Alameda County Employees' Retirement Association

BOARD OF RETIREMENT

INVESTMENT COMMITTEE/BOARD MEETING

THIS MEETING WILL BE CONDUCTED VIA TELECONFERENCE
SEE GOV'T CODE § 54953(e).

ACERA MISSION:

To provide ACERA members and employers with flexible, cost-effective, participant-oriented benefits through prudent investment management and superior member services.

Wednesday, February 8, 2023
9:30 a.m.

ZOOM INSTRUCTIONS	COMMITTEE MEMBERS	
The public can view the Teleconference and comment via audio during the meeting. To join this Teleconference, please click on the link below. https://zoom.us/join Webinar ID: 879 6337 8479 Passcode: 699406 1 (669) 900-6833 US For help joining a Zoom meeting, see: https://support.zoom.us/hc/en-us/articles/201362193	**TARRELL GAMBLE** **CHAIR**	**APPOINTED**
	GEORGE WOOD **VICE CHAIR**	**ELECTED GENERAL**
	ROSS CLIPPINGER	**ELECTED SAFETY**
	OPHELIA BASGAL	**APPOINTED**
	KEITH CARSON	**APPOINTED**
	JAIME GODFREY	**APPOINTED**
	ELIZABETH ROGERS	**ELECTED RETIRED**
	HENRY LEVY	**TREASURER**
	KELLIE SIMON	**ELECTED GENERAL**
	CYNTHIA BARON	**ALTERNATE RETIRED**[1]
	KEVIN BRYANT	**ALTERNATE SAFETY**[2]

1 The Alternate Retired Member votes in the absence of the Elected Retired Member, or, if the Elected Retired Member is present, then votes if both Elected General members, or the Safety Member and an Elected General member, are absent.

2 The Alternate Safety Member votes in the absence of the Elected Safety, either of the two Elected General Members, or both the Retired and Alternate Retired members.

Note regarding accommodations: If you require a reasonable modification or accommodation for a disability, please contact ACERA between 9:00 a.m. and 5:00 p.m. 72 hours prior to the meeting at accommodation@acera.org or at 510-628-3000.

Note regarding public comments: Public comments are limited to four (4) minutes per person in total.

The order of agendized items is subject to change without notice. Board and Committee agendas and minutes, and all documents distributed to the Board or a Committee in connection with a public meeting (unless exempt from disclosure), are available online at www.acera.org.

INVESTMENT COMMITTEE/BOARD MEETING

NOTICE and AGENDA Wednesday, February 8, 2023

Call to Order: 9:30 a.m.

Roll Call

Public Input (The Chair allows public input on each agenda item at the time the item is discussed)

Action Items: Matters for discussion and possible motion by the Committee

1. Discussion of and Possible Motion to Recommend that the Board Approve the Proposed New Manager Structure for the International Equity Asset Class

    Joe Abdou, Verus Advisory
    Eileen Neill, Verus Advisory
    Clint Kuboyama, ACERA
    Betty Tse, ACERA

2. Discussion of and Possible Motion to Recommend that the Board Adopt the 2023 – 2029 Investment Plan for ACERA's Real Assets Asset Class

    John Nicolini, Verus Advisory
    Clint Kuboyama, ACERA
    Betty Tse, ACERA

3. Discussion of and Possible Motion to Recommend that the Board Adopt the 2023 - 2026 Updated Private Equity Investment Plan

    Faraz Shooshani, Verus Advisory
    John Ta, ACERA
    Betty Tse, ACERA

Information Items: These items are not presented for Committee action but consist of status updates and cyclical reports

1. 2023 Capital Market Assumptions

    Joe Abdou, Verus Advisory
    Eileen Neill, Verus Advisory
    Betty Tse, ACERA

2. 2023 Investment Committee Workplan

    Agnes Ducanes, ACERA
    Serafin Lim, ACERA
    Betty Tse, ACERA

Trustee Remarks

Future Discussion Items

None

Establishment of Next Meeting Date

March 8, 2023 at 9:30 a.m.

ACERA

ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATIO

475 14th Street, Suite 1000, Oakland, CA 94612 / telephone: (800) 838-1932, (510) 628-3000 / fax: (510) 268-9574 / www.acera.org

TO: Members of the Investment Committee

FROM: Clint Kuboyama, Investment Officer Clint Kuboyama

DATE: February 8, 2023

SUBJECT: Discussion of and Possible Motion to Recommend that the Board Approve the Proposed New Manager Structure for the International Equity Asset Class

Recommendation:

Recommend that the Board approve the proposed new manager structure (Alternative #3) for the International Equity Asset Class.

Background:

The relative performance of the International Equity Asset Class has progressively weakened against its benchmark, the MSCI ACWI Ex-US IMI (see Table 1 below).

Table 1: ACERA Int'l Equity Performance as of 9/30/22*				
	1-Year Return	3-Year Return	5-Year Return	10-Year Return
ACERA Int'l Equity Gross	-28.50%	-0.88%	0.11%	4.48%
ACERA Int'l Equity Net	-28.74%	-1.19%	-0.21%	4.11%
Asset-Class Benchmark	-25.34%	-0.83%	-0.32%	3.66%
Net Performance Vs. Benchmark	-3.40%	-0.36%	0.11%	0.45%
*Performance data from Verus. Returns more than 1 year are annualized.				

The underperformance of the asset class has been driven by the underperformance of its active managers, which comprised approximately 73% of the asset class' market value as of 9/30/22. (Please see Table 2 below for the outperformance/(underperformance) of ACERA's active managers' net performance versus their benchmarks.)

Table 2: Active Int'l Equity Manager Net Outperformance/(Underperformance) Vs. Benchmarks as of 9/30/22*				
Manager Vs. Manager Benchmark	1-Year Net Outperformance/ (Underperformance)	3-Year Net Outperformance/ (Underperformance)	5-Year Net Outperformance/ (Underperformance)	10-Year Net Outperformance/ (Underperformance)
Capital Group Vs. MSCI ACWI Ex-US	-10.71%	-1.21%	1.01%	1.29%
Mondrian Vs. MSCI ACWI Ex-US	0.28%	-2.43%	-2.14%	-1.33%
Mondrian Vs. MSCI ACWI Ex-US Value	-5.05%	-1.96%	-0.97%	-0.32%
Bivium Vs. MSCI ACWI Ex-US IMI	-3.17%	-0.03%		
Franklin Templeton Vs. MSCI ACWI Ex-US Small Cap	-3.90%	-4.33%	-2.57%	-1.40%
Newton** Vs. MSCI Emerging Markets	-3.93%	9.22%		
*Performance data from Verus. Performance numbers beyond 1 year are annualized.				
**Newton was replaced by William Blair in December 2022 following organizational changes at Newton and a Board-approved search process.				

In the current International Equity Asset Class structure, Mondrian and Capital Group have the largest active-manager weightings (25% each; see "Current Asset Class Structure" column in Table 3 below) and manage both developed and emerging markets allocations. Capital Group's mandate also allows Capital Group to manage stocks of all capitalizations (i.e., large-, mid-, and small-cap). Moreover, these managers have been used as a growth/value pairing with Capital Group used as the growth manager and Mondrian used as the value manager. The underperformance of Capital Group over the year ended 9/30/22 has been the biggest short-term detractor from the asset class' relative performance, but over a longer-term horizon, Capital Group has added value, net of fees. On the other hand, Mondrian has had mixed recent short-term results and has detracted value, net of fees, against both its core benchmark and value benchmark over a long-term horizon. Accordingly, Mondrian is on ACERA's Watchlist for underperformance.

Bivium also manages an active mandate that combines both developed and emerging markets allocations, as well as stocks of all capitalizations. Net of fees, Bivium has detracted from short-term performance but has generated 0.18% of annualized added value, net of fees, since inception (10/25/18) through 9/30/22. (Please see pages 17 – 22 of Verus' attached Presentation entitled, "Investment Structure Recommendation" for regional and stock capitalization return/exposure analysis for Bivium, Capital Group, and Mondrian.)

ACERA's current International Equity structure also has active managers dedicated to the emerging markets and international small cap. Between May 2019 and December 2022, the emerging markets allocation was managed by Newton, which added value during its time in ACERA's portfolio. However, due to organizational changes at Newton and following a Board-approved search process, Newton was replaced by William Blair in December 2022. Finally, ACERA's International Equity Portfolio has utilized Franklin Templeton to manage its dedicated international small-cap allocation. This manager has had a value tilt to its strategy and has detracted from performance, net of fees, over a short- and long-term horizon. Accordingly, Franklin Templeton is also on ACERA's Watchlist.

Structural Alternatives:

Considering the underperformance of the International Equity Asset Class, as well as the regionally (i.e., developed/emerging markets) and capitalization (i.e. large-, mid-, and small-cap) mixed mandates and style tilts in the International Equity Portfolio, Staff and Verus recommend simplifying the International Equity Asset Class structure. To simplify the structure, Staff and Verus recommend separating mandates into defined developed-markets and emerging-markets mandates versus mixing developed markets and emerging markets mandates, and into defined large/mid-cap and small-cap mandates versus mixing large-, mid-, and small-cap mandates. In addition, Staff and Verus recommend eliminating the style tilts in the portfolio and investing in core (i.e. in the middle of, and with the flexibility to temporarily tilt to, value and growth styles) mandates. Furthermore, as part of this structural change, Staff and Verus recommend divesting from underperforming managers Mondrian and Franklin Templeton, both of which have underperformed their benchmarks over 10+ years, and have value tilts to them that are undesirable in the structural options presented. Finally, it is worth noting that all structural options entail having ACERA's International Equity structure mirror the asset-class benchmark's (MSCI ACWI Ex-US IMI) weightings to developed markets, emerging markets, large/mid-cap stocks, and small-cap stocks, which is an objective of ACERA's Investment Philosophy per Schedule VI, Section 3-b in ACERA's General Investment Guidelines, Policies, and Procedures.

Accordingly, Staff and Verus are presenting three new structural alternatives shown in Table 3 below:

Table 3: Current and Proposed Int'l Equity Asset Class Structures & Market Value Weightings as of 9/30/22

	Market Value Weightings	Current Asset-Class Structure	Alternative #1	Alternative #2	Alternative #3
Bivium	5%	5%	11%	10%	10%
Blackrock MSCI World Ex-US Passive Index	27%	25%	33%	40%	25%
Capital Group	22%	25%	18%	12%	13%
Mondrian	26%	25%	-	-	-
New Developed Markets Manager	-	-	-	-	14%
William Blair (Formerly Newton)	10%	10%	14%	14%	14%
New Emerging Markets Manager	-	-	14%	14%	14%
Franklin Templeton	10%	10%	-	-	-
New Int'l Small Cap Manager	-	-	10%	10%	10%

Source: Verus; see pages 3 and 8 of Verus' attached presentation.

Each of the new structural options separate the existing developed/emerging markets mandates (i.e., the existing Bivium, Capital Group, and Mondrian mandates) into separate developed-markets mandates and emerging-markets mandates. This is accomplished by possibly divesting from Mondrian, changing Capital Group's and Bivium's mandates to developed-markets mandates, and either allocating more to the passive, developed-markets index (i.e., Blackrock MSCI World Ex-US Passive Index) in Alternatives #1 and #2, or implementing a new, active, developed-markets mandate (i.e., "New Developed Markets Manager") in Alternative #3. In addition, in the new structural alternatives, Bivium's allocation increases from its current 5% weighting to 11% (in Alternative #1) or 10% (in Alternatives #2 and #3), providing more balance to the weightings of the active developed-markets exposures. Across the new structural alternatives, the combined exposures of the segregated developed-markets mandates (including the small cap mandate) are equal to the developed-markets weighting (approximately 72%) in the MSCI ACWI Ex-US IMI.

With the separation of the emerging markets exposures from the developed-markets mandates in all of the structural alternatives, a second emerging-markets manager (i.e., "New Emerging Markets Manager") is brought in at a 14% weighting across all structural alternatives. This 14% weighting to the new emerging markets manager is complimented by the existing emerging-markets manager (William Blair), which, in all alternative structures, has its portfolio weighting increased from the current 10% to 14%. Combining the 14%-each weighting of the two emerging-markets mandates brings the total emerging markets exposure to 28%, which is in-line with the emerging-markets weighting in the asset-class benchmark.

In addition, across all the proposed structural alternatives, small caps are isolated to the dedicated small cap manager except for some potential exposure in Bivium. This is accomplished by having all active developed-markets managers (except Bivium) and emerging-markets managers exclude small caps in their mandates. By doing this, the small cap exposure is largely isolated to the international small cap mandate. (It is expected that Bivium will have some added flexibility to include small caps in its developed-markets, multi-manager portfolio.) By largely isolating the small cap exposure to the dedicated small cap mandate across all structural alternatives, the International Equity Portfolio will have roughly a 10% weighting to international small caps, the same weighting of small caps in the MSCI ACWI Ex-US IMI Index.

Finally, to ensure that there are no style tilts in the portfolio, all managers across the three structural alternatives will manage "core" mandates. This will be accomplished by only having "core" active managers including a new "core" small cap manager that will replace the existing value-tilted and underperforming small cap manager, Franklin Templeton.

Comparison of Structural Alternatives:

The main differences between the new structural Alternatives #1 - #3 are the weightings to passive (i.e., "Blackrock MSCI World Ex-US Passive Index") versus active managers and the degree to which the active exposures are diversified in the non-small-cap developed-markets portion of the portfolio. (Please see Table 4 below.)

Table 4: Active Vs. Passive Exposures in Proposed Alternative Structures #1 - #3

	Alternative #1	Alterative #2	Alternative #3
Developed Markets (Non Small Cap)			
Bivium (Active)*	11%	10%	10%
Capital Group (Active)	18%	12%	13%
New Developed Markets Manager (Active)	-	-	14%
Blackrock MSCI World Ex-US Passive Index (Passive)	33%	40%	25%
Emerging Markets			
William Blair (Active)	14%	14%	14%
New Emerging Markets Manager (Active)	14%	14%	14%
Small Cap			
New International Small Cap Manager (Active)	10%	10%	10%
Total Active Exposure	**67%**	**60%**	**75%**
Total Passive Exposure	**33%**	**40%**	**25%**

Source: Verus; information found on page 8 of Verus' attached presentation. *Bivium may be allowed to include a small amout of small caps.

Alternative #2 has the most passive exposure (40% passive/60% active) while Alternative #3 has the most active exposure (25% passive/75% active) and maintains the same passive/active mix as the current asset-class structure. Alternative #1's passive/active exposure is in the middle of Alternatives #2 and #3 with 33% passive and 67% active exposures. In addition, Alternative #3 is differentiated from Alternatives #1 and #2 in that it has the most diversified active exposure with three different managers (versus two managers in Alternatives #1 and #2) managing the active, non-small-cap, developed-markets exposure. In general, the more passive the option has, the less chance the International Equity Portfolio has to potentially generate returns over its benchmark return. However, the more active risk that is taken, the higher the fees and the higher the risk that the International Equity Portfolio underperforms its benchmark, net of fees. This risk is mitigated by ACERA's ability to select active managers that can produce returns, net of fees, over the benchmark. Finally, having greater diversification in the asset class' active management reduces the risk that one manager's underperformance will have an outsized, negative impact on the total portfolio's returns. By more evenly distributing active risk across more active managers, the portfolio can be diversified to better reduce single-manager, active risk.

Recommendation of Alternative #3:

Per Table 5 below, the projected alpha (i.e. return over benchmark) and information ratio (i.e. alpha per unit of risk taken deviating from benchmark (i.e. tracking error)) are the highest for Alternative #3. In Staff's view, these projections are based on reasonable assumptions relative to the "Historical" gross performance of the existing and potential managers (see "Historical (11/2015 – 09/2022)" and "Assumed for Projection" tables on page 8 of attached Verus presentation) and support Staff's and Verus' recommendation of Alternative #3. In addition, as previously mentioned, Option #3 provides the most diversified, active management of the non-small-cap developed-markets exposure in the portfolio and provides ACERA with the best opportunity to generate returns above the benchmark, net of fees.

Table 5: Projected Alpha, Tracking Error and Information Ratio of Current Structure & Proposed New Structural Alternatives

	Current	Alternative #1	Alternative #2	Alternative #3
Projected Alpha (in basis points)	41	95	88	103
Projected Tracking Error (in basis points)	144	228	211	215
Projected Information Ratio	0.28	0.42	0.42	0.48

Source: Verus; see page 8 of Verus' attached presentation.

