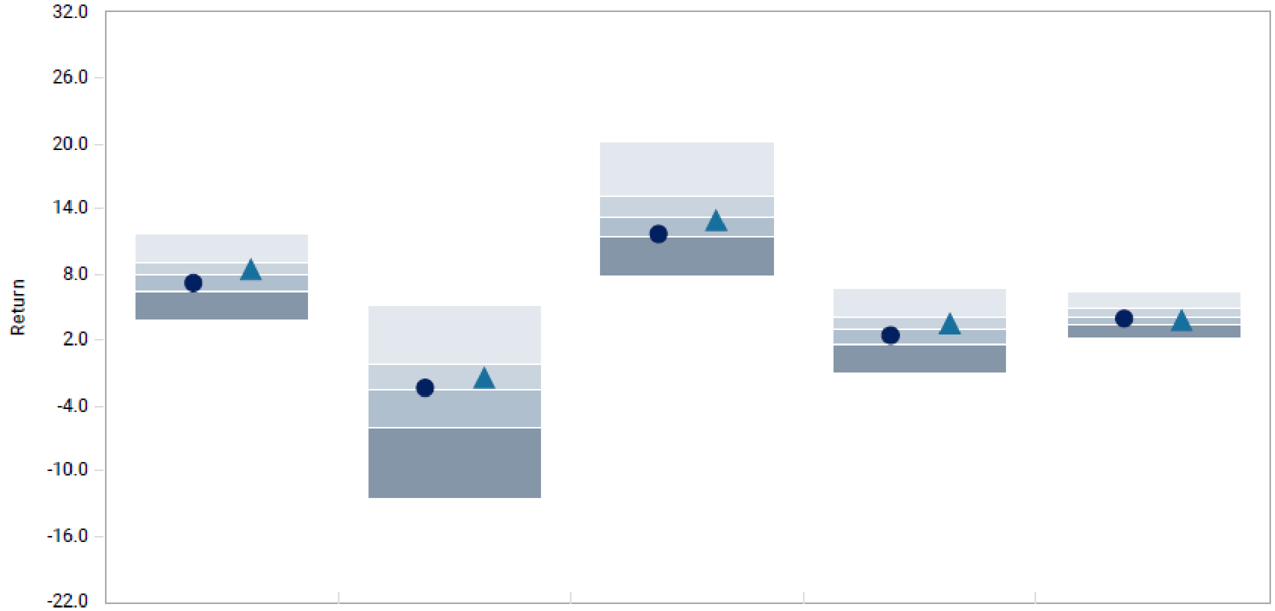
Conclusion

Lazard has performed as expected in a market environment that has favored growth and lower quality stocks. The firm has had a well-established, stable team in place, in addition to executing well against its stated investment objectives. With an investment process and philosophy that prioritizes financially productive and inexpensively valued companies, the portfolio is subject to periods of underperformance when the performance disparity between growth and value stocks is wide. NEPC will continue to monitor recent events at Lazard for any impact to products and clients. NEPC recommends renewing the contract with Lazard for a period of three years from the period of contract expiry.

The following table provides specific net of fees performance information, as referenced above.

Exhibit 1: Performance Summary Net of Fees Ended March 31, 2023

Lazard Asset Management vs. eV All EAFE Equity



	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)
● Lazard Asset Management	7.3 (61)	-2.3 (50)	11.7 (71)	2.5 (63)	3.9 (61)
▲ *MSCI EAFE (Net)*	*8.5 (41)*	*-1.4 (41)*	*13.0 (57)*	*3.5 (40)*	*3.8 (65)*
5th Percentile	11.8	5.2	20.2	6.7	6.4
1st Quartile	9.1	-0.1	15.2	4.1	4.9
Median	8.0	-2.4	13.3	3.1	4.1
3rd Quartile	6.5	-6.1	11.4	1.7	3.4
95th Percentile	3.8	-12.5	7.9	-1.0	2.1
Population	416	413	396	372	291

CONTRACT RENEWAL
LAZARD ASSET MANAGEMENT LLC
ACTIVE NON-U.S. EQUITIES DEVELOPED MARKETS CORE PORTFOLIO MANAGEMENT

PROPOSED RESOLUTION

WHEREAS, LACERS' current three-year contract with Lazard Asset Management LLC (Lazard) for active non-U.S. equities developed markets core portfolio management expires on September 30, 2023; and,

WHEREAS, Lazard is in compliance with the LACERS Manager Monitoring Policy; and,

WHEREAS, a contract renewal with Lazard will allow the LACERS total portfolio to maintain a diversified exposure to non-U.S. developed markets core equities; and,

WHEREAS, on June 27, 2023, the Board approved the Investment Committee's recommendation to approve a three-year contract renewal with Lazard.

NOW, THEREFORE, BE IT RESOLVED, that the General Manager is hereby authorized to approve and execute a contract subject to satisfactory business and legal terms and consistent with the following services and terms:

Company Name:	Lazard Asset Management LLC
Service Provided:	Active non-U.S. equities developed markets core Portfolio Management
Effective Dates:	October 1, 2023 through September 30, 2026
Duration:	Three years
Benchmark:	MSCI EAFE Index
Allocation as of May 31, 2023:	$550 million

June 27, 2023

LACERS
LA CITY EMPLOYEES' RETIREMENT SYSTEM

REPORT TO BOARD OF ADMINISTRATION

From: Investment Committee
Elizabeth Lee, Chair
Janna Sidley
Thuy Huynh

MEETING: JUNE 27, 2023
ITEM: XII – C

SUBJECT: **APPROVAL OF 1-YEAR CONTRACT WITH POLEN CAPITAL CREDIT, LLC REGARDING THE MANAGEMENT OF AN ACTIVE HYBRID HIGH YIELD FIXED INCOME/U.S. FLOATING RATE BANK LOAN PORTFOLIO AND POSSIBLE BOARD ACTION**

ACTION: ☒ CLOSED: ☐ CONSENT: ☐ RECEIVE & FILE: ☐

Recommendation

That the Board:

1. Approve a one-year contract extension with Polen Capital Credit, LLC (Polen Credit) for management of an active hybrid high yield fixed income/U.S. floating rate bank loan portfolio.

2. Authorize the General Manager to approve and execute the necessary documents, subject to satisfactory business and legal terms.

Discussion

At the Investment Committee meeting held on June 13, 2023, the Committee considered the attached staff report (Attachment 1) recommending a one-year contract extension with Polen Credit. The firm has managed an active hybrid high yield fixed income/U.S. floating rate bank loan portfolio for LACERS since October 2020; the current contract expires on August 31, 2023. LACERS' portfolio was valued at approximately $231 million as of May 31, 2023. Polen Credit is in compliance with the LACERS Manager Monitoring Policy. Since inception, LACERS has paid Polen Credit a total of $3.2 million in investment fees through May 31, 2023.