Conclusion:

Considering the deterioration of the International Equity Asset Class' performance relative to its benchmark, Staff and Verus recommend a structural change (Alternative #3) that will simplify the structure of the asset class, turnover underperforming managers, and best position the asset class going forward. Should Alternative #3 be approved by the ACERA Board, there would likely be three different searches that would be required (New Emerging Markets Manager, New Developed Markets Manager, New International Small Cap Manager). However, Staff and Verus recently conducted a Board-approved emerging markets manager search (to divest from Newton and invest with William Blair) so conducting this search will require minimal set up. (Please see page 13 "Next Steps" in Verus' attached presentation). All told, Staff and Verus recommend that the Investment Committee approve Alternative #3 as the new structure of the International Equity Asset Class.

Attachment:

#1 Investment Structure Recommendation, prepared by Verus

Verus

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

FEBRUARY 8, 2023

Investment Structure Recommendation

ACERA – Non-confidential

Pensions&Investments
2021 LARGEST CONSULTANTS OF INSTITUTIONAL ASSETS
U.S. INSTITUTIONAL TAX-EXEMPT ADVISORY ASSETS
#10 RANKED | VERUS

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SEATTLE 206-622-3700
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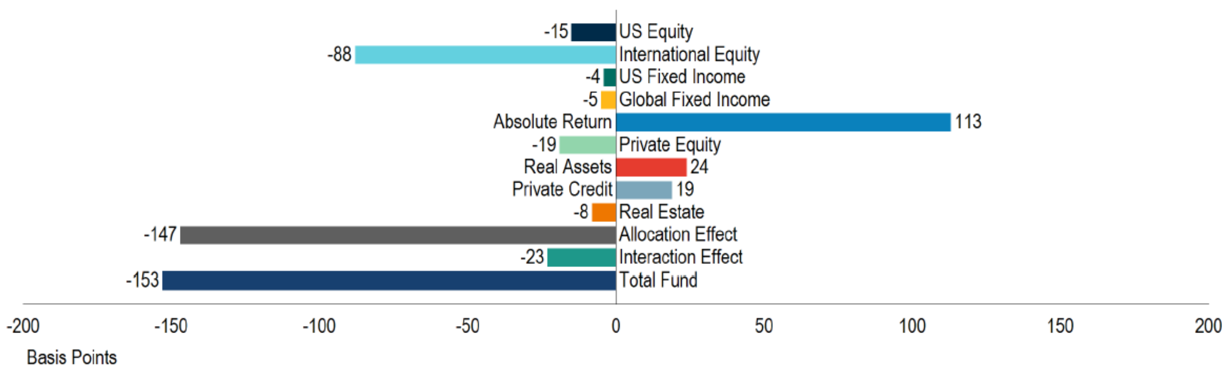
SAN FRANCISCO 415-362-3484

Rationale behind international equity program review

Total Fund
Performance Attribution (One Year) — Period Ending: September 30, 2022



	Wtd. Actual Return	Wtd. Index Return	Excess Return	Selection Effect	Allocation Effect	Interaction Effects	Total Effects
US Equity	-18.22%	-17.63%	-0.59%	-0.15%	-0.21%	-0.02%	-0.38%
International Equity	-28.50%	-25.34%	-3.16%	-0.88%	-0.12%	-0.06%	-1.07%
US Fixed Income	-14.93%	-14.60%	-0.33%	-0.04%	-0.17%	-0.01%	-0.23%
Global Fixed Income	-24.72%	-22.14%	-2.57%	-0.05%	0.01%	0.01%	-0.03%
Absolute Return	9.82%	-6.35%	16.17%	1.13%	0.03%	-0.13%	1.04%
Private Equity	1.04%	3.47%	-2.43%	-0.19%	-0.34%	-0.01%	-0.54%
Real Assets	5.70%	0.12%	5.58%	0.24%	0.05%	0.06%	0.35%
Private Credit	4.64%	-0.82%	5.46%	0.19%	-0.17%	-0.09%	-0.07%
Real Estate	20.98%	22.09%	-1.11%	-0.08%	-0.54%	0.03%	-0.59%
Total	**-12.78%**	**-11.25%**	**-1.53%**	**0.17%**	**-1.47%**	**-0.23%**	**-1.53%**

International equity asset class has experienced decline in value-added vs. benchmark in last 5 years

Asset class was major contributor to ACERA Total Fund 2022 Fiscal and One-year underperformance vs. policy

Current ACERA international equity structure

Target Allocation to **International Equity** is 24% and **Policy** is MSCI All Country World Index ("ACWI") ex-US IMI* Index:

Strategy	Manager	Market Value	Fund Allocation	Benchmark Target	Benchmark
Developed (Passive Index)	BlackRock	$589,555,588	27.1%	25.0%	MSCI World ex-US
Active International Core	Bivium	$112,663,816	5.2%	5.0%	MSCI ACWI ex-US IMI
Active International Growth	Capital Group	$488,380,262	22.4%	25.0%	MSCI ACWI ex-US
Active International Value	Mondrian	$560,636,974	25.8%	25.0%	MSCI ACWI ex-US
Emerging Mkts	William Blair	$213,020,890	9.8%	10.0%	MSCI EM
International Small Cap	Templeton	$211,199,105	9.7%	10.0%	MSCI ACWI ex-US SC

- ACERA international equity structure targets reflect style neutrality and market capitalization exposures to major regions and size per ACERA investment policy

**IMI = Investable Market Index; represents approximately 99% of each market's free-float adjusted market capitalization.*
Individual manager benchmarks are per ACERA's General Investment Policy statement.

Strategic investment decision making

- Strategic investment decisions made by Board in rank order:
  1) **Asset allocation** drives 90+% of ACERA fund performance and risk experience
  2) **Investment structure** (asset class structure) impacts ≈7% of ACERA fund performance and risk experience
  3) **Manager selection** provides ≈ 3% of ACERA fund performance and risk experience
- Best practices for investment decision making is to employ disciplined processes using consistent inputs and following steps aligned with institutional industry standards
  - ACERA Board set new asset allocation policy in 2021 using historical process
  - Board hires managers based upon ACERA due diligence process articulated in ACERA policies
- What is process for setting investment structure?

Investment structure decision making framework

- **Goal of investment structure decision is to select asset class structure which best meets or exceeds asset class benchmark**
- Framework is necessary to determine optimal mix of investment strategies and size of respective strategy exposures to achieve asset class investment objectives
- Investment structure decision framework is nearly identical to asset allocation decision framework, i.e., mean variance optimization with objective assumptions and constraints
  - — Inputs include assumptions for expected return, expected risk and correlations……EXCEPT
    - Investment structure decision focuses on single asset class
    - Assumptions are for individual managers/strategies
    - Assumptions are all **excess** relative to asset class benchmark
- Rest of framework is same as asset allocation decision process – evaluate alternative structures based upon risk-adjusted returns of each one…..EXCEPT
  - — Risk-adjusted returns are ‘information ratios’ (excess return divided by tracking error)

Investment structure decision process summary

1) Determine strategies to be included in process in addition to current asset class strategies
2) Develop expected ***excess*** returns (“alpha”) for each strategy
   — passive strategy excess return = 0%
3) Develop expected ***excess*** risk (“tracking error”) for each strategy
   — Typically based upon actual historical excess risk
   — Passive strategy excess risk generally < 0.5%
4) Calculate correlations of managers’/strategies’ ***excess*** returns versus asset class benchmark
   — Ideal asset class structure is one where active managers complement each other through differing alpha sources
5) Incorporate constraints to capture asset class investment structure objectives
   — e.g., style and size neutrality versus benchmark
6) Select asset class investment structure with highest ‘information ratio’, best meets objectives, and reflects reasonable cost/fees compared to alternative structures

Investment structure decision framework considerations

- **Active/Passive allocation**
  - —What is optimal active risk exposure (i.e., risk tolerance for deviation from policy index return)?
- **Total Tracking Error Risk**
  - —How does current asset class tracking error compare with alternative asset class structures?
- **Benchmark Risk**
  - —Does aggregation of individual mandate/manager benchmarks approximate asset class composite policy benchmark?
- **Allocation Risk**
  - —Is actual investment structure meaningfully different than policy target structure?
- **Manager Risk**
  - —How much should individual active manager exposures be?
- **Factor exposure**
  - —Are there unintended factor exposure risks (e.g., size, style, etc.) that need to be corrected?

ACERA international equity structure analysis results

	Historical (11/2015 - 09/2022) Alpha	Tracking Error	Information Ratio	Assumed for Projection Alpha	Tracking Error	Information Ratio	Current Allocation	Passive (Alt. 1)	More Passive (Alt. 2)	Same Passive, Restructured Active (Alt. 3)
Bivium	424	503	0.84	100	503	0.20	5%	11%	10%	10%
BlackRock	82	102	0.80	0	113	0.00	27%	33%	40%	25%
Capital Group	273	459	0.59	100	453	0.22	22%	18%	12%	13%
Mondrian	-111	443	-0.25	-25	443	-0.06	26%	0%	0%	0%
New DME Manager	30	258	0.12	100	258	0.39	0%	0%	0%	14%
William Blair	325	671	0.48	200	671	0.30	10%	14%	14%	14%
New EME Mgr	378	618	0.61	200	618	0.32	0%	14%	14%	14%
Franklin	-107	433	-0.25	0	433	0.00	10%	0%	0%	0%
New ISC Manager	349	308	1.13	100	308	0.32	0%	10%	10%	10%
							100%	100%	100%	100%
						DM Exposure	76%	72%	72%	72%
						EM Exposure	24%	28%	28%	28%
				Projected Alpha			41	95	88	103
				Projected Tracking Error			144	228	211	215
				Projected Information Ratio			0.28	0.42	0.42	0.48

- Staff and Verus recommend separation of Developed markets and Emerging markets as well as small cap from Non-small cap under all structure alternatives

  1) Provides Board better control of asset class risk exposures

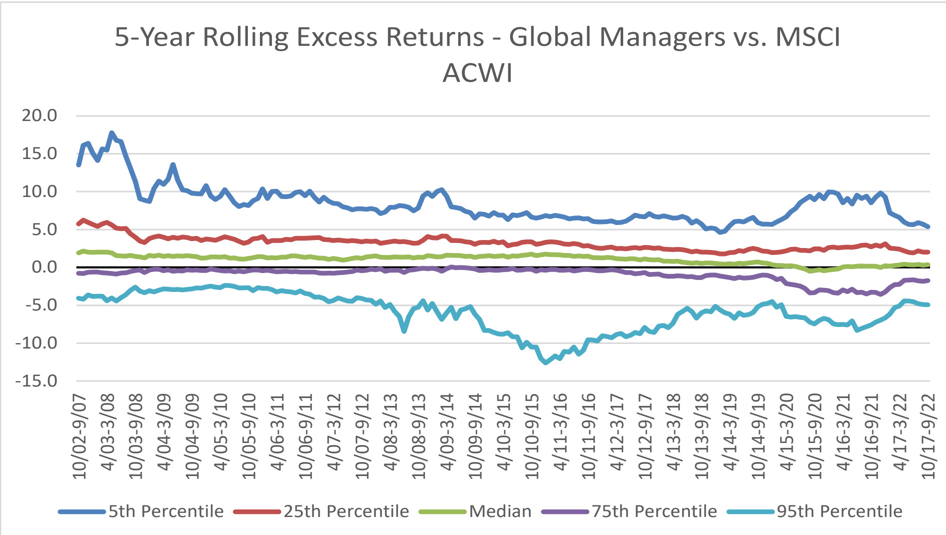
  2) Ensures structure more consistently aligns with Board investment policy

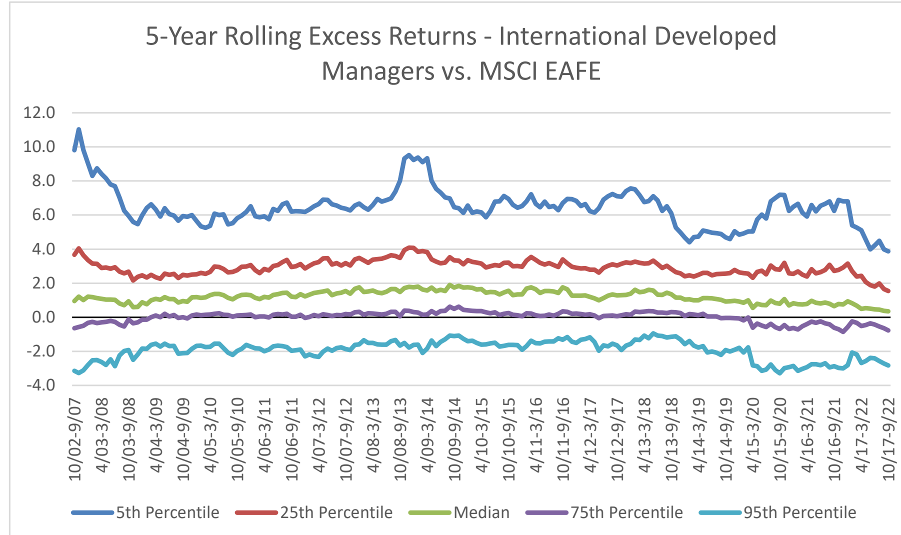
***Note**: Asset class benchmark (MSCI ACWI ex-US IMI) regional allocations at 12/31/22 ≈ 28% Emerging Markets / 72% Developed markets. Historical alphas are gross of fees; projected alphas are net*

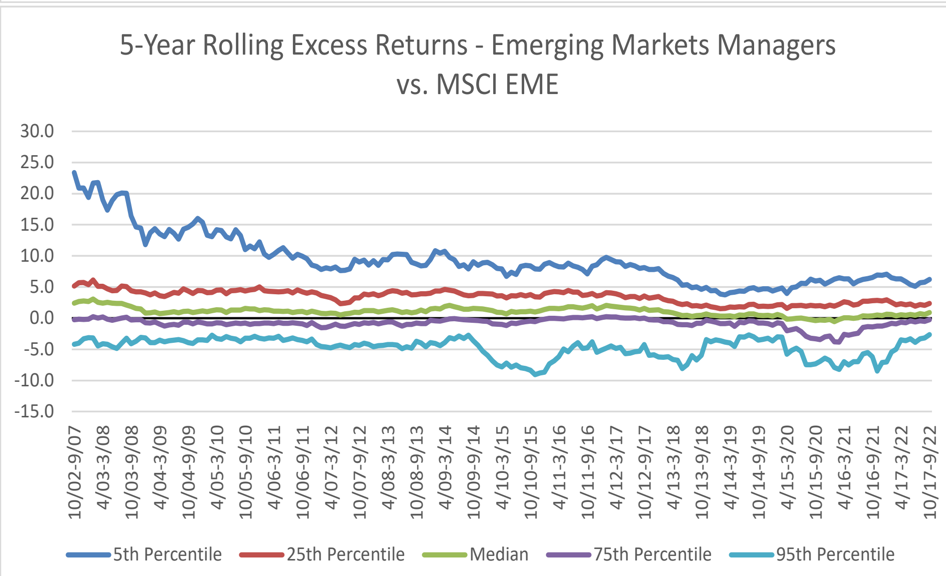
Recommendation rationale

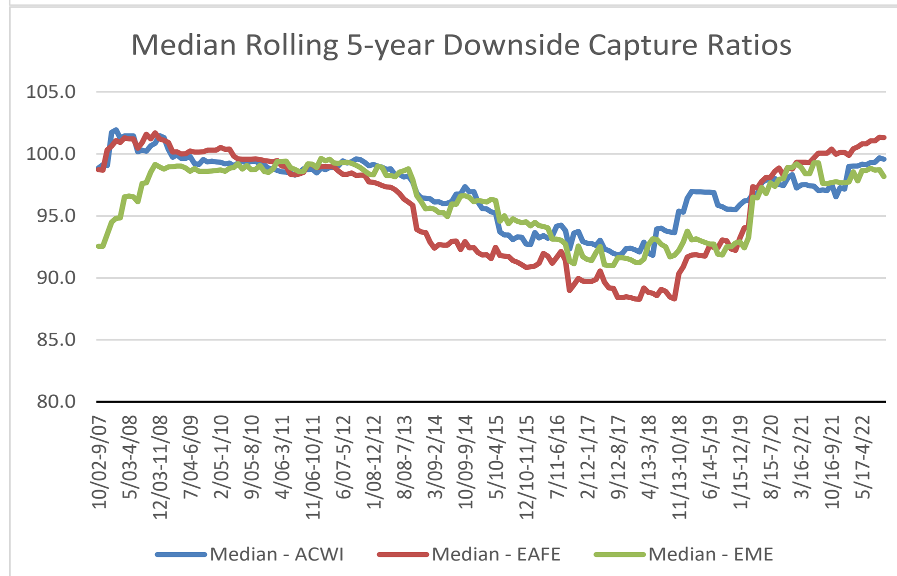
- Long term underperformance of current couple of ACERA managers warrants revisiting hire thesis and marketplace examination (*see Individual strategy observations, slide #11*)
- Evaluation of global, global ex-U.S., Developed markets and Emerging markets managers shows:
  - Trend in value added for all active non-U.S. equity managers has declined over time,
  - In Global and Developed markets, value-added appears to be primarily driven by geographic/regional exposures (i.e., “beta”) versus issue selection (non-beta).
    - Beta exposures are Board decisions
    - Beta can be implemented cheaply through passive index strategies
  - Global managers have not been able to add value either net or gross of fees over time,
  - Active management in emerging markets has higher and more consistent success in adding value, gross and net of fees,
  - Active emerging markets managers demonstrate ability to mitigate total risk by adding greater value during down markets versus benchmark and compared to other active non-U.S. equity managers

Recommendation rationale









Source: eVestment, Verus

Recommendation pros and cons

- Pros
  - — Better aligns asset class structure with Board's stated investment and asset class philosophies
  - — Provides Board increased control over beta exposures within asset class
    - Removes beta as source of active manager value-added
  - — Reduces single active manager exposure risk which was source of recent asset class underperformance
  - — Provides ACERA opportunity to negotiate more attractive fees (*older investment manager fee schedules typically higher than new ones*)
  - — More focused mandates increases ease of conducting attribution analysis of manager value-added
- Cons
  - — Additional manager adds to ACERA oversight and monitoring activities

Individual strategy observations

- Asset class value added has declined last 3 years. Largest contributors were Mondrian and Capital Group as well as, to lesser degree, Templeton
- Verus reviewed all developed markets manager strategies in detail based upon key asset class risk and return drivers: style, size, and region
- Summary of results (*see Appendix for analysis details*):
  - **Mondrian**: lags strategy benchmark and is just even with style benchmark (*Net of fees*) since inception (*Nov. 2003*), which is now 20 years. Manager is on ACERA Watchlist.
    - In last 5- and 10-year periods, Mondrian has detracted value through both Style exposures (overweight and selection in Value stocks) and Developed Markets Region (particularly through stock selection in Europe/Middle East markets) which is roughly 75% of the portfolio
  - **Capital Group**: has produced mostly added value until three years ago
    - Severely underperformed both strategy benchmark and style benchmark in most recent fiscal year due in part to Russian exposures, but general stock and sector selection decisions in Developed Markets as well
  - **Templeton**: has consistently lagged strategy benchmark and style benchmark (*Gross and Net of fees*) for last 10 years. Manager is on ACERA Watchlist.
    - Versus peers, they rank in either the 3rd or 4th quartile over most time periods as well
  - **Bivium**: is ahead of benchmark (Net of fees) since inception (Oct. 2018)

Next steps

- Incorporate feedback from investment committee and return at March meeting with revised analysis and recommendation (if necessary)
- If current recommendation is approved, Staff and Verus recommend following investment structure implementation plan

Step 1: Initiation of RFP (Request for Proposal) search processes for active Emerging Markets Equity manager benchmarked to MSCI Emerging Markets standard index

a. As Staff recently conducted an active emerging markets manager search process, already have RFP and scoring templates and fresh perspectives on likely candidates

Step 2: Initiate transition of assets to new and existing active Emerging Markets Equity managers, increase Bivium allocation and revise IMAs for Capital Group and Bivium to align mandates with new structure and use Mondrian mandate as source of funding

Step 3: Initiate search process for an active Core Developed Markets Equity manager benchmarked to either the MSCI EAFE index or MSCI World ex-U.S. index, standard versions. New mandate will be funded by assets from both index fund and Capital Group mandates.

a. After this step, recommended asset class structure will be fully implemented

Step 4: Conduct RFP search process for active Core Small Cap manager benchmarked to either MSCI ACWI Small Cap, MSCI World Small Cap or MSCI EAFE Small Cap indices

Appendix

Overview of key risk measures

Volatility measures

- **Standard deviation:** Oftentimes referred to as “risk” or “volatility”, it is a number used to tell how measurements for a group are spread out from the average (mean), or expected value.
- **Tracking error:** Tracking error is the standard deviation of the difference between the returns of an investment/manager and the benchmark. Basically the volatility of manager returns vs. the benchmark.

Risk adjusted return measures

- **Sharpe Ratio**: Evaluates the performance of a Fund based on the total risk of the portfolio. The incremental return generated by the Fund for the incremental risk undertake (versus a risk free rate i.e. T-Bills). Objective is to achieve high ratio and valid for use in peer Fund comparisons as well in asset allocation policy selection decision when comparing alternative policies.
- **Information Ratio**: Essentially the standard deviation of manager alpha (excess return performance). The incremental return generated by the manager for the incremental risk undertaken (versus the benchmark); hence, a valid measure of manager skill.

SHARPE RATIO

Return of the portfolio minus the risk free rate and then divided by the portfolio’s standard deviation

$$\frac{\textbf{(Return of the Portfolio – Risk free rate)}}{\textbf{Portfolio Standard Deviations}}$$

INFORMATION RATIO

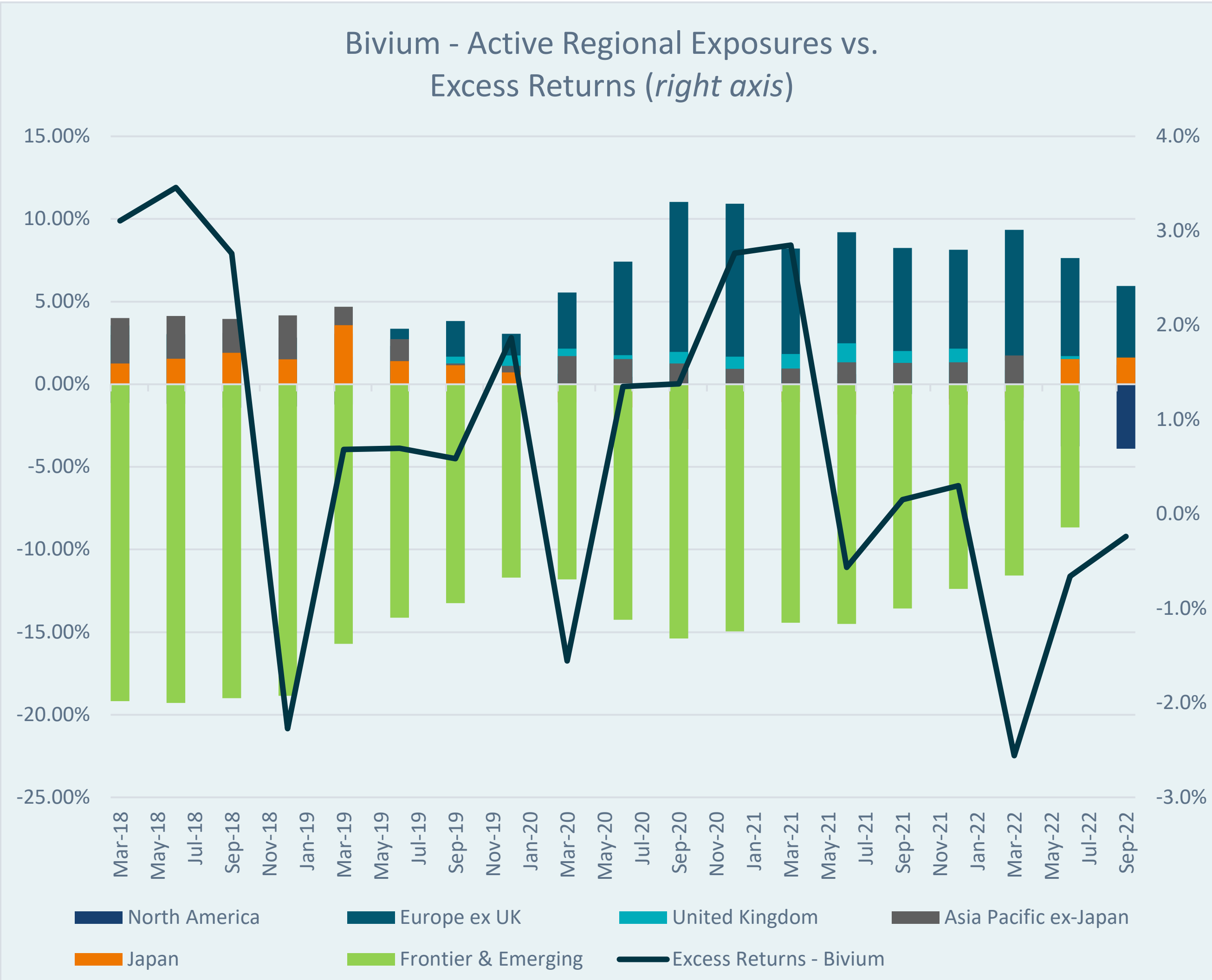
Return of the portfolio minus the return of the benchmark and then divided by the portfolio tracking error

$$\frac{\textbf{(Return of the Portfolio – Return of the Benchmark)}}{\textbf{Portfolio Tracking Error}}$$

Manager level risk decomposition

Bivium –

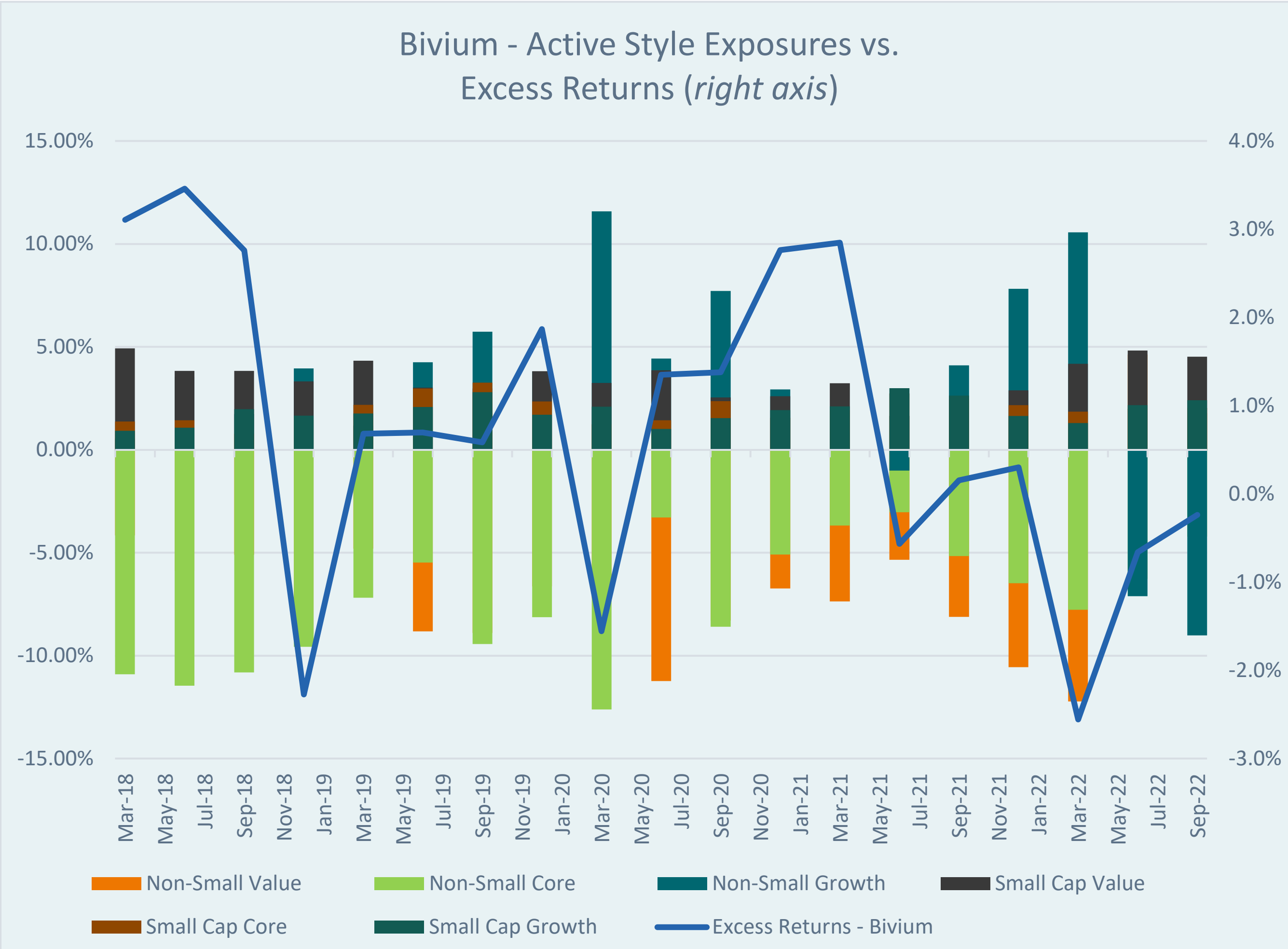
Active regional exposures



Region	Cumulative Value Added	Annualized Value Added
Total	4.09%	0.85%
North America	-0.06%	-0.01%
Europe ex UK	3.12%	0.65%
United Kingdom	-1.36%	-0.29%
Asia Pacific ex-Japan	0.31%	0.07%
Japan	-0.57%	-0.12%
Frontier & Emerging	2.33%	0.49%
Other	-0.11%	-0.02%
Cash	0.44%	0.09%

Bivium –

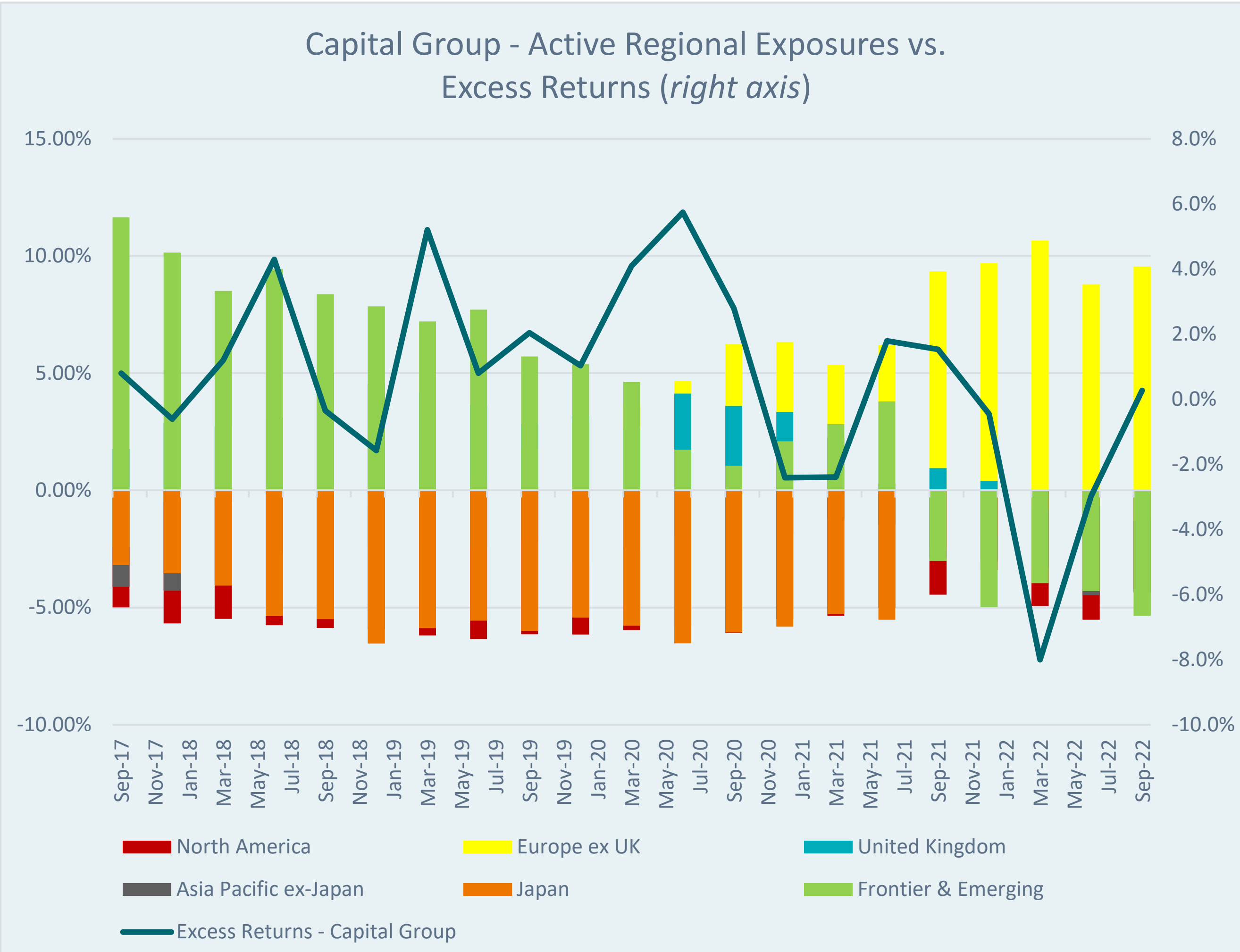
Active sector exposures



Style	Cumulative Value Added	Annualized Value Added
Total	3.79%	0.79%
Non-Small Value	-3.08%	-0.65%
Non-Small Core	2.73%	0.56%
Non-Small Growth	4.43%	0.91%
Small Cap Value	-0.15%	-0.03%
Small Cap Core	-0.02%	0.00%
Small Cap Growth	-0.58%	-0.12%
Other	0.04%	0.01%
Cash	0.44%	0.09%