Performance
The Committee meeting of June 13, 2023, continued a discussion of performance and investment management fees from their meeting of May 9, 2023. Included in the staff report to the Committee (attached) was a three-year contract renewal recommendation despite manager performance for the period ending March 31, 2023, showing negative returns relative to the benchmark over the 1-year, 2-year, and since inception time periods, and a marginal positive net excess return over the most recent

three months. Polen Credit has managed the LACERS portfolio for approximately 32 months under an unconventional market cycle and its track record is not long enough to warrant Watch Status placement. An update through May 31, 2023, extends the strategy's calendar year excess returns against the benchmark to 127 basis points, as presented in the table below.

Calendar Year Performance as of 5/31/2023 (Net-of-Fees)				
	1/01/2023-5/31/2023	2022	2021	10/28/2020-12/31/2020
Polen Credit	5.10	-10.27	5.31	4.90
50% Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index/50% Credit Suisse Leveraged Loan Index	3.83	-6.14	5.34	4.61
% of Excess Return	*1.27*	*-4.13*	*-0.03*	*0.29*

Despite recent performance gains in the calendar year 2023, Polen Credit continues to underperform the benchmark over the 1-year, 2-year, and since inception time periods as of May 31, 2023, but has reduced since inception underperformance by 18 bps between April 30, 2023 (since inception net excess return was -1.33%), and May 31, 2023, as presented in the table below.

Annualized Performance as of 5/31/2023 (Net-of-Fees)				
	3-Month	1-Year	2-Year	Since Inception 10/28/2020
Polen Credit	1.40	0.51	-1.79	1.60
50% Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index/50% Credit Suisse Leveraged Loan Index	0.95	2.81	0.00	2.75
% of Excess Return	*0.45*	*-2.30*	*-1.79*	*-1.15*

The composite's trailing returns as of May 31, 2023, are presented as supplemental information in the following table.

Composite Trailing Returns as of 5/31/2023 (Net-of-Fees)									
	3-Month	1-Year	3-Year	5-Year	7-Year	10-Year	15-Year	20-Year	Since Inception 3/31/1998
Polen Credit	1.31	0.96	8.11	3.39	5.89	4.92	6.80	7.47	6.82
Benchmark	0.95	2.81	4.41	3.37	4.37	3.94	5.44	5.68	5.24
% of Excess Return	*0.36*	*-1.85*	*3.70*	*0.02*	*1.51*	*0.98*	*1.36*	*1.78*	*1.58*

Polen Credit's history of risk-adjusted outperformance, stability of its team, and proven repeatable investment process provides confidence to staff that allowing this manager to realize its value-add skills in challenging market conditions over a longer market cycle is warranted.

Fees
The Committee discussed the current fee structure, which is an effective 52 basis points (0.52%) based on current assets under management, which in turn ranks in the 86th percentile of fees charged by managers in the peer universe. Given the underperformance reflected under various time periods, the Committee directed staff to negotiate a more attractive fee structure commensurate with the aforementioned underperformance.

Polen Credit returned to LACERS with three fee options for the Committee's consideration.

Option 1: Performance-Based Fee – LACERS will pay the manager a base fee of 25 basis points and 15% of the performance share (above its benchmark). This option will only require an amendment to the existing contract. However, LACERS may end up paying the manager a higher total fee should the manager deliver strong relative performance regardless of upward or downward performance.

Option 2: Commingled Investment Trust (CIT) – The CIT would be structured as a fund-of-one and LACERS would maintain the flexibility to tailor its own guidelines. Fees would be approximately 49 basis points of AUM: management fees at 42 basis points and administrative fees capped at seven basis points.

Option 3: Opportunistic High Yield Private Fund – This fund is Polen Credit's private commingled vehicle. The current share class fees would be 45 basis points of AUM: 32 basis points in management fees and 13 basis points administrative fees. Unlike the fund-of-one, LACERS would be subject to the private fund's guidelines.

Each option entails a different combination of financial, transparency, liquidity, fund governance, negotiation, operational and implementation considerations. Based on the preliminary information however, the Committee found the options unacceptable, and directed staff to continue negotiating with the manager for other options to consider.

Staff recommends a one-year extension of the Polen Credit contract under the current asset-based fee structure to allow time for staff and the general investment consultant to explore a wider set of fee structure options to bring to the Committee over the next several months with appropriate recommendations. As LACERS prepares for another asset allocation study in 2024, staff will also consider past and trending fundamental market and economic changes that could lead to structural changes to its asset allocation policy. The Committee concurred with the staff recommendation for a one-year contract extension effective September 1, 2023.

Strategic Plan Impact Statement

A contract extension with Polen Credit will allow the fund to maintain a diversified exposure to the active high yield fixed income and U.S. floating rate bank loan markets, which is expected to help optimize long-term risk adjusted investment returns (Goal IV). The discussion of the investment manager's performance and management fee structure aligns with the Strategic Plan Goal to uphold good governance practices that affirm transparency, accountability, and fiduciary duty (Goal V).

Prepared By: Jeremiah Paras, Investment Officer I, Investment Division

NMG/RJ/WL/JP:rm

Attachments: 1. Investment Committee Recommendation Report dated June 13, 2023
2. Proposed Resolution

LACERS
LA CITY EMPLOYEES' RETIREMENT SYSTEM

REPORT TO INVESTMENT COMMITTEE | **MEETING: JUNE 13, 2023**
From: Neil M. Guglielmo, General Manager | **ITEM: VI**

SUBJECT: **CONTINUED DISCUSSION OF INVESTMENT MANAGER CONTRACT WITH POLEN CAPITAL CREDIT, LLC REGARDING THE MANAGEMENT OF AN ACTIVE HYBRID HIGH YIELD FIXED INCOME/U.S. FLOATING RATE BANK LOAN PORTFOLIO AND POSSIBLE COMMITTEE ACTION**

ACTION: ☒ CLOSED: ☐ CONSENT: ☐ RECEIVE & FILE: ☐

Recommendation

That the Committee recommend to the Board a one-year contract extension with Polen Capital Credit, LLC (Polen Credit) for management of an active hybrid high yield fixed income/U.S. floating rate bank loan portfolio.

Executive Summary

Polen Credit has managed an active hybrid high yield fixed income/U.S. floating rate bank loan portfolio for LACERS since October 2020. LACERS' portfolio was valued at $231 million as of April 30, 2023. At the Investment Committee meeting held on May 9, 2023, staff presented a recommendation for a three-year contract renewal. The Committee found the level of the manager's investment management fees unsuitable considering underperformance of the strategy and instructed staff to negotiate with the manager for a lower fee structure. Polen Credit presented staff with three alternative fee options, each with its own financial, legal, and administrative considerations. Staff recommends a one-year extension of the Polen Credit contract under the current asset-based fee structure to allow staff sufficient time to fully evaluate these options.