Capital Group –

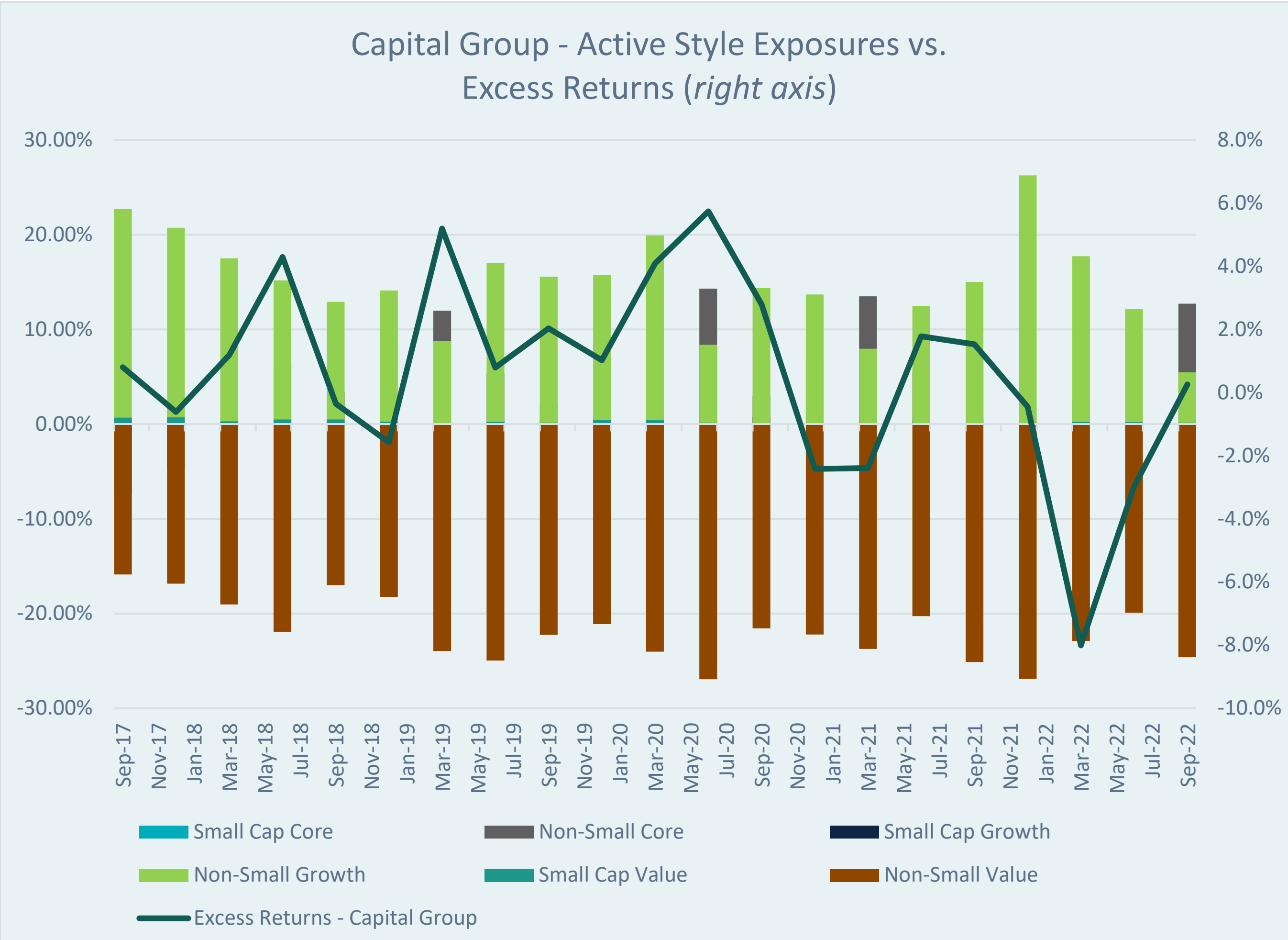
Active regional exposures



Region	Cumulative Value Added	Annualized Value Added
Total	8.33%	1.61%
North America	-1.30%	-0.26%
Europe ex UK	4.44%	0.87%
United Kingdom	1.31%	0.26%
Asia Pacific ex-Japan	-0.49%	-0.10%
Japan	0.86%	0.17%
Frontier & Emerging	3.33%	0.66%
Other	-0.08%	-0.02%
Cash	0.26%	0.05%

Capital Group –

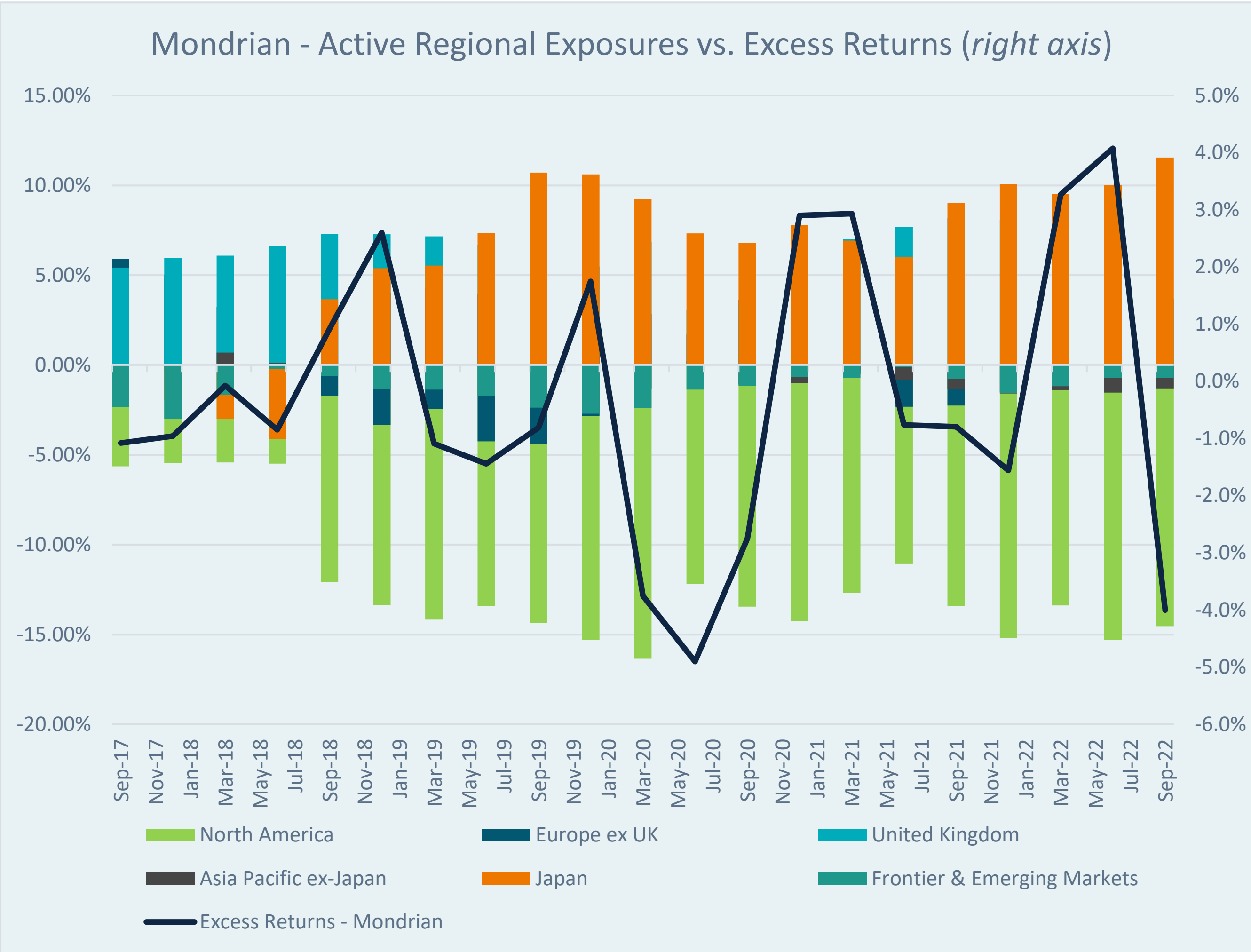
Active style exposures



Style	Cumulative Value Added	Annualized Value Added
Total	8.31%	1.61%
Non-Small Value	-0.31%	-0.06%
Non-Small Core	12.96%	2.47%
Non-Small Growth	-4.29%	-0.93%
Small Cap Core	-0.03%	-0.01%
Small Cap Growth	-0.13%	-0.03%
Other	0.06%	0.01%
Cash	0.26%	0.05%

Mondrian –

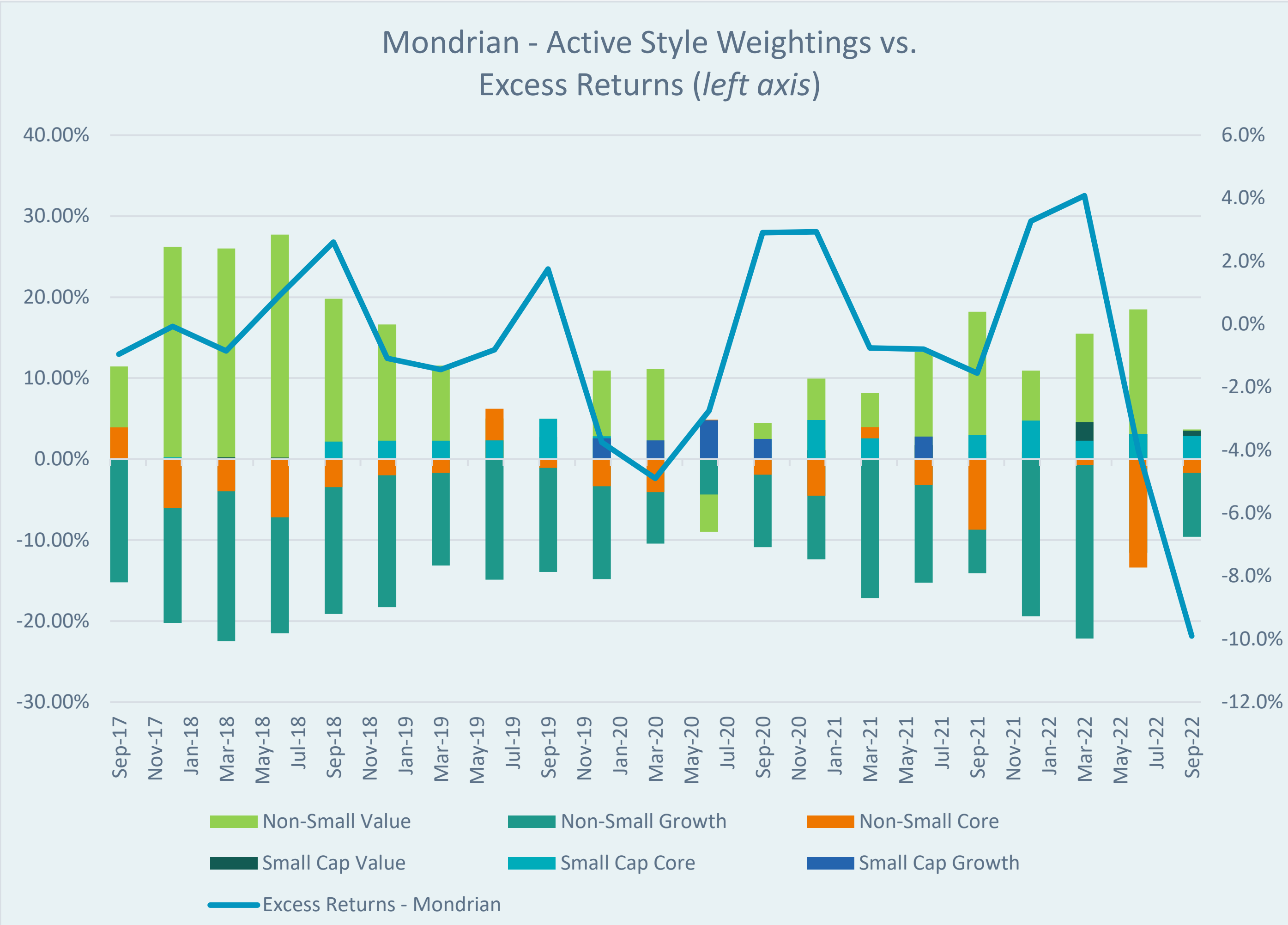
Active regional exposures



Region	Cumulative Value Added	Annualized Value Added
Total	-7.44%	-1.53%
North America	-6.37%	-1.31%
Europe ex UK	-0.67%	-0.13%
United Kingdom	-2.28%	-0.46%
Asia Pacific ex-Japan	-0.52%	-0.10%
Japan	-0.46%	-0.09%
Frontier & Emerging	3.03%	0.60%
Other	0.06%	0.01%
Cash	-0.23%	-0.05%

Mondrian –

Active style exposures



Style	Cumulative Value Added	Annualized Value Added
Total	-7.45%	-1.54%
Non-Small Value	-5.53%	-1.12%
Non-Small Core	-1.58%	-0.32%
Non-Small Growth	0.12%	0.02%
Small Cap Value	-0.58%	-0.12%
Small Cap Core	0.47%	0.09%
Small Cap Growth	-0.17%	-0.03%
Other	0.05%	0.01%
Cash	-0.23%	-0.05%

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

FEBRUARY 2023

Real Asset Investment Plan

Alameda County Employees’ Retirement Association

Real asset plan overview

— The updated pacing plan captures some of the recent market downturn (market values through 9/30/22)

- Plan value: $9.8B
- Long-term Plan return assumption: 7.5%/year
- Target a Private to Public real asset split of 75:25, respectively
- Infrastructure will comprise the largest component of the private portfolio

— Achieve target allocation:

- Commitments of ~$100M/year will be needed to hit the projected target allocation
- Liquid pool allows the real asset portfolio to maintain its target weight of 6.0% of Plan assets
- Privates are projected to hit 75% of the portfolios value in 2031

Commitment schedule

RA Category	2023	2024	2025	2026	2027	2028	2029
	Projected Commit ($)	Projected Commit ($)	Projected Commit ($)	Projected Commit ($)	Projected Commit ($)	Projected Commit ($)	Projected Commit ($)
Infrastructure	**$ 90,000,000**	**$ 110,000,000**	**$ 100,000,000**	**$ 50,000,000**	**$ 100,000,000**	**$ 100,000,000**	**$ 50,000,000**
Natural Resources	**$ 30,000,000**			**$ 50,000,000**			**$ 50,000,000**
Total RA Portfolio	**$ 120,000,000**	**$ 110,000,000**	**$ 100,000,000**	**$ 100,000,000**	**$ 100,000,000**	**$ 100,000,000**	**$ 100,000,000**

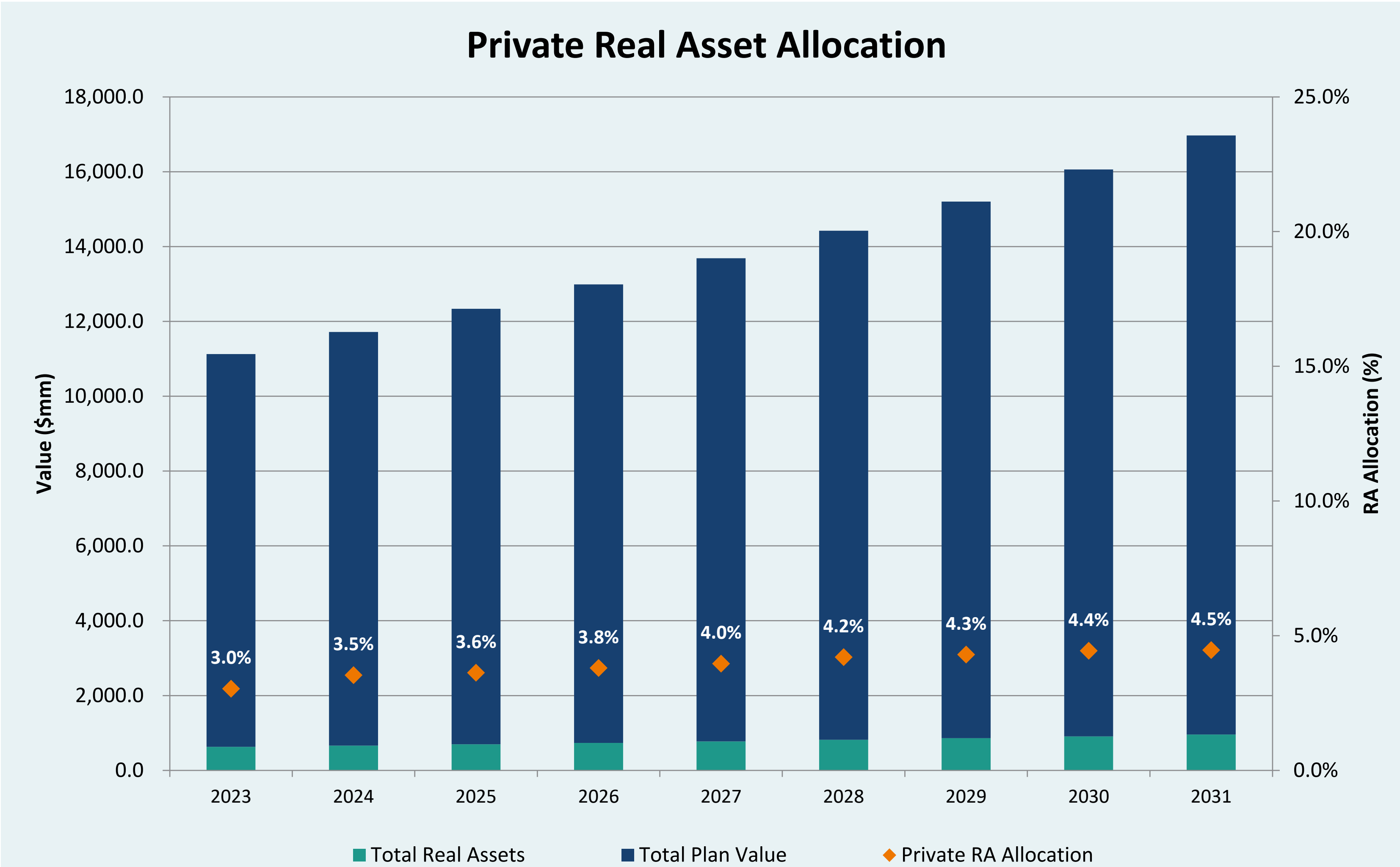
Listed Infrastructure	$ (35,126,532)	$ (36,846,616)	$ (9,254,538)	$ (15,838,817)	$ (15,324,989)	$ (22,160,620)	$ (11,064,997)
Listed Natural Resources	$ (19,645,091)	$ (20,731,884)	$ (4,732,862)	$ (8,564,222)	$ (8,281,233)	$ (12,284,519)	$ (5,856,944)
Commodities	$ (2,444,133)	$ (2,635,137)	$ (390,858)	$ (934,137)	$ (900,886)	$ (1,479,570)	$ (580,576)
Total Public	**$ (57,215,756)**	**$ (60,213,637)**	**$ (14,378,259)**	**$ (25,337,177)**	**$ (24,507,108)**	**$ (35,924,710)**	**$ (17,502,517)**

	Projected Commit (#)	Projected Commit (#)	Projected Commit (#)	Projected Commit (#)	Projected Commit (#)	Projected Commit (#)	Projected Commit (#)
Value-Add Infrastructure	1	1	2	1	2	2	1
Core Infrastructure	1	1					
Natural Resources	1			1			1
Total	**3**	**2**	**2**	**2**	**2**	**2**	**2**

– This pacing model assumes a 6.0% target allocation to real assets with a private to public ratio of 75:25

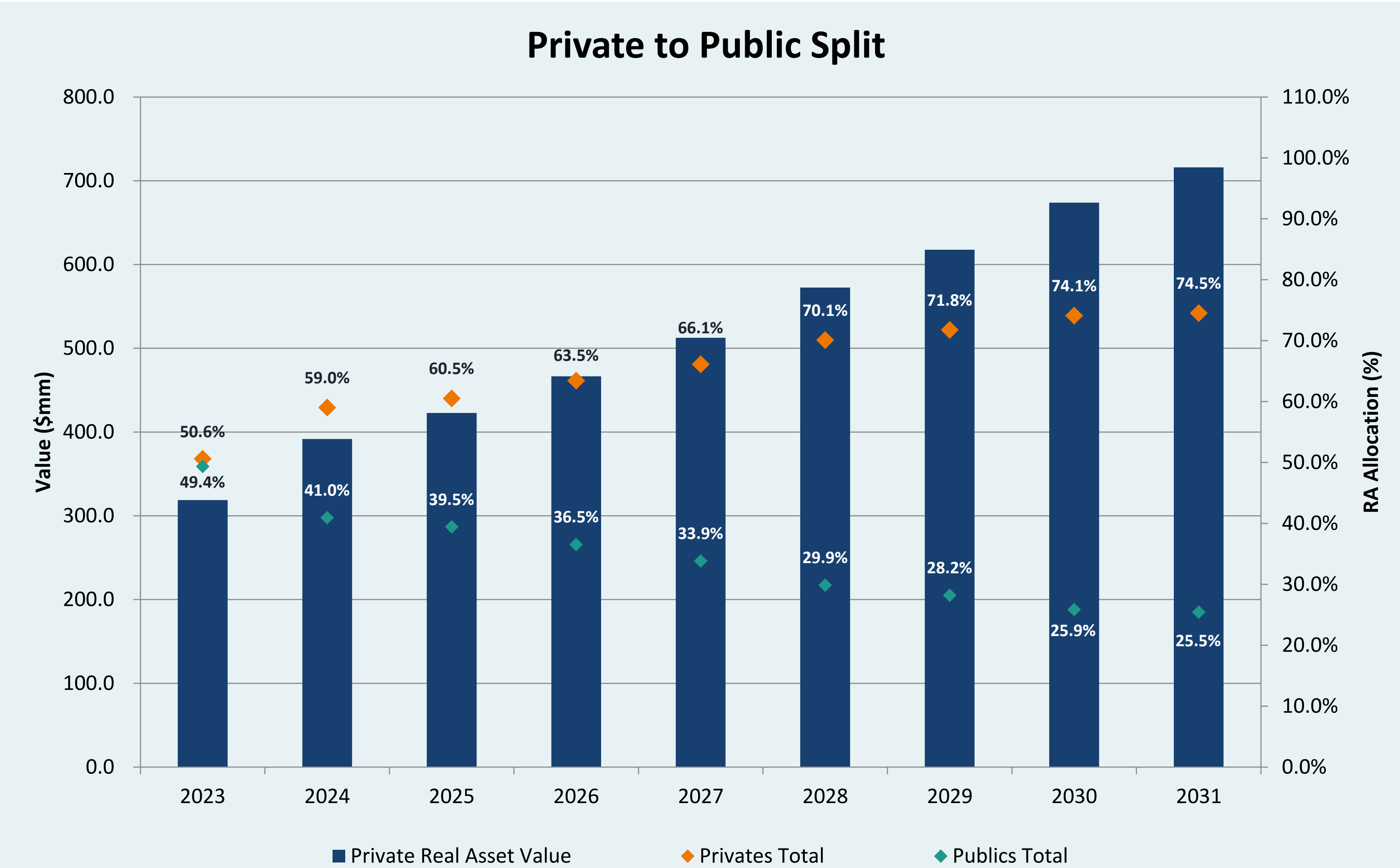
– To reach the 6.0% target in 6-7 years, the plan should allocate aggressively in the next two years, at which point deploying ~$100M/year should result in maintaining the plans target allocation

Projected real asset allocation



Private Real Assets will achieve its 4.5% target allocation in 2031

Projected real asset allocation



As private allocation increases the public allocation falls until they reach the long-term target of 75:25

Detailed projected allocation

TOTAL PROJECTED ALLOCATIONS	12/31/2023	12/31/2024	12/31/2025	12/31/2026	12/31/2027	12/31/2028	12/31/2029	12/31/2030	12/31/2031
	Projected Allocation	Projected Allocation	Projected Allocation	Projected Allocation	Projected Allocation	Projected Allocation	Projected Allocation	Projected Allocation	Projected Allocation
Value-Add Infrastructure	179,552,695.97	205,349,092.89	237,703,941.52	267,115,242.71	298,382,102.89	337,612,677.47	364,264,728.94	405,599,820.55	437,269,081.42
Core Infrastructure	86,100,000.00	142,905,000.00	150,050,250.00	157,552,762.50	165,430,400.63	173,701,920.66	182,387,016.69	191,506,367.52	201,081,685.90
Natural Resources	53,168,229.70	43,346,990.68	35,068,177.13	41,815,946.38	48,665,976.53	61,160,976.53	70,957,287.50	76,706,171.64	77,631,357.44
Total Privates	$ 318,820,926	$ 391,601,084	$ 422,822,369	$ 466,483,952	$ 512,478,480	$ 572,475,575	$ 617,609,033	$ 673,812,360	$ 715,982,125
Listed Infrastructure	$ 186,606,118	$ 163,008,536	$ 165,327,604	$ 161,227,047	$ 157,349,178	$ 146,360,349	$ 145,686,937	$ 141,131,762	$ 146,702,588
Listed Natural Resources	$ 108,853,569	$ 95,088,313	$ 96,441,102	$ 94,049,111	$ 91,787,020	$ 85,376,870	$ 84,984,046	$ 82,326,861	$ 85,576,510
Commodities	$ 15,550,510	$ 13,584,045	$ 13,777,300	$ 13,435,587	$ 13,112,431	$ 12,196,696	$ 12,140,578	$ 11,760,980	$ 12,225,216
Total Publics	$ 311,010,197	$ 271,680,894	$ 275,546,007	$ 268,711,744	$ 262,248,630	$ 243,933,915	$ 242,811,561	$ 235,219,604	$ 244,504,314
Total Real Assets	**$ 629,831,122**	**$ 663,281,977**	**$ 698,368,376**	**$ 735,195,696**	**$ 774,727,110**	**$ 816,409,490**	**$ 860,420,594**	**$ 909,031,964**	**$ 960,486,439**
Real Assets as a % of Plan (Target ~6.0%)	**6.00%**	**6.00%**	**6.00%**	**6.00%**	**6.00%**	**6.00%**	**6.00%**	**6.00%**	**6.00%**
Privates % of Total Real Assets	**50.62%**	**59.04%**	**60.54%**	**63.45%**	**66.15%**	**70.12%**	**71.78%**	**74.12%**	**74.54%**
Publics % of Total Real Assets	**49.38%**	**40.96%**	**39.46%**	**36.55%**	**33.85%**	**29.88%**	**28.22%**	**25.88%**	**25.46%**
Private Real Assets as a % of Plan (Target 4.5%)	**3.04%**	**3.54%**	**3.63%**	**3.81%**	**3.97%**	**4.21%**	**4.31%**	**4.45%**	**4.47%**
Public Real Assets as a % of Plan (Target 1.5%)	**2.96%**	**2.46%**	**2.37%**	**2.19%**	**2.03%**	**1.79%**	**1.69%**	**1.55%**	**1.53%**

Notices & disclosures

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PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

FEBRUARY 2023

Private Equity Investment Plan: 2023-2026

ACERA

Private Equity Investment Plan Overview

— Private Equity Target Exposure: 11% (long-term, approved 2021)

— Proposed Updates:

- Plan value: $9.79 billion (September 30, 2022)
- Long-term investment return assumption: 7.5% per year
- Cash flows and valuations of existing funds

— Achieve target allocation:

- Private Equity: 11% by 2027
- Neutral weight to each sub-asset class:
    - Buyout: 60%
    - Venture Capital: 20%
    - Debt/Special Situations: 20%

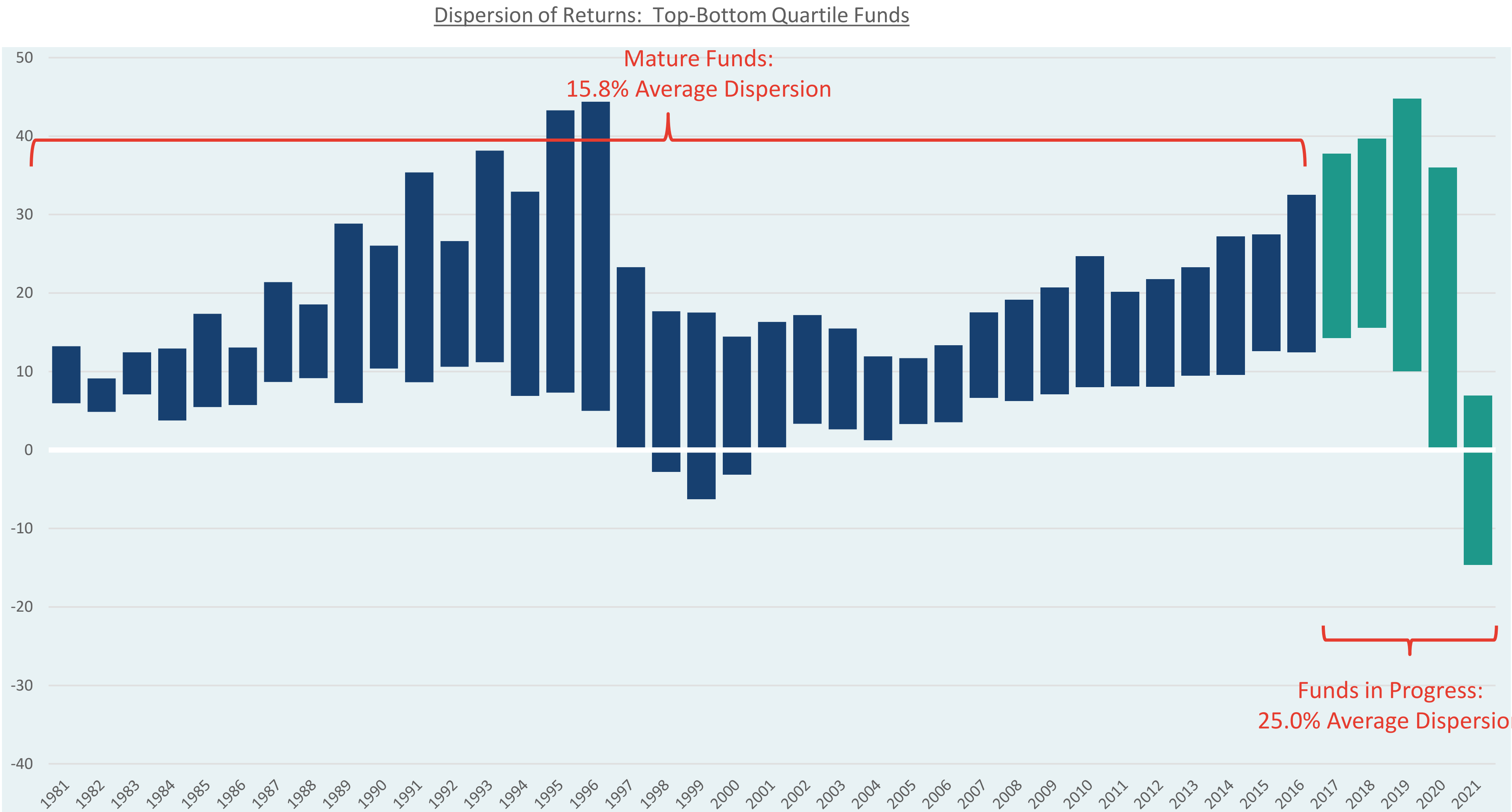
Private Equity Investment Plan: 2023-2026

New Commitments Required to Achieve Target Allocations / Diversification*

Buyout:	9-12 new funds	$624 million
Venture Capital:	9-12 new funds	$232 million
Debt/Spec. Sits:	8 new funds	$304 million

*All projected commitments (number and size)
subject to bottom-up evaluation of GPs and market opportunities.

Manager selection is critical to results



Source: Refinitiv C|A U.S. All Private Equity returns, as of June 30, 2022. For illustrative purposes only as dispersion of returns varies by sub-asset class.