Discussion

Background
At the Investment Committee meeting held on May 9, 2023, the Committee received a recommendation from staff for a three-year contract renewal for Polen Credit for the management an active hybrid high yield fixed income/U.S. floating rate bank loan portfolio for LACERS benchmarked against a custom blend of 50% of the Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index and 50% of the Credit Suisse Leveraged Loan Index. LACERS' portfolio was valued at $231 million as of April 30, 2023.

Staff noted that while Polen Credit is currently compliant with the LACERS Manager Monitoring Policy, the manager is registering underperformance against its benchmark over the 1-year, 2-year, and since inception time periods. Staff upheld that the short performance track record of the LACERS account is insufficient to cover a conventional market cycle and therefore does not provide adequate time to fully evaluate the effectiveness of the manager. Also highlighted during the report, the composite's net excess returns for longer time periods remain positive. The Committee directed staff to maintain its due diligence efforts and continue to closely monitor the manager and strategy pursuant to policy.

Further, the Committee expressed its reservations about the investment management fees. In particular, the Committee found the effective fee of 52 basis points (0.52%), which ranks in the 86th percentile of fees charged by managers in the peer universe, to be unsuitable considering underperformance of the strategy. Staff explained that the premium to the manager's fee comes from the strategy's structural allocation to bank loans, whereas the peer universe is mostly comprised of managers focused on high yield fixed income. The Committee instructed staff to negotiate with the manager and push for a lower fee structure as a condition for contract renewal.

Performance
As an update to performance, of April 30, 2023, Polen Credit still underperformed the benchmark over the 1-year, 2-year, and since inception time periods. The manager delivered a positive net excess return over the 3-month time period, as presented in the table below.

Annualized Performance as of 4/30/2023 (Net-of-Fees)				
	3-Month	1-Year	2-Year	Since Inception 10/28/2020
Polen Credit	1.66	-1.35	-1.67	1.72
50% Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index/50% Credit Suisse Leveraged Loan Index	1.13	2.16	0.46	3.05
% of Excess Return	*0.53*	*-3.51*	*-2.13*	*-1.33*

The performance over the quarter was buoyed by the results for the month of April 2023, which saw an 88 basis points outperformance against the benchmark. This was also additive to the strategy's calendar year-to-date outperformance against the benchmark, as presented in the table below.

Calendar Year Performance as of 4/30/2023 (Net-of-Fees)				
	1/01/2023-4/30/2023	2022	2021	10/28/2020-12/31/2020
Polen Credit	5.28	-10.27	5.31	4.90
50% Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index/50% Credit Suisse Leveraged Loan Index	4.36	-6.14	5.34	4.61
% of Excess Return	*0.92*	*-4.13*	*-0.03*	*0.29*

The composite's trailing returns, updated as of April 30, 2023, are presented as supplemental information in the following table.

Composite Trailing Returns as of 4/30/2023 (Net-of-Fees)									
	3-Month	1-Year	3-Year	5-Year	7-Year	10-Year	15-Year	20-Year	Since Inception 3/31/1998
Polen Credit	1.50	-0.67	9.63	3.35	6.01	4.95	6.89	7.53	6.84
Benchmark	1.13	2.16	5.99	3.49	4.56	3.97	5.51	5.77	5.28
% of Excess Return	*0.37*	*-2.83*	*3.64*	*-0.14*	*1.45*	*0.98*	*1.38*	*1.76*	*1.56*

Fee Structure Options

Staff discussed the Committee's desire for lower management fees with Polen Credit, which readily expressed a willingness to work with LACERS to optimize fees. The manager ruled out a further reduction to the current asset-based fee structure because this would require extending the reduction to other separately managed client accounts pursuant to most favored nations contract provisions. Instead, Polen Credit presented staff with three other options, each with its own financial, legal and administrative considerations. The first option is a performance-based fee. Under this fee structure, LACERS pays the manager a base fee of 25 basis points and 15% of the performance share. The primary advantage of this structure would be the ease of implementation – LACERS would not need to transition out of its separately management account (SMA) as the process will only require an amendment to the existing contract. The drawback to this fee structure is the possibility that LACERS ends up paying the manager a higher total fee relative to the current asset-based fee structure should the manager deliver strong relative performance, in either up or down markets. Other technical considerations include setting a performance cap and determining the performance calculation timing.

As a second option, Polen Credit is willing to create a new Commingled Investment Trust (CIT) fund exclusive to LACERS. It would be structured as a fund-of-one and as such, LACERS would maintain the flexibility to tailor its own investment management guidelines. Under the tiered management fee of this proposed structure and the current market value of the LACERS portfolio, LACERS would pay approximately 42 basis points in management fees plus administrative fees capped at seven basis points with Polen Credit subsidizing the remainder of the administrative fees. LACERS may lose the holdings transparency it currently has with its SMA and would be subject to the liquidity/withdrawal window provisions of the CIT. The manager estimates that it would require 90-120 days to launch this vehicle should LACERS pursue this option. LACERS may potentially incur legal costs should outside investment counsel be required to assist with review and negotiation of the CIT contract.

The third option would be transitioning to Polen Credit's Opportunistic High Yield Private Fund, a private commingled vehicle. The fund is already established, and the share class currently being offered sets cost at 45 basis points, which is comprised of 32 basis points management fees and 13 basis points administrative fees. Unlike the fund-of-one, LACERS would have to adopt the private fund's investment management guidelines. Although very similar, LACERS' current guidelines and the private fund's guidelines do have differences which may be deemed material. LACERS will also need to consider the fund's liquidity restrictions as well as potential policy implications surrounding the fund's legal and regulatory status. As with the CIT option, LACERS may potentially incur legal costs should outside investment counsel be required to assist with review and negotiation of the private commingled vehicle contract.

Recommendation

In light of the contract expiration on August 31, 2023, staff recommends a one-year extension of the Polen Credit contract under the current asset-based fee structure. Within the next year, staff and NEPC aim to fully evaluate each of the proposed options to determine if any of the proposed options provide a distinct advantage over the existing fee structure and investment vehicle. As LACERS prepares for another asset allocation study in 2024, staff will also aim to utilize the additional year to evaluate potential changes to the Credit Opportunities asset class under which the Polen Credit active hybrid high yield fixed income/U.S. floating rate bank loan portfolio falls.

Strategic Plan Impact Statement

A contract extension with Polen Credit will allow the fund to maintain a diversified exposure to the active high yield fixed income and U.S. floating rate bank loan markets, which is expected to help optimize long-term risk adjusted investment returns (Goal IV). The discussion of the investment manager's performance and management fee structure aligns with the Strategic Plan Goal to uphold good governance practices that affirm transparency, accountability, and fiduciary duty (Goal V).