Investment Plan – as of September 30, 2022

	2023 Projected	2024 Projected	2025 Projected	2026 Projected	2027 Projected	2028 Projected	2029 Projected	2030 Projected	2031 Projected	2032 Projected
Annual Commitments ($M)										
Venture Capital	$ 58	$ 58	$ 58	$ 58	$ 58	$ 58	$ 80	$ 80	$ 80	$ 80
Buyouts	$ 156	$ 156	$ 156	$ 156	$ 156	$ 156	$ 215	$ 215	$ 215	$ 215
Debt-Related/Special Situations	$ 76	$ 76	$ 76	$ 76	$ 76	$ 76	$ 105	$ 105	$ 105	$ 105
Total Private Equity	**$ 290**	**$ 290**	**$ 290**	**$ 290**	**$ 290**	**$ 290**	**$ 400**	**$ 400**	**$ 400**	**$ 400**
Number of Commitments										
Venture Capital	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4	3-4
Buyouts	3-4	3-4	3-4	3-4	3-4	3-4	4	4	4	4
Debt-Related/Special Situations	2	2	2	2	2	2	2	2-3	2-3	2-3
Total Private Equity	**8-10**	**8-10**	**8-10**	**8-10**	**8-10**	**8-10**	**9-10**	**9-11**	**9-11**	**9-11**
Exposures										
Private Equity Exposure as a % of Plan (Target 11%; Range 8-13%)	**9.2%**	**9.6%**	**10.0%**	**10.5%**	**11.0%**	**11.2%**	**11.2%**	**11.3%**	**11.2%**	**11.0%**
VC % of Total Private Equity (Target 20% / Range 0-40%)	24.1%	20.9%	18.8%	18.9%	19.6%	19.7%	20.4%	20.7%	20.8%	20.7%
Buyouts % of Total Private Equity (Target 60% / Range 30-80%)	56.3%	59.0%	60.6%	60.6%	60.6%	60.8%	60.5%	60.0%	59.7%	59.4%
Debt/Special Situations % of Total Private Equity (Target 20% / Range 0-30%)	19.5%	20.1%	20.6%	20.5%	19.8%	19.5%	19.1%	19.2%	19.5%	19.9%

PERSPECTIVES THAT DRIVE ENTERPRISE SUCCESS

FEBRUARY 2023

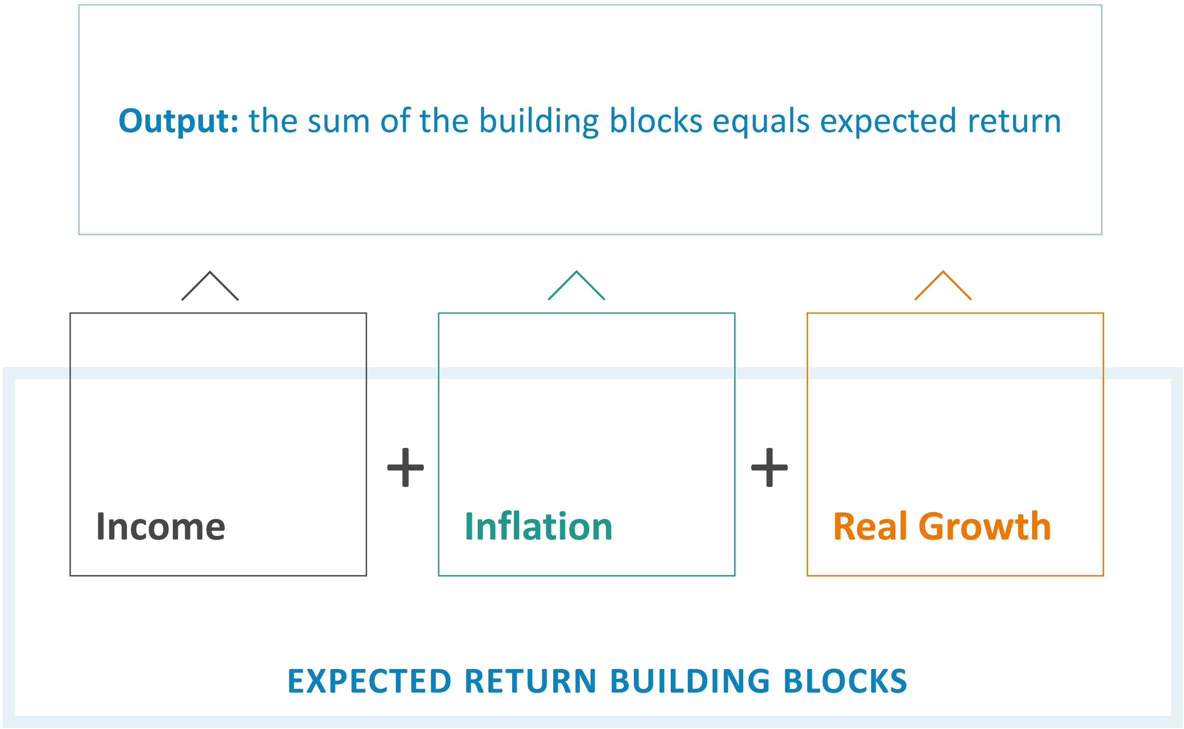
2023 Capital Market Assumptions Review

Alameda County Employees Retirement Association

Summary

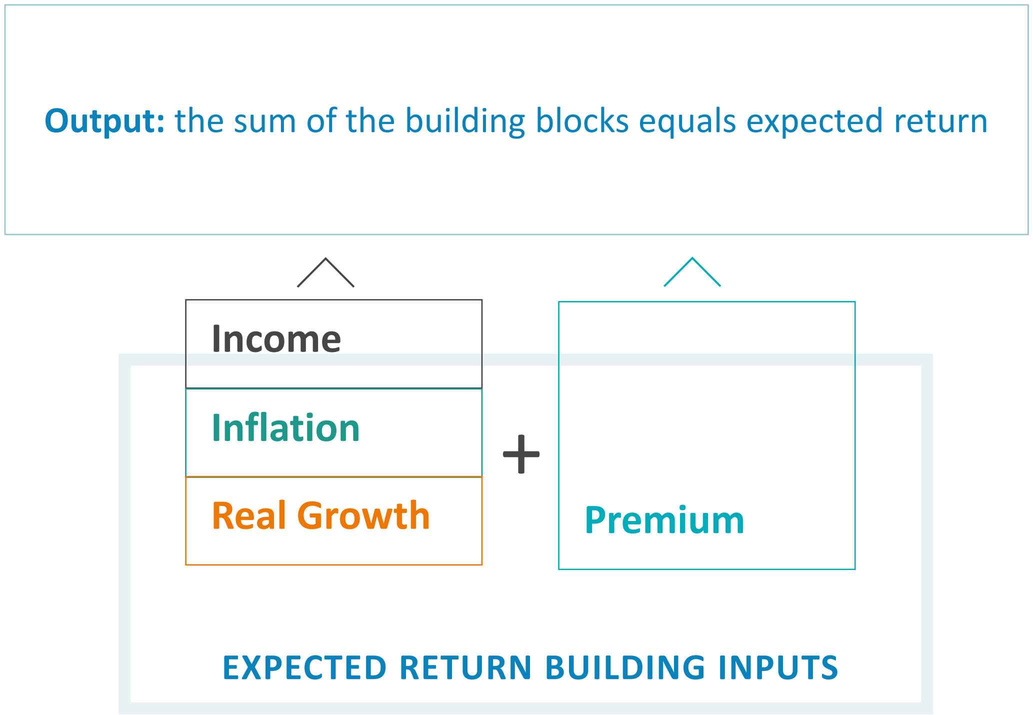
- Setting ACERA's asset allocation policy is most important fiduciary decision ACERA Board makes; thus, annual review is warranted
  - asset allocation policy drives 90+% of total fund return and risk experience
  - best practice for public funds is annual asset allocation policy review to understand how capital market assumption changes may affect total fund expected return and risk in between asset allocation and asset/liability studies
- Changes in Verus' capital market assumptions from 2021 to 2022 produce an updated long-term policy expected return of 7.5% versus 6.1%, which is 140 basis points higher
  - Principally, increased assumptions driven by higher actual and expected yields
  - Expected risk assumptions tend to be fairly static; there is no meaningful change in expected total fund risk from 2021
- Given the changes to ACERA asset allocation policy adopted by Board in 2021, no additional revisions to this policy are warranted at this time
  - ACERA investment policy articulates asset allocation policy will be revisited every 3 years to determine whether changes are warranted given trends in capital markets

Building block methodology



For illustrative purposes only

Build-up/spread



Alternative asset classes will in some cases use the build-up + spread methodology

For illustrative purposes only

Expected return methodology

BUILDING BLOCK METHODOLOGY

Equity	Current yield + real earnings growth (historical average) + inflation on earnings (inflation forecast) + expected P/E change
Domestic Fixed Income	Nominal bonds: current yield; Real bonds: real yield + inflation forecast
International Fixed Income	Current yield
Absolute Return	Return coming from traditional betas + 15-year historical idiosyncratic return
Infrastructure	Current yield + real income growth + inflation on earnings (inflation forecast)
Commodities	Collateral return (cash) + spot return (inflation forecast) + roll return (assumed to be zero)
Core Real Estate	Cap rate + real income growth – capex + inflation forecast
Cash	Real yield estimate + inflation forecast

BUILD-UP/SPREAD METHODOLOGY

Private Equity	U.S. large cap domestic equity forecast * 1.85 beta adjustment
Private Credit	Bank loan forecast + 1.75% private credit premium

10-year expected return & risk assumptions

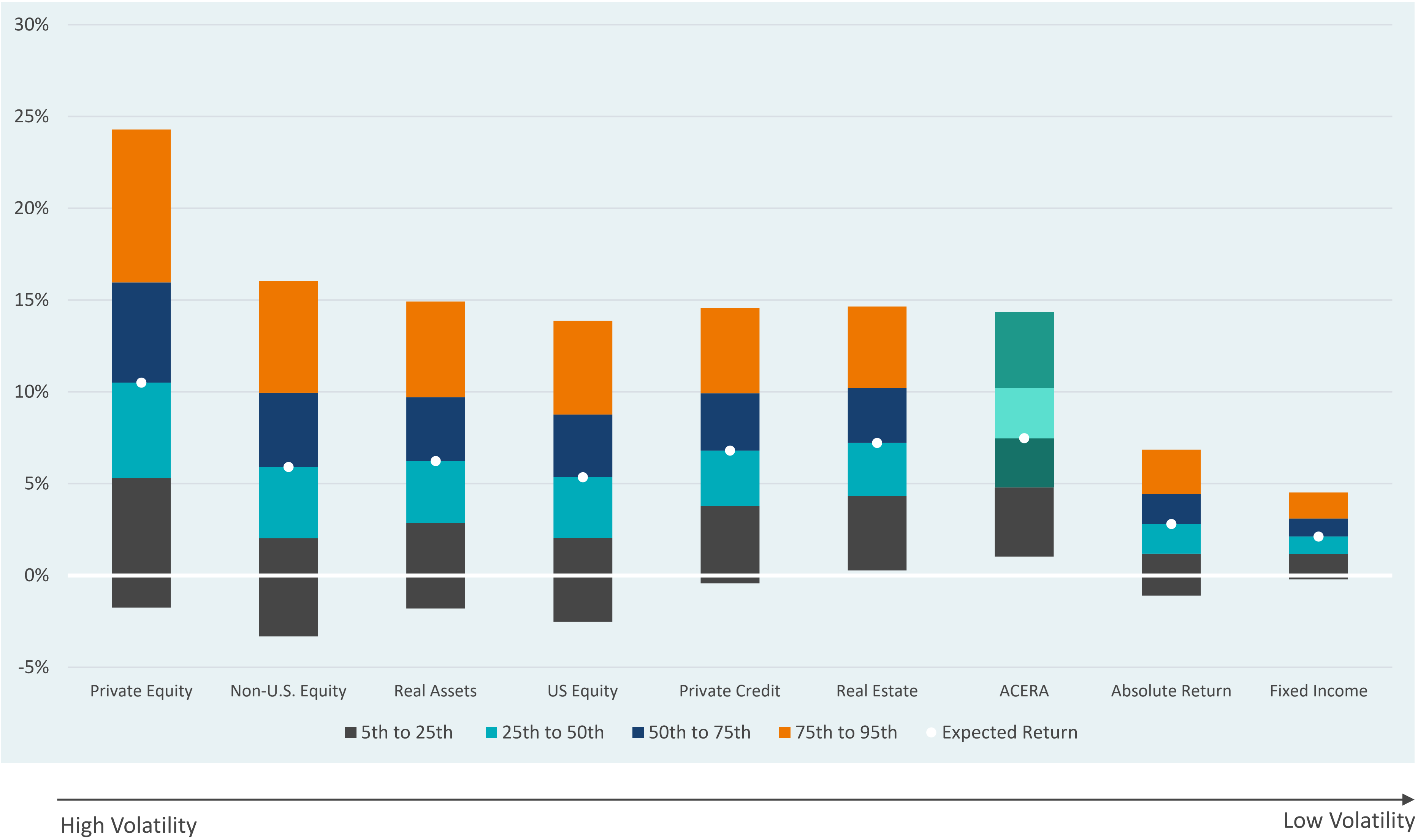
EN1

Asset Class	Index Proxy	Target Weight	Return Forecast	Standard Deviation Forecast
Equities				
US Equity	Custom*	24.0%	6.4%	16.0%
Non-U.S. Equities	Global ex-U.S.	24.0%	9.2%	19.0%
Private Equity	Cambridge US Private Equity	11.0%	10.2%	25.9%
Fixed Income				
Fixed Income	Custom*	14.0%	4.3%	5.3%
Private Credit	S&P LSTA Leveraged Loan Index	4.0%	8.2%	13.0%
Other				
Real Estate	NCREIF Property	9.0%	5.8%	12.6%
Absolute Return	HFRI Fund of Funds Composite	8.0%	3.6%	7.7%
Real Assets	Custom*	6.0%	7.6%	16.2%
Inflation			2.5%	-
Total Portfolio	**Custom***		**7.5%**	**12.9%**

** Approved asset allocation policy June 2021. For further detail on index construction, please see appendix, slide 29.*

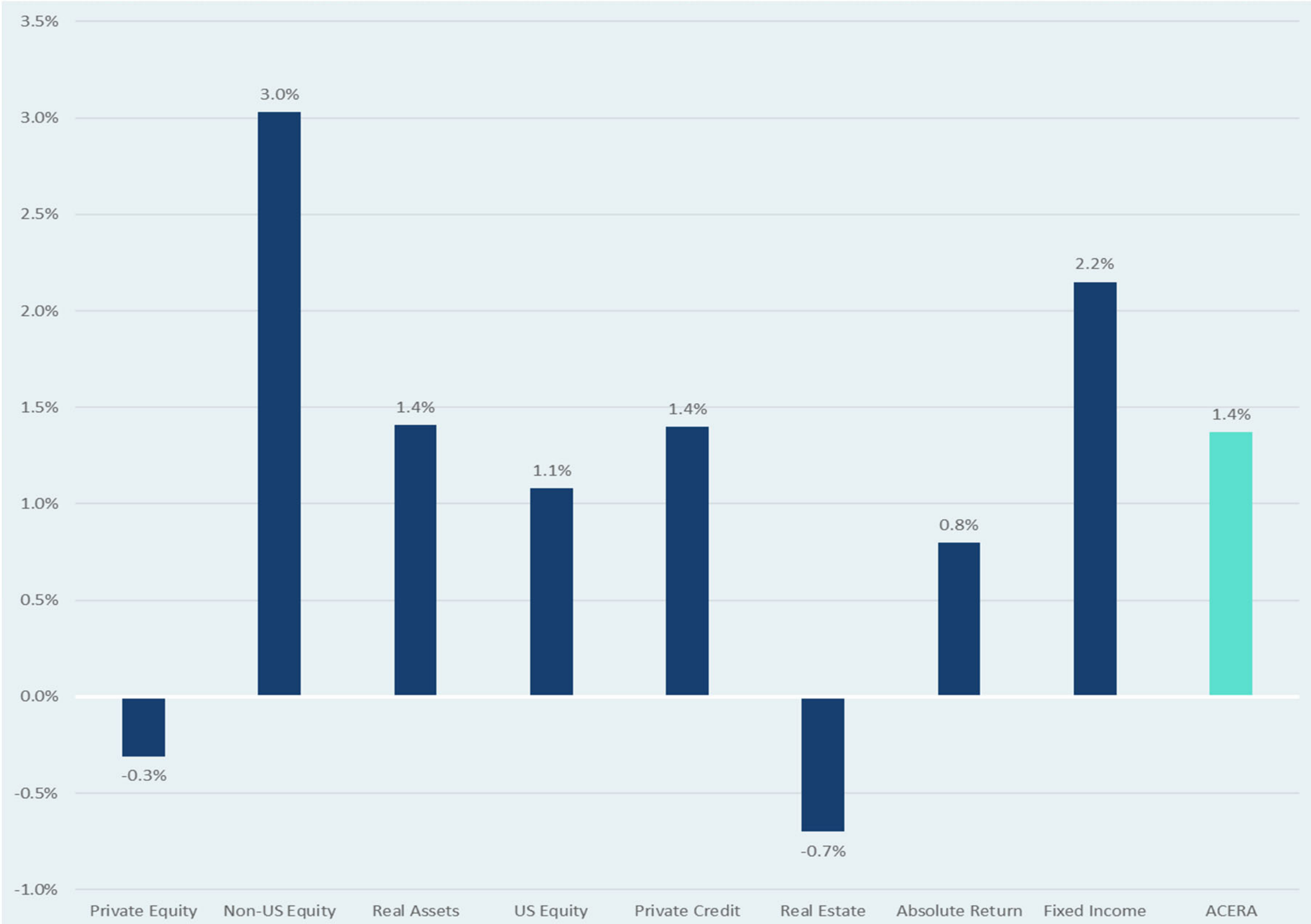
Range of likely 10-year outcomes

10-YEAR RETURN 90% CONFIDENCE INTERVAL



Source: Verus, MPI

2023 vs. 2022 return forecast



Source: Verus, as of 12/31/22

Relevant capital market assumption changes

— Large gains in expected returns of fixed income assets due to increase in target federal funds rate range from between 0 to 25 basis points (“bps”) at 12/31/21 to between 3.0% to 3.25% at 12/31/22