Prepared By: Jeremiah Paras, Investment Officer I, Investment Division

NMG/RJ/BF/JP:rm

Attachment: 1. Investment Committee Recommendation Report dated May 9, 2023

LACERS
LA CITY EMPLOYEES' RETIREMENT SYSTEM

REPORT TO INVESTMENT COMMITTEE
From: Neil M. Guglielmo, General Manager

MEETING: MAY 9, 2023
ITEM: VII

SUBJECT: **INVESTMENT MANAGER CONTRACT WITH POLEN CAPITAL CREDIT, LLC REGARDING THE MANAGEMENT OF AN ACTIVE HYBRID HIGH YIELD FIXED INCOME/U.S. FLOATING RATE BANK LOAN PORTFOLIO AND POSSIBLE COMMITTEE ACTION**

ACTION: ☒ CLOSED: ☐ CONSENT: ☐ RECEIVE & FILE: ☐

Recommendation

That the Committee recommend to the Board a three-year contract renewal with Polen Capital Credit, LLC for management of an active hybrid high yield fixed income/U.S. floating rate bank loan portfolio.

Executive Summary

Polen Capital Credit, LLC (Polen Credit) has managed an active hybrid high yield fixed income/U.S. floating rate bank loan portfolio for LACERS since October 2020. LACERS' portfolio was valued at $227 million as of March 31, 2023. Polen Credit is in compliance with the LACERS Manager Monitoring Policy. Staff and NEPC, LLC (NEPC), LACERS' General Fund Consultant, recommend a three-year contract renewal.

Discussion

Background
Polen Credit manages an active hybrid high yield fixed income/U.S. floating rate bank loan portfolio for LACERS benchmarked against a custom blend of 50% of the Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index and 50% of the Credit Suisse Leveraged Loan Index. With an active bias toward small-to-mid cap issues, Polen Credit's strategy seeks to exploit inefficiencies in the credit markets by adhering to a disciplined, bottom-up, fundamentally oriented investment process with a strict adherence to downside protection. The strategy is opportunistic and has the flexibility to invest in both high yield bonds (target range generally 50% to 95% of portfolio market value) and bank loans (allowable range typically 0% to 50% of portfolio market value); the strategy is not required, nor expected, to maintain an even allocation between high yield bonds and bank loans like its benchmark pursuant to its approved investment management guidelines. LACERS' portfolio was valued at $227 million as of March 31, 2023.

The strategy has three named co-portfolio managers: Dave Breazzano (43 years of experience/26 years with Polen Credit), Ben Santonelli (19 years of experience/18 years with Polen Credit), and John

Sherman (19 years of experience/15 years with Polen Credit), who all form part of a larger 17-member investment team.

The Board hired Polen Credit through the 2019-2020 Active Hybrid High Yield Fixed Income/U.S. Floating Rate Bank Loan search process and authorized a three-year contract on February 11, 2020; the contract became effective on September 1, 2020. The current contract expires on August 31, 2023. Representatives of Polen Credit most recently presented a portfolio review to the Investment Committee on October 11, 2022.

Organization
Polen Credit is headquartered in Waltham, Massachusetts. There are 43 employees working primarily in support of the credit business, 17 of whom are investment personnel. At the time of its hiring, Polen Credit, formerly known as DDJ Capital Management, LLC prior to rebranding, was 100% employee-owned. In January 2022, Florida-based growth equity asset management firm Polen Capital Management, LLC (Polen Capital) acquired Polen Credit as a wholly owned subsidiary. Polen Credit continues to operate autonomously from its parent Polen Capital. As of March 31, 2023, the firm managed over $6.9 billion in total assets with over $4.4 billion in their U.S. Opportunistic High Yield strategy. LACERS' capital comprises approximately 5.2% of this strategy.

Due Diligence
Staff conducts routine due diligence of the manager. In addition to meeting virtually for quarterly portfolio reviews and ad hoc investment discussions, LACERS staff conducted an onsite meeting at Polen Credit's headquarters on April 12, 2023 to interview key personnel across the organization. Based upon these due diligence activities as well as staff's and NEPC's continuous monitoring, it has been noted that Polen Credit's investment philosophy, strategy, and process have not changed materially over the contract period.

As to the aforementioned change in Polen Credit's ownership, staff placed Polen Credit under watch status in December 2021 pursuant to the LACERS Manager Monitoring Policy following the announcement of Polen Capital's planned acquisition of Polen Credit. During this evaluation period, staff and NEPC closely monitored the firm's integration progress and performance against specific standards set forth by policy. In February 2023, staff removed Polen Credit from watch status upon determining that the change in ownership did not detrimentally impact the firm's investment capabilities.

Staff and NEPC continue to deem Polen Credit capable of managing assets for LACERS under its hybrid high yield fixed income/U.S. floating rate bank loan strategy.

Performance
As of March 31, 2023, Polen Credit has underperformed the benchmark over the 1-year, 2-year, and since time periods, and delivered a marginal positive net excess return over the 3-month time period, as presented in the following table.

Annualized Performance as of 3/31/2023 (Net-of-Fees)				
	3-Month	1-Year	2-Year	Since Inception 10/28/2020
Polen Credit	3.36	-5.47	-2.13	1.01
50% Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index/50% Credit Suisse Leveraged Loan Index	3.35	-0.54	0.37	2.75
% of Excess Return	*0.01*	*-4.93*	*-2.50*	*-1.74*

Most of Polen Credit's cumulative underperformance relative to its benchmark can be traced to the strategy's significant underperformance during the calendar year 2022, as presented in the table below.

Calendar Year Performance as of 3/31/2023 (Net-of-Fees)				
	1/01/2023-3/31/2023	2022	2021	10/28/2020-12/31/2020
Polen Credit	3.36	-10.27	5.31	4.90
50% Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index/50% Credit Suisse Leveraged Loan Index	3.35	-6.14	5.34	4.61
% of Excess Return	*0.01*	*-4.13*	*-0.03*	*0.29*

The 2022 underperformance was driven by three primary factors. First, the portfolio maintains an underweight allocation to bank loans relative to the benchmark. (As discussed in the Background section, the portfolio is not required to be evenly allocated between high yield bonds and bank loans like its benchmark.) Floating rate bank loans outperformed fixed rate high yield fixed income by over 1,000 basis points in 2022 due to the rising interest rate environment, causing the strategy to lag the benchmark. Second, the strategy holds a sizable overweight to CCC-rated instruments relative to the benchmark. Polen Credit believes that the lower rated segments of the market are poised for a multi-year stretch of outperformance driven by attractive valuations and healthy fundamentals. In 2022, concerns over rising rates and an impending downturn led lower rated credits to meaningfully underperform higher rated instruments, which the portfolio had an underweight to. Third, the portfolio's structural underweight to the energy sector detracted from performance with the energy sector outperforming since the inception of portfolio. Polen Credit's structural underweight to energy is deliberate as the manager believes that the sector is heavily driven by the price of oil, which is volatile and difficult to predict and therefore does not lend itself well to Polen Credit's bottom-up fundamental research-based approach.