— Household inflation expectations (*source: University of Michigan*) began and ended year at 2.7%. Survey of Professional Forecasters inflation expectation also increased from 2.4% to 2.8%. Thus, Verus’ inflation forecast remained unchanged at 2.5%

— Higher risk bond spreads marched steadily upward as Federal Reserve took more aggressive stance on rate hikes and fight against inflation, which generated concerns around imminent recession. High yield spreads jumped from 323 bps to 517 bps during 2022

- Yield curve increased substantially as 10-year U.S. Treasury yield moved from 1.49% to 3.83% during 2022
- However, shorter end of yield curve is now flat or slightly inverted (depending on measure), with effective federal funds rate at 2.6%. Inverted yield curve has historically suggested recession is near

— As non-U.S. equity current Price to Earnings (“PE”) level is low relative to historical, Verus’ ‘repricing’ assumption increased

Appendix

Inflation

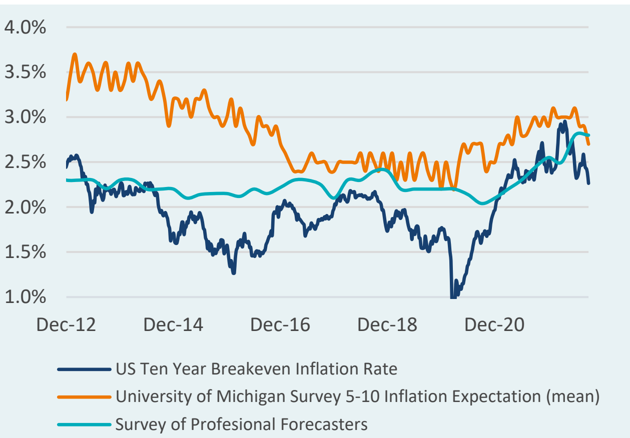
Inflation

We use a weighted average of market expectations (50%), consumer expectations (25%), and professional forecasts (25%) to create a 10-year inflation forecast. The market's expectations for 10-year inflation can be inferred by taking the difference between the U.S. 10-year Treasury yield and the 10-year Treasury Inflation-Protected (TIPS) yield (referred to as the breakeven inflation rate).

Long term inflation expectations have been mixed throughout the year. Household inflation expectations (University of Michigan) have moderated along with market-priced inflation (U.S. TIPS Breakeven Rates), though the Survey of Professional Forecasters which suggests an increase in long-term inflation expectations. At a broader level, all of these indicators agree in their assumption that inflation will fall to a relatively normal 2-3% for the next ten years.

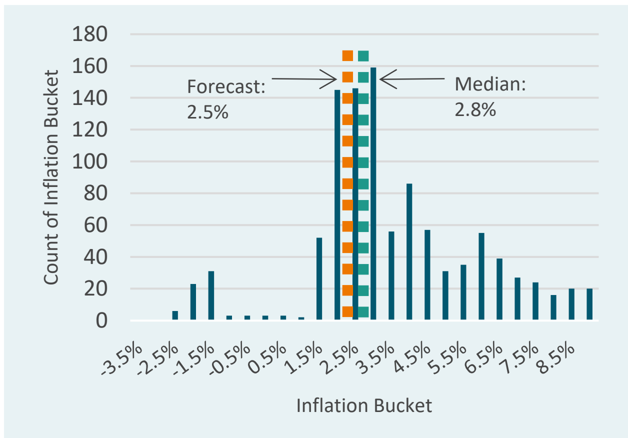
Our inflation forecast was unchanged at 2.5%.

INFLATION EXPECTATIONS



Source: U. of Michigan, Philly Fed, as of 9/30/22

U.S. 10-YR ROLLING AVERAGE INFLATION



Source: Bloomberg, as of 9/30/22 – since 1923

FORECAST

	10-Year Forecast
University of Michigan Survey *(25% weight)*	+2.7%
Survey of Professional Forecasters *(25% weight)*	+2.8%
US 10-Year TIPS Breakeven Rate *(50% weight)*	+2.2%
Inflation Forecast	2.5%

Source: Verus, as of 9/30/22

Fixed income

Cash

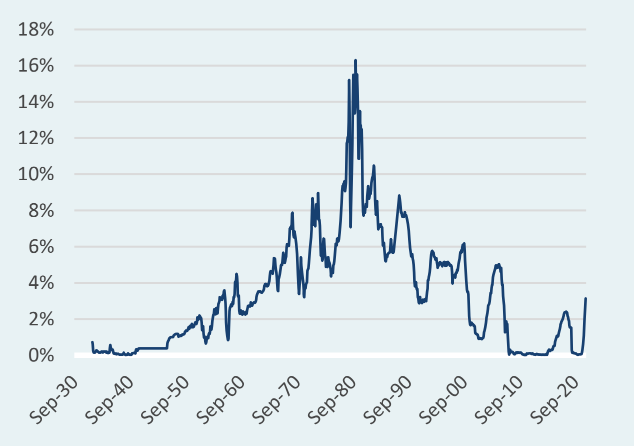
The U.S. Treasury yield ramped up significantly from late 2021 as the Federal Reserve became increasingly aggressive in its tightening efforts. The Federal Funds Rate range was lifted from 0-0.25% to 3.00-3.25% during this time.

Throughout 2021 it seemed that the yield of cash had decoupled from the rate of inflation in many developed markets as near-zero interest rates and relatively high inflation resulted in deeply negative rates on an inflation-adjusted basis. Central banks have now hiked cash rates to levels not seen in nearly fifteen years.

We believe that the current federal funds rate, as well as the steepness of the U.S. Treasury yield curve, may provide guidance regarding the future longer-term cash return. We place a 75% forecasting weight on the current federal funds rate and a 25% weight to the 10-year U.S. Treasury.

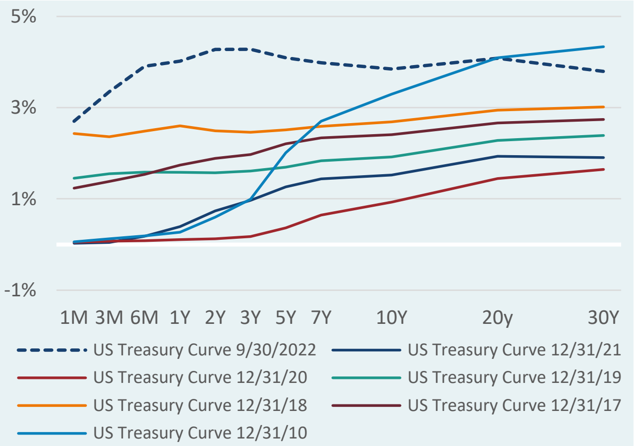
Applying these relationships result in a 10-year cash forecast of 3.3%.

CASH YIELD (3-MONTH T-BILL)



Source: FRED, as of 9/30/22

U.S. TREASURY YIELD CURVE



Source: Bloomberg, as of 9/30/22

FORECAST

	10-Year Forecast
Cash	+3.3%
Inflation Forecast	-2.5%
Real Return	0.8%

Source: Verus, as of 9/30/22

Rates

We forecast the return of 10-year U.S. Treasuries and 30-year U.S. Treasuries based on the current yield of 10- and 30-year U.S. Treasuries, assuming all cash flows are reinvested at the current yield. While the current yield of 10-year Treasuries has historically been a strong predictor of next ten-year performance, it is important to note that 30-year Treasury return is highly dependent on the future path of interest rates, given the very high bond duration of this exposure. In other words, a ten-year forecast of 30-year U.S. Treasuries is accompanied by more forecasting uncertainty.

U.S. Treasury yields are no longer materially higher than other developed nations as central banks work to stamp out high inflation in their local economies.

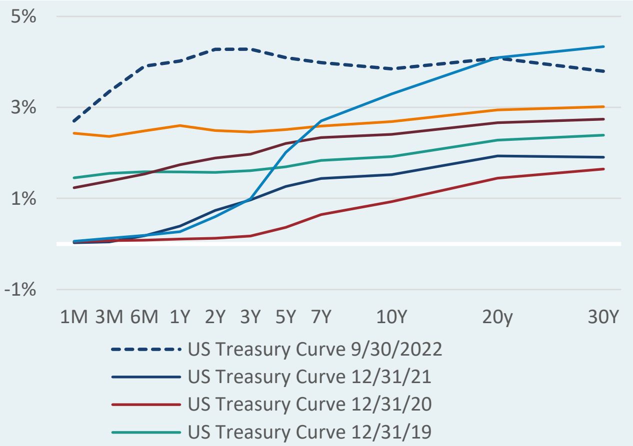
Developed world central banks have pivoted away from extremely loose policies that were enacted to fight the pandemic-induced recession to tighter policies. For the first time in a long time, central banks are removing liquidity from the global financial system and in many cases unwinding their very large balance sheets.

Our expectations are for a 3.8% return over the next ten years, in line with the current U.S. 10-year Treasury yield.

U.S. 10-YR TREASURY YIELD

Source: Bloomberg, as of 9/30/22

U.S. TREASURY YIELD CURVE



Source: Bloomberg, as of 9/30/22

FORECAST

	10-Year Forecast		10-Year Forecast
U.S. 10-Year Treasury	+3.8%	U.S. 30-Year Treasury	+3.8%
Inflation Forecast	-2.5%	Inflation Forecast	-2.5%
Real Return	+1.4%	Real Return	+1.4%

Source: Verus, as of 9/30/22

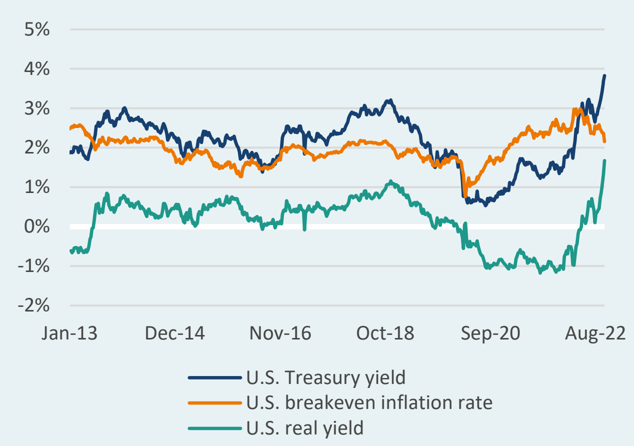
Real rates

TIPS provide high sensitivity to duration (interest rate risk) over short periods and track inflation (CPI) fairly well over longer periods. Changing inflation expectations, demand for inflation protection, and rate movements contribute to the price movement of TIPS. Currently, investors appear to expect higher inflation to be temporary, but also expect that inflation will be higher in the next decade than the most recent decade.

The long end of the yield curve increased substantially as the 10-year U.S. Treasury climbed from 1.5% to 3.8%. As inflation has begun to moderate, inflation expectations have fallen significantly. The breakeven inflation rate rose from 2.37% to nearly 3.0% in April, but ended September at 2.15%—now effectively pricing in a quick return to normalcy.

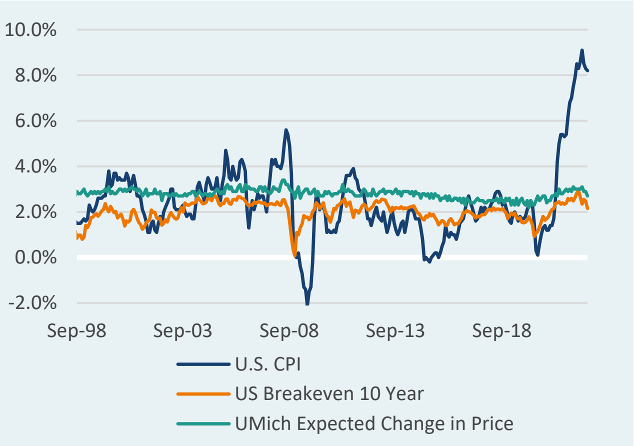
To arrive at a nominal 10-year forecast, we add the current real TIPS yield to our 10-year inflation forecast. Our real rates forecast remains in negative territory as both Treasury yields and priced inflation has risen.

NOMINAL YIELD VS. REAL



Source: Bloomberg, as of 9/30/22

INFLATION EXPECTATIONS



Source: Bloomberg, as of 9/30/22

FORECAST

	10-Year Forecast
U.S. 10-Year TIPS Real Yield	+1.7%
Inflation Forecast	+2.5%
Nominal Return	4.1%

Source: Verus, as of 9/30/22

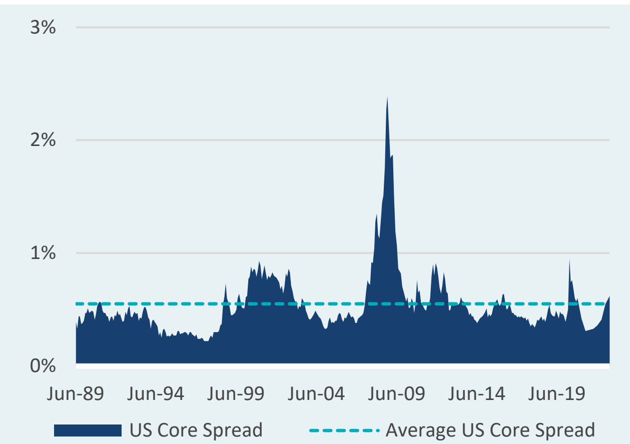
Core fixed

Credit fixed income return is composed of a bond term premium (duration) and credit spread. The bond term premium is represented by the 10-year U.S. Treasury yield.

We use default rates and credit spreads for each respective fixed income category to provide our 10-year return forecast. Our default rate assumption is derived from a variety of sources, including historical data and academic research. The effective default that is subtracted from the return forecast is based on our assumed default and recovery rates.

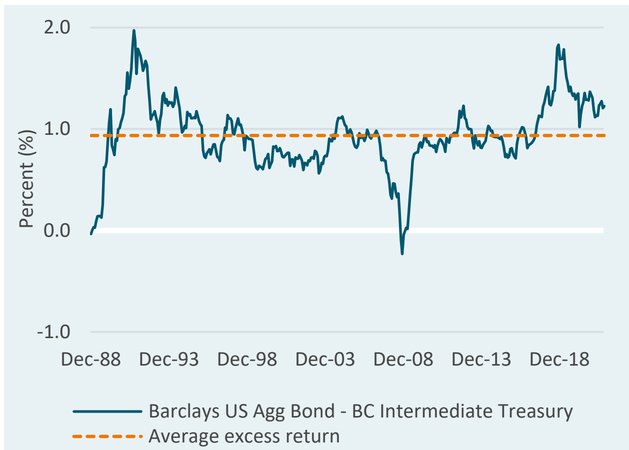
Core fixed income spreads contracted from 81 bps to 57 bpx over the year and remain materially below the 30-year average of 1.25%. Higher interest rates have substantially increased our core fixed income expectations, while slightly tighter credit spreads had an opposing effect. Our forecast increased from 2.2% to 4.3% during the year.