As presented in the table below, even with a significant underperformance in the most recent year, net excess return for the composite (all accounts managed in the strategy) remains positive for all time periods seven years and longer. Polen Credit believes that the portfolio is positioned to outperform the benchmark going forward for several reasons. First, Polen Credit expects a mean reversion to occur, resulting in high yield bonds outperforming bank loans over the next two to three years. Second, the manager believes that the portfolio's yield premium, which is higher relative to the benchmark, will largely be realized with the expectation of only a few credit impairments in the portfolio over the intermediate term. Third, Polen Credit considers the volatility in the current environment as an opportunity to add significant excess returns through superior security selection.

Composite Trailing Returns as of 3/31/2023 (Net-of-Fees)									
	3-Month	1-Year	3-Year	5-Year	7-Year	10-Year	15-Year	20-Year	Since Inception 3/31/1998
Polen Credit	3.46	-4.15	9.72	2.96	6.23	4.92	6.99	7.77	6.80
Benchmark	3.35	-0.54	7.18	3.41	4.85	4.00	5.70	5.91	5.26
% of Excess Return	*0.11*	*-3.61*	*2.54*	*-0.45*	*1.38*	*0.92*	*1.29*	*1.86*	*1.54*

Polen Credit is currently compliant with the LACERS Manager Monitoring Policy; however, the short performance track record of the LACERS account is insufficient to cover a conventional market cycle and therefore does not provide adequate time to fully evaluate the effectiveness of the manager under this particular strategy. Staff and NEPC recommend renewing Polen Credit's contract for another three-year period and will continue to monitor the manager and strategy pursuant to policy.

Fees
LACERS pays Polen Credit an effective fee of 52 basis points (0.52%), which is approximately $1,190,000 annually based on the value of LACERS' assets as of March 31, 2023. This fee ranks in the 86th percentile of fees charged by similar managers in the eVestment database (i.e., 86% of like-managers have lower fees). Since inception, LACERS has paid Polen Credit a total of $2.9 million in investment management fees as of March 31, 2023.

General Fund Consultant Opinion
NEPC concurs with this recommendation.

<u>Strategic Plan Impact Statement</u>

A contract renewal with Polen Credit will allow the fund to maintain a diversified exposure to the active high yield fixed income and U.S. floating rate bank loan markets, which is expected to help optimize long-term risk adjusted investment returns (Goal IV). The discussion of the investment manager's organization, strategy, performance, and management fee structure aligns with the Strategic Plan Goal to uphold good governance practices that affirm transparency, accountability, and fiduciary duty (Goal V).

<u>Prepared By:</u> Jeremiah Paras, Investment Officer I, Investment Division

NMG/RJ/BF/JP:rm

Attachment: 1. Consultant Recommendation – NEPC, LLC

To: Los Angeles City Employees' Retirement System Investment Committee

From: NEPC, LLC

Date: May 9, 2023

Subject: Polen Capital Management, LLC - Contract Renewal

Recommendation

NEPC recommends Los Angeles City Employees' Retirement System (LACERS) renew the contract with Polen Capital Management, LLC ('Polen' or 'Polen Capital') for a period of three years from the date of contract expiry.

Background

Polen has been an investment manager for LACERS since October 28, 2020 managing a high yield/ bank loans strategy within the Credit Opportunities asset class. As of February 28, 2023, Polen managed $227.8 million, or 1.1% of Plan assets. The portfolio is benchmarked against a 50:50 split between the Bloomberg U.S. High Yield 2% Issuer Cap Index and the Credit Suisse Leveraged Loan Index. The portfolio has a performance objective of outperforming the benchmark, net of fees, annualized over a full market cycle (normally three-to-five years). The Polen portfolio is currently compliant with LACERS' manager monitoring policy.

DDJ Capital Management was founded by Dave Breazzano in 1996. In December 2021 it was announced that Polen Capital Management, LLC, a privately held growth equity investment firm, would be acquiring DDJ, with the deal ultimately closing in January 2022. The transaction saw DDJ founder Dave Breazzano take an equity interest in Polen's holding company and become a member of the firm's Operating Committee. Other equity owners in DDJ, including departed partners who still held equity interest, were paid out 2/3rds up front, with the last 1/3rd expected to be paid out over three years based on certain business metrics. The senior investment team members of legacy DDJ received phantom equity in the Polen Capital Credit franchise business based on revenue share and will have the opportunity to become equity partners in the Polen holding company over time. DDJ has officially been rebranded as Polen Credit. There are three other growth equity teams at Polen, all bringing different expertise. Each group functions separately, but takes advantage of centralized operational and marketing resources. Polen Credit is now the fourth team under Polen Capital and is the only fixed income manager.

Polen Capital Management was founded in 1979 by David M. Polen, who was the sole owner until July 2007. In July 2007, employee ownership was broadened to 10% with David Polen owning 90%. David Polen passed away in June 2012 and his ownership interest passed to Polen Family Holdings (formerly the Polen Family Trust). In December 2012, an employee group led by Stan Moss, Dan Davidowitz and Damon Ficklin assumed majority ownership of the firm. From 2012 to 2015, employees owned 51% of the firm and Polen Family Holdings owned 49% as a passive owner. At year-end 2015, iM Global Partner (formerly iM Square), a London-based investment and development platform dedicated to the asset management business, acquired a 20% passive equity stake in Polen Capital. iM Global Partner purchased 20% directly from Polen Family Holdings. Polen

Family Holdings was further diluted by 9% as a result of new equity interests granted to Polen Capital employees. This increased employee ownership from 51% to 60%. On January 4, 2019, Polen Capital purchased 11% of equity from Polen Family Holdings. This increased employee ownership from 60% to 71%. Polen Capital is an independently controlled, employee-managed firm. The current ownership structure is 72% employees (Polen Capital Holdings LP), 20% iM Global Partner (passive interest) and 8% Polen Family Holdings (passive interest). Importantly, Polen Capital employees control 100% of the firm.

As of March 31, 2023, Polen Capital Management had approximately $61.3 billion in assets under management ('AUM'). As of December 31, 2022 total AUM for the Polen Credit team specifically was $6.9 billion, of which the Opportunistic High Yield strategy represented $4.3 billion. The firm has been trying to diversify strategies using the same basic credit platform and introduced the BB/B Upper Tier High Yield in 2012, Bank Loan in 2013 as well as higher octane Total Return Credit in 2010.