U.S. CORE CREDIT SPREAD



Source: Bloomberg, as of 9/30/22

ROLLING EXCESS RETURN (10-YR)



Source: Bloomberg, as of 9/30/22

FORECAST

	10-Year Forecast
Bloomberg U.S. Option-Adjusted Spread	+0.6%
Effective Default	-0.1%
U.S. 10-Year Treasury	+3.8%
Nominal Return	4.3%
Inflation Forecast	-2.5%
Real Return	1.8%

Source: Verus, as of 9/30/22

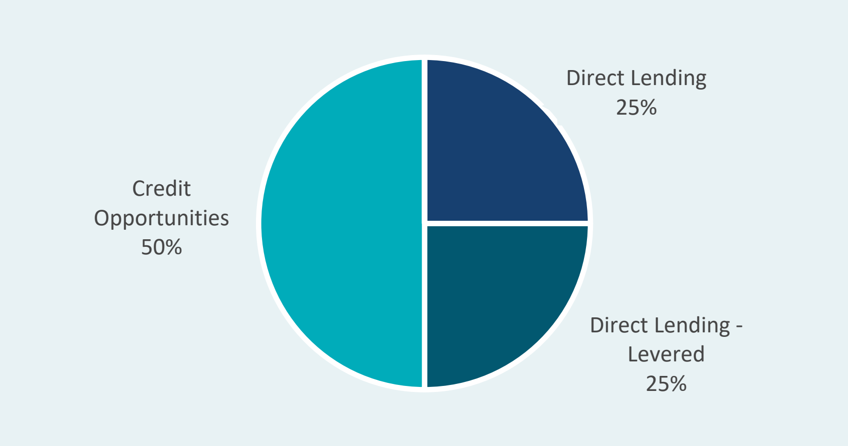
Private credit

The spectrum of private credit is broad and the types of investments in this asset class can differ considerably in terms of return expectations and risks involved. To reflect the disparate characteristics of this asset class, our private credit forecast assumes a diversified portfolio comprised of 25% direct lending, 25% direct lending with fund-level leverage, and 50% credit opportunities strategies. Our resulting private credit forecast is a result of our combined expectations for each of these exposure types.

We follow a building block approach to build return expectations.

Direct lending expected return is a product of interest rates, a floating rate, loss adjusted credit spread above SOFR, plus original issuance discounts, minus management fees and carried interest. Direct lending with fund-level leverage includes these same building blocks but is adjusted for the added spread from leverage and the costs of that leverage. The expected return of credit opportunities strategies is a result of interest rates (U.S. Treasury yield), credit spread, original issuance discounts, minus management fees and carried interest, with an adjustment for added spread from leverage and the costs of that leverage. Further details of this methodology is provided on the next page.

PRIVATE CREDIT WEIGHTS



Source: Verus

FORECAST

	10-Year Forecast
Credit Opportunities *(50% weight)*	8.5%
Direct Lending – Unlevered *(25% weight)*	6.8%
Direct Lending – Levered *(25% weight)*	9.1%
Private Credit Weighted Return Forecast	8.2%
Inflation Forecast	-2.5%
Real Return	5.7%

Source: Verus, as of 9/30/22 – assuming universe weights as indicated by left-hand chart
Please reach out to your Verus consultant for Private Credit universe forecast methodology

Private credit

Below we illustrate the specific building blocks of our private credit forecasts. The build up method is used to calculate a gross investment level return, which is adjusted to account for fund level leverage, management fees, and carried interest.

	Direct Lending –Unlevered	Direct Lending – Levered		Credit Opportunities*		Junior Capital / Mezzanine
Base Interest Rate	2.5%	2.5%	Base Interest Rate	2.5% - 3.2%	Fixed Rate Coupon	8.5%
Spread	5.5%	5.5%	Spread	4.5% - 9.0%	Paid-In-Kind Coupon	3.5%
Original Issuance Discount *Amortized over 3 years*	2.3%	2.3%	Original Issuance Discount *Amortized over 3 years*	2.0% - 2.5%	Annualized Equity Upside	0.8%
Gross Return	*8.8%*	*8.8%*	*Gross Return*	*7.7% - 13.0%*	*Gross Return*	*12.8%*
Leverage Cost	NA	5.3%	Leverage Cost	5.3%	Leverage Cost	NA
Leverage Level	0.0x	1.0x	Leverage Level	0.3x – 0.5x	Leverage Level	0.0x
Levered Gross Return	*8.8%*	*12.3%*	*Levered Gross Return*	*8.9% - 15.4%*	*Levered Gross Return*	*12.8%*
Effective Management Fees	1.0%	1.8%	Effective Management Fees	1.5% - 2.0%	Effective Management Fees	1.5%
Carried Interest	0.7%	1.3%	Carried Interest	1.1% - 2.7%	Carried Interest	2.3%
Total Net Return	***6.8%***	***9.1%***	***Total Net Return***	***8.5%***	***Total Net Return***	***9.0%***

Distressed

Return expectations for distressed have been developed on a range bound basis given the diversity of strategies included in the asset class:

Distressed strategies are highly opportunistic by nature and returns are primarily, if not entirely, driven by capital appreciation limiting the ability to use a build up method.

Distressed strategies typically target 10%+ net returns, but market conditions often weigh heavily into the overall performance.

Periods of market volatility, dislocation, and economic downturns generally provide a more attractive investment environment for distressed strategies where outperformance may be expected.

Historically, median fund level net returns have ranged between 9-10% although top to bottom quartile dispersion is has been wide historically.

Total Net Return	***9.1%***

**Return expectations for credit opportunities have been developed on a range-bound basis given the diversity of strategies included in the asset class. Values represent the mid-point estimate of those ranges. For Credit Opportunities, our return assumption is the midpoint of the total net return range of 6.3% - 10.7%.*

Source: Verus

Credit summary

	Core	Long-Term Credit	Global Credit*	High Yield*	Bank Loans*	EM Debt (USD)	EM Debt (Local)	Private Credit	Real Estate Debt
Index	Bloomberg U.S. Aggregate	Bloomberg U.S. Long Credit	Bloomberg Global Credit	Bloomberg U.S. High Yield	S&P LSTA	JPM EMBI	JPM GBI-EM	N/A	N/A
Method	OAS + U.S. 10-Year	OAS + U.S. 10-Year	OAS + Global 10-Year Treasuries	OAS + U.S. 10-Year	LIBOR + Spread	OAS + U.S. 10-Year	Current Yield	Build up method using Direct Lending (unlevered), Direct Lending (levered), Opportunistic Credit**	LIBOR + Spread***
Spread to	Intermediate U.S. Treasury	Long-Term U.S. Treasury	Global Long-Term Treasuries	Intermediate U.S. Treasury	LIBOR	Intermediate U.S. Treasury	-	-	LIBOR
Default Assumption	-0.5%	-4.5%	-	-	-	-0.5%	-0.5%	-	-3.7%
Recovery Assumption	80%	95%	-	-	-	60%	40%	-	47%
Spread	0.6%	1.8%	2.0%	5.2%	6.0%	5.2%	-	-	4.0%
Yield	-	-	-	-	-	-	7.3%	-	-
Risk Free Yield	3.8%	3.8%	3.5%	3.8%	3.8%	3.8%	-	-	3.1%
Effective Default	-0.1%	-0.2%	-1.0%	-2.6%	-3.0%	-0.2%	-0.3%	-	-2.0%
Nominal Return	4.3%	5.4%	4.5%	6.4%	6.8%	8.9%	7.0%	8.2%	5.2%
Inflation Forecast	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%	2.5%
Real Return	1.8%	2.9%	2.1%	4.0%	4.3%	6.4%	4.6%	5.7%	2.6%

**We assume half of the spread of higher risk credit will be lost to defaults, as this has roughly been the case throughout history.*

***We assume 25% Direct Lending (Unlevered), 25% Direct Lending (Levered), 50% Credit Opportunities – please refer to the previous page for more information.*

****Spread is determined based on a survey of real estate debt managers*

Equities

U.S. Equities

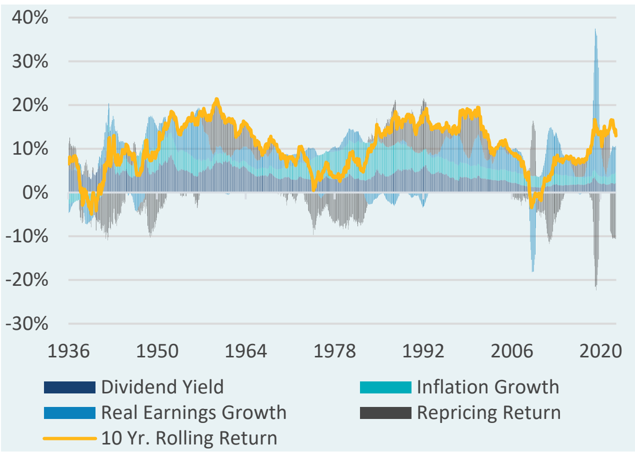
Investment returns in the equity space can be broken down into earnings growth, dividend yield, inflation, and repricing. Over the very long-term, repricing represents a small portion of return to equity investors, but over shorter time frames, the impacts on return can vary considerably.

If investors are willing to pay more for earnings, it could signal that investors are more confident in positive earnings growth going forward, while the opposite is true if investors pay less for earnings. It is somewhat surprising that investor confidence varies so much given that the long-term earnings growth is relatively stable.

Investor confidence in earnings growth can be measured using both the Shiller P/E ratio and the trailing 12-month P/E ratio. We take an average of these two valuations metrics when determining our repricing assumption. In short, if the P/E ratio is too high (low) relative to history, we expect future returns to be lower (higher) than the long-term average. Implicit in this analysis is the assumption that P/E multiples will exhibit mild mean reversion over 10 years.

We make a conservative repricing estimate given how widely repricing can vary over time. We then skew the repricing adjustment because the percentage change in index price is larger with each incremental rise in valuations when P/E multiples are low, compared to when they are high.

TRAILING 10-YR S&P 500 RETURN COMPOSITION



Source: Shiller, Standard & Poor's, as of 6/30/22

U.S. LARGE SHILLER P/E

Source: Shiller, S&P 500, as of 7/31/22

P/E REPRICING ASSUMPTION

Average P/E Percentile Bucket	Lower P/E	Upper P/E	Repricing Assumption
Lower 10%	-	10	2.00%
10% - 20%	10	13	1.50%
20% - 30%	13	15	0.75%
30% - 45%	15	18	0.50%
45% - 55%	18	19	0.0%
55% - 70%	19	21	-0.25%
70% - 80%	21	22	-0.50%
80% - 90%	22	24	-0.75%
Top 10%	24	-	-1.00%

Source: Verus

Global equity

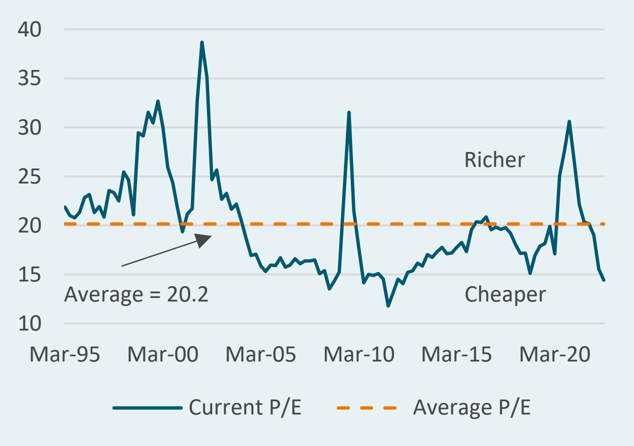
Global Equity is a combination of U.S. large, international developed, and emerging market equities. We can therefore combine our existing return forecasts for each of these asset classes to arrive at our global equity return forecast.

We use the MSCI ACWI Index as our benchmark for global equity and apply the country weights of this index to determine the weightings for our global equity return calculation. As with other equity asset classes, we use the historical standard deviation of the benchmark (MSCI ACWI Index) for our volatility forecast.

The valuation of global equities are driven by the richness/cheapness of the underlying markets, as indicated by the current price-to-earnings ratio.

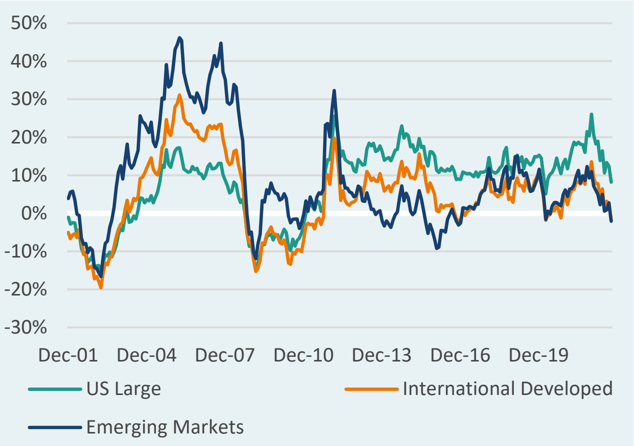
Our return building blocks produce a local return forecast for international equities. For investors who wish to incorporate market implied currency movements into the return forecast, please see the adjustments and explanation in the Appendix.

GLOBAL EQUITY P/E RATIO HISTORY



Source: MSCI, Bloomberg, as of 9/30/22

MARKET PERFORMANCE (3-YR ROLLING)



Source: MSCI, Standard & Poor's, as of 9/30/22

FORECAST

Market	Weight	CMA return
U.S. Large	64%	6.5%
Developed Large	25%	9.1%
Emerging Markets	10%	8.5%
Global Equity Forecast		7.4%

Source: Verus, weights rescaled to equal 100%, as of 9/30/22

Equity summary

	U.S. Large	U.S. Small	EAFE	EAFE Small	EM
Index	S&P 500	Russell 2000	MSCI EAFE Large	MSCI EAFE Small	MSCI EM
Method	Building Block Approach: current dividend yield + historical average real earnings growth + inflation on earnings + repricing				
Current Shiller P/E Ratio	28.5	45.1	14.1	-	8.8
Regular P/E Ratio	17.6	107.5	11.6	12.0	9.8
2022 Shiller P/E Change	-25.6%	-29.1%	-33.9%	-	-30.8%
2022 Regular P/E Change	-30.0%	-40.8%	-39.2%	-76.8%	-35.9%
Current Shiller P/E Percentile Rank	80%	88%	12%	-	7%
Current Regular P/E Percentile Rank	54%	97%	10%	4%*	2%
Average of P/E Methods' Percentile Rank *(lower percentile = cheaper valuations)*	67%	88%	11%	4%*	5%
2022 YTD Return	-23.9%	-25.1	-27.1%	-32.1%	-27.2%
Shiller PE History	1982	1988	1982	Not Enough History	2005
Long-Term Average Shiller P/E	23.6	33.0	22.3	-	14.5
Current Dividend Yield	1.8%	1.5%	3.8%	3.4%	3.6%
Long-Term Average Real Earnings Growth	2.4%	2.4%**	1.6%	1.6%**	0.5%
Inflation on Earnings	2.5%	2.5%	2.2%	2.2%	2.5%
Repricing Effect (Estimate)	-0.3%	-1.0%	1.5%	2.0%	2.0%
Nominal Return	6.5%	5.4%	9.1%	9.2%	8.5%
Inflation Forecast	2.5%	2.5%	2.5%	2.5%	2.5%
Real Return	4.0%	2.7%	6.6%	6.7%	6.0%

Data as of 9/30/22

**Average trailing P/E from previous 12 months (25% weight) and current P/E (75% weight) are blended into one P/E metric, which is then percentile ranked relative to long-term history. This is done to reduce reliance on a single price multiple, as insufficient data history is available to calculate Shiller P/E for this asset class.*

***Due to data limitations, we assume small cap earnings growth will equal the earnings growth of large cap in each respective market*

NOTE: For all equities, we exclude data prior to 1972, which allows for a more appropriate comparison between data sets

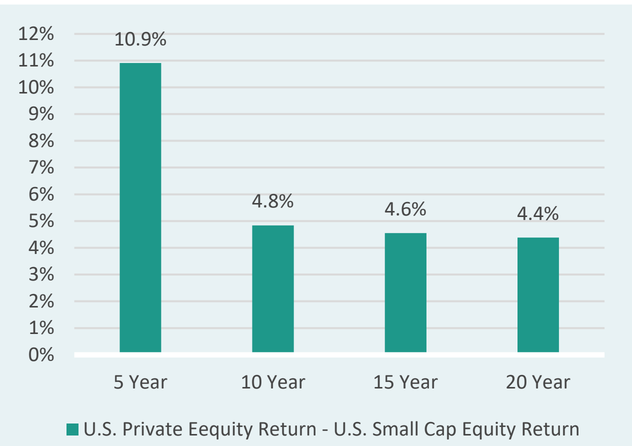
Private equity

Private equity and public equity returns have been correlated historically because the underlying economic forces driving these asset class returns are quite similar. The return relationship between the two can vary in the short-term, but over the long-term investors have received a premium, driven by leverage, concentrated factor exposure (smaller and undervalued companies), skill, and possibly illiquidity. Historically, the beta of private equity relative