Polen focuses on the smaller issue size and lower-rated parts of the high yield and loan market. They believe the rating agencies have a size bias and will rate securities lower due to smaller size. Polen relies on in-depth enterprise analysis, with a loan to value lens. They want companies that generate cash flow and have enterprise value/asset value to help secure their positions. There is also a strong focus on the covenant/legal aspects to help them understand and protect value when credit events arise. Generally, their perspective is that of a long-term lender and they enter positions expecting to be a long-term holder and earn the coupon. Polen does not have a dedicated risk management team. Given the nature of the investments and the focus on lower tier high yield (and bank loans), risk management effectively comes in the underwriting and monitoring of investments. Polen's focused style does lead to larger position sizes in relatively less liquid markets, so investors should be aware of the portfolio's limited liquidity during stressful times. It is also not unusual for Polen to be involved in creditor battles and dealing with bankruptcies and restructurings where positions may become restricted.

Dave Breazzano is the head of the high yield team at Polen. He has been leading the group since DDJ's inception in 1996. Around him is a slightly younger generation. John Sherman (19 years industry/16 years Polen) and Ben Santonelli (19 years industry/19 years Polen) are co-PMs with Mr. Breazzano on the Opportunistic High Yield strategy. In addition to the portfolio managers, on the Investment Review Committee is the Associate General Counsel, Elizabeth Duggan. Jason Rizzo is the head trader. Supporting the Investment Review Committee is a nine-person research group, broken out by industry coverage.

Performance

Referring to Exhibit 1, as of February 28, 2023, since the portfolio's inception date of November 1, 2020, the portfolio has underperformed its benchmark by 1.8%. Over the past year, the portfolio has underperformed the benchmark by 4.4% and year-to-date the portfolio has outperformed by 0.8%. Referring to Exhibit 1A, over longer periods of time, Polen clients in the U.S. Opportunistic High Yield product have experienced outperformance over longer periods of time with 1% and 1.4% over 10 year and seven years respectively. Over the last five years the product has underperformed by 0.2% and over three years has outperformed by 1.2%.

Referring to Exhibit 2, as of December 31, 2022, since inception the portfolio has underperformed its benchmark's return by 2.3% and ranked in the 73rd percentile in its peer group. In the past year, ended December 31, 2022, the portfolio also underperformed its benchmark return 4.2% and ranked in the 54th percentile in its peer group.

Referring to Exhibit 3, underperformance over the course of 2022 has pulled the since inception cumulative results below benchmark returns. The portfolio underperformed in the second, third, and fourth quarter of 2022. Underperformance in the portfolio can be attributed to sector allocation and credit positioning. The portfolio's overweight to bonds and loans across the lower-rated spectrum and underweight to bonds across the higher-rated spectrum detracted significantly from total returns. Sector allocation detracted from relative performance primarily driven by the portfolio's overweight to bonds in the Brokerage/Asset Managers sector and underweight to bonds in the Electric and Energy sectors.

Fees

The portfolio has an asset-based fee of 0.52% annually. This fee ranks in the 86th percentile among its peers in the eVestment U.S. High Yield Fixed Income universe. In other words, 86% of the products included in the peer universe have a lower fee than the LACERS account.

Conclusion

Polen has underperformed its benchmark index since November 1, 2020. The portfolio is designed to invest in the smaller sized and lower-rated parts of the U.S. High Yield and bank loans investment universe and this area of the market has not been in favor. The firm managing the LACERS portfolio has exhibited some instability at the firm-level after having been purchased, though NEPC sees this as a net positive which provides long-term stability in firm operations. Polen's investment process, investment team, strategy and philosophy have been stable. NEPC recommends a contract renewal for a period of three years from the period of contract expiry.

The following tables provide specific performance information, net of fees referenced above.

Exhibit 1: Performance Comparison Net of Fees as of February 28, 2023

	1 Month	YTD	1 Year	3 Years	5 Years	10 Years	Inception	Inception Date
Polen Capital	0.1	3.7	-6.0				0.9	Nov-20
50% BBgBarc US High Yield 2% Issuer Cap / 50% Credit Suisse Leveraged Loan Index	-0.3	2.9	-1.6				2.7	
Over/Under	0.4	0.8	-4.4				-1.8	

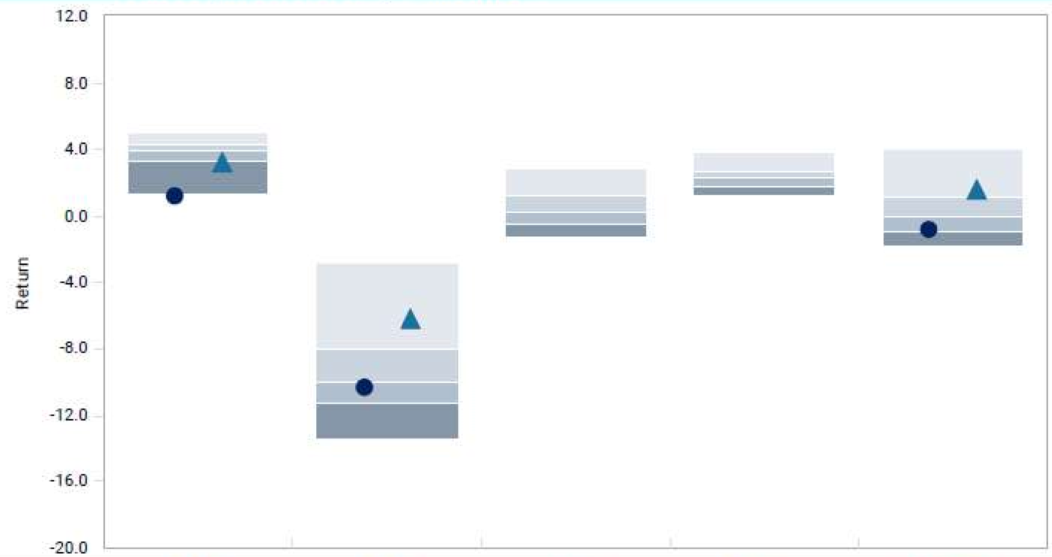
Exhibit 1A: Performance Comparison Net of Fees Polen U.S. Opportunistic High Yield Separately Managed Accounts Composite as of February 28, 2023

Product Name	YTD	1 Year	3 Years	5 Years	7 Years	10 Years	Returns - Since Inception 24.92 Years 04/1998 - 02/2023
Polen Capital	3.7	-4.0	3.8	3.1	6.7	5.1	6.8
50% BBgBarc US High Yield 2% Issuer Cap / 50% Credit Suisse Leveraged Loan Index	2.9	-1.6	2.6	3.3	5.3	4.1	--
Over/Under	0.8	-2.4	1.2	-0.2	1.4	1.0	--

*Source: eVestment, Polen Capital U.S. Opportunistic High Yield separately managed account composite

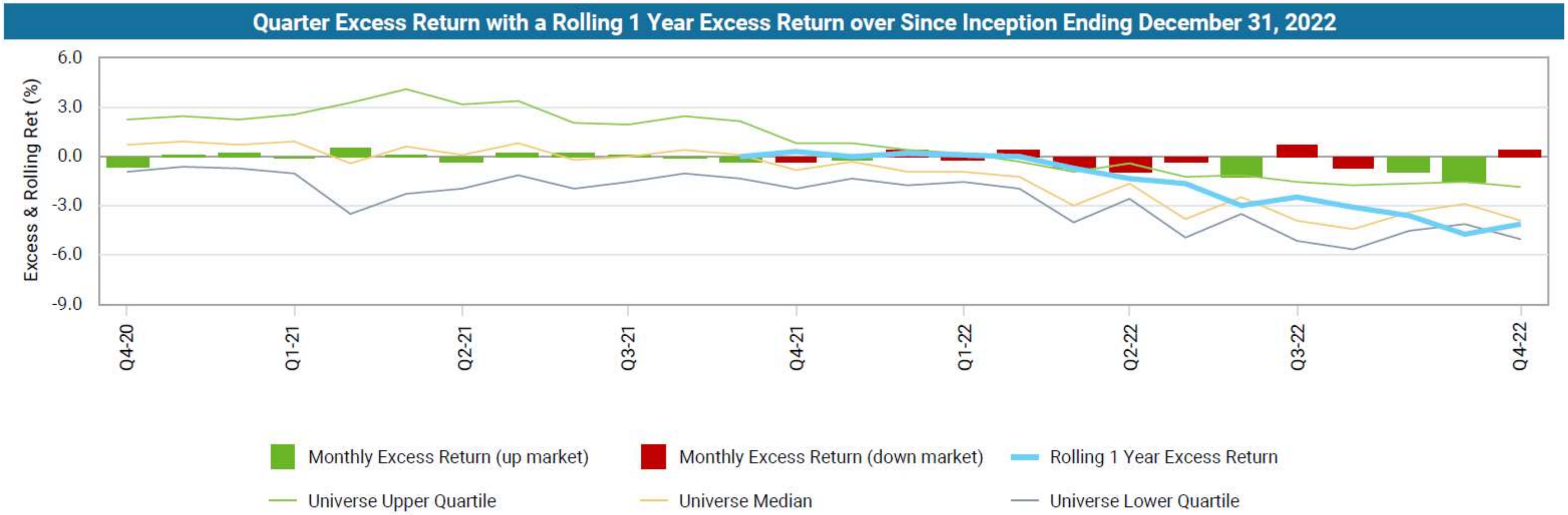
Exhibit 2: Universe Performance Comparison Net of Fees Ending December 31, 2022

Polen Capital vs. eV US High Yield Fixed Inc



	3 Mo (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Inception (%)
● Polen Capital	1.2 (96)	-10.3 (54)			-0.7 (73)
▲ *50% BBgBarc US High Yield 2% Issuer Cap / 50% Credit Suisse Leveraged Loan Index*	*3.3 (78)*	*-6.1 (19)*			*1.6 (20)*
5th Percentile	4.9	-2.8	2.9	3.9	4.0
1st Quartile	4.4	-8.0	1.2	2.7	1.1
Median	3.9	-10.0	0.3	2.3	0.0
3rd Quartile	3.3	-11.2	-0.5	1.8	-0.9
95th Percentile	1.3	-13.3	-1.3	1.3	-1.8
Population	231	228	225	217	226

Exhibit 3: Cumulative Excess Performance Net of Fees Ending December 31, 2022



CONTRACT EXTENSION
POLEN CAPITAL CREDIT, LLC
ACTIVE HYBRID HIGH YIELD FIXED INCOME/U.S. FLOATING RATE BANK LOAN
PORTFOLIO MANAGEMENT

PROPOSED RESOLUTION

WHEREAS, LACERS' current three-year contract with Polen Capital Credit, LLC (Polen Credit) for management of an active hybrid high yield fixed income/U.S. floating rate bank loan portfolio expires on August 31, 2023; and,

WHEREAS, Polen Credit is in compliance with the LACERS Manager Monitoring Policy; and,

WHEREAS, a contract extension with Polen Credit will allow the LACERS total portfolio to maintain a diversified exposure to the active high yield fixed income and U.S. floating rate bank loan markets; and,

WHEREAS, on June 27, 2023, the Board approved the Investment Committee's recommendation to approve a one-year contract extension with Polen Credit.

NOW, THEREFORE, BE IT RESOLVED, that the General Manager is hereby authorized to approve and execute a contract subject to satisfactory business and legal terms and consistent with the following services and terms:

Company Name:	Polen Capital Credit, LLC
Service Provided:	Active Hybrid High Yield Fixed Income/U.S. Floating Rate Bank Loan Portfolio Management
Effective Dates:	September 1, 2023 through August 31, 2024
Duration:	One year
Benchmark:	50% of the Bloomberg U.S. Corporate High Yield 2% Issuer Capped Index and 50% of the Credit Suisse Leveraged Loan Index
Allocation as of May 31, 2023:	$231 million

June 27, 2023

LACERS
LA CITY EMPLOYEES'
RETIREMENT SYSTEM

REPORT TO BOARD OF ADMINISTRATION

From: Investment Committee
Elizabeth Lee, Chair
Janna Sidley
Thuy Huynh

MEETING: JUNE 27, 2023
ITEM: XII – D

SUBJECT: **APPROVAL OF 5-YEAR PRIVATE EQUITY CONSULTANT CONTRACT WITH AKSIA CA LLC AND POSSIBLE BOARD ACTION**

ACTION: ☒ CLOSED: ☐ CONSENT: ☐ RECEIVE & FILE: ☐

Recommendation

That the Board:

1. Approve a five-year contract renewal with Aksia CA LLC for private equity consulting services.

2. Authorize the General Manager to approve and execute the necessary documents, subject to satisfactory business and legal terms.

Discussion

On June 13, 2023, the Committee considered the attached staff report (Attachment 1) recommending a five-year contract renewal with Aksia CA LLC (Aksia) for private equity consulting services. The contract with Aksia became effective on July 25, 2018, and expires on July 24, 2023. Since inception, LACERS has paid a total of $3,312,500 in private equity consulting fees to Aksia. Additionally, Aksia was hired on April 1, 2023, to provide private credit consulting services to LACERS under a separate contract.

Staff discussed Aksia's consulting services, including increases in proposed consulting fees, and expressed satisfaction with the quality and level of service provided by Aksia under a growing private equity program. The Committee inquired about whether Aksia had recommended funds with new general partners. Staff responded that Aksia has sourced opportunities with new general partners and had recommended a number of funds with strong historical track records while continuing fund commitment recommendations to high-performing existing general partner relationships. Accordingly, the Committee concurred with staff's recommendation of a five-year contract renewal.

Strategic Plan Impact Statement

A contract renewal with Aksia CA LLC will assist the fund in maintaining a diversified portfolio, which is expected to help optimize long-term risk adjusted investment returns (Goal IV). The discussion of the consultant's profile, approach, and fee structure are consistent with Goal V (uphold good governance practices which affirm transparency, accountability, and fiduciary duty).

Prepared By: Robert King, CPA, Investment Officer II, Investment Division

NMG/RJ/WL/RK:jp

Attachments:
1. Investment Committee Recommendation Report dated June 13, 2023
2. Proposed Resolution

LACERS
LA CITY EMPLOYEES'
RETIREMENT SYSTEM

REPORT TO INVESTMENT COMMITTEE **MEETING: JUNE 13, 2023**
From: Neil M. Guglielmo, General Manager **ITEM: VII**

SUBJECT: **PRIVATE EQUITY CONSULTANT CONTRACT WITH AKSIA CA LLC AND POSSIBLE COMMITTEE ACTION**

ACTION: ☒ CLOSED: ☐ CONSENT: ☐ RECEIVE & FILE: ☐

Recommendation

That the Committee recommend to the Board a five-year contract renewal with Aksia CA LLC for private equity consulting services.

Executive Summary

Aksia CA LLC (Aksia) has served as LACERS private equity consultant since July 25, 2018; the current contract expires on July 24, 2023. Since inception of the contract, Aksia has provided value-added consulting services to LACERS; their investment recommendations have been developed thoughtfully based on a solid understanding of LACERS' objectives and Investment Policy. Staff is satisfied with Aksia's services and recommend a five-year contract renewal for private equity consulting services.

Discussion

Background
Aksia provides private equity consulting services to LACERS. The Board hired Aksia through the 2017-2018 Private Equity Consultant search process and authorized a five-year contract with Aksia on June 26, 2018. The contract became effective on July 25, 2018, and expires on July 24, 2023. Since inception, LACERS has paid a total of $3,312,500 in private equity consulting fees to Aksia. Additionally, Aksia was hired on April 1, 2023, to provide private credit consulting services to LACERS under a separate contract.

Organization
Aksia is an alternative asset specialist investment consulting firm and is 100% employee owned. The firm was founded in 2006 and has seven global offices including New York (Headquarters), San Diego, Chicago, London, Tokyo, Hong Kong, and Athens. Aksia has 394 employees including 84 investment research, 60 operational due diligence, and 42 risk management professionals. Aksia advises on over $265 billion of client assets.

Primary Consulting Team Assigned to LACERS
LACERS' primary consulting team currently consists of four individuals: Tom Martin, Partner, Global Head of Private Equity & Real Assets; Heidi Poon, Managing Director, Head of Asian Private Equity and Growth Equity & Venture; Jeff Goldberger, Managing Director, Head of U.S. Middle Market Buyouts; and Trevor Jackson, Managing Director, Portfolio Advisory, and LACERS' primary relationship manager. Each of the Aksia team members are senior level team leaders who bring deep private market experience and specializations around manager sourcing and selection, industry and manager research, operational due diligence, and portfolio construction. Collectively, they help guide LACERS long-term private equity strategy and program.

Consulting Approach and Accomplishments
Aksia's consulting approach is research-driven and centered on building a customized portfolio for LACERS, providing performance focused solutions to optimize LACERS' risk-adjusted returns. Since being hired, Aksia has provided value-added services to LACERS including:

- Underwriting and recommending more than $3.5 billion in new commitments to over 100 funds, including approximately $319 million in commitments to 17 emerging manager funds
- Advising on numerous contract amendments for existing LACERS managers
- Preparing and presenting the annual strategic plan and pacing studies
- Assisting with LACERS' Investment Policy review and developing new policies
- Providing Board and staff with investment education on topics such as private equity valuations and co-investments
- Participating in LACERS initiatives such as the Emerging Manager Symposium

Askia's recommendations and deliverables have been developed thoughtfully based on a solid understanding of LACERS' objectives and Investment Policy. Additionally, staff conducted an onsite due diligence visit at Aksia's headquarters to get an update on their resources and capabilities. Staff interviewed various professionals on topics including, but not limited to, overall business strategy and growth, organization and reporting structure, staffing, consulting philosophy and strategy, deal sourcing and due diligence process, risk management, compliance and controls, and technology. Accordingly, staff recommends a five-year contract renewal with Aksia.

Fees
The current contract with Aksia, which spans from July 25, 2018, to July 24, 2023, specifies the following fee structure:

Year 1:	$725,000
Year 2:	$737,500
Year 3:	$750,000
Year 4:	$762,500
Year 5:	$775,000
Total Fees:	$3,750,000

For the next five-year contract term, Aksia has proposed a fee structure which reflects adjustments for current and projected inflation, additional staffing resources, as well as the increased size and complexity of LACERS' private equity program. The proposed fee schedule includes escalations each year. Starting with the current fee of $775,000, each successive year results in the following percentage increases: Year 1 = 9.7%; Year 2 = 5.3%; Year 3 = 5.0%; Year 4 = 4.8%; and Year 5 = 5.1%.

Year 1:	$850,000
Year 2:	$895,000
Year 3:	$940,000
Year 4:	$985,000
Year 5:	$1,035,000
Total Fees:	$4,705,000

Strategic Plan Impact Statement

A contract renewal with Aksia CA LLC will assist the fund in maintaining a diversified portfolio, which is expected to help optimize long-term risk adjusted investment returns (Goal IV). The discussion of the consultant's profile, approach, and fee structure are consistent with Goal V (uphold good governance practices which affirm transparency, accountability, and fiduciary duty).

Prepared By: Robert King, CPA, Investment Officer II, Investment Division

NMG/RJ/BF/WL/RK:jp

CONTRACT RENEWAL
AKSIA CA LLC
PRIVATE EQUITY CONSULTING SERVICES

PROPOSED RESOLUTION

WHEREAS, LACERS' current five-year contract with Aksia CA LLC (Aksia) for private equity consulting services expires on July 24, 2023; and,

WHEREAS, Aksia has provided a satisfactory level of service in meeting LACERS' needs and objectives; and,

WHEREAS, on June 27, 2023, the Board approved the Investment Committee's recommendation for a five-year contract renewal with Aksia.

NOW, THEREFORE, BE IT RESOLVED, that the General Manager is hereby authorized to approve and execute the contract subject to satisfactory business and legal terms and consistent with the following services and terms:

Company Name:	Aksia CA LLC
Services Provided:	Private Equity Consulting Services
Effective Dates:	July 25, 2023 through July 24, 2028
Duration:	Five years
Fee:	Year 1 - $850,000
	Year 2 - $895,000
	Year 3 - $940,000
	Year 4 - $985,000
	Year 5 - $1,035,000

June 27, 2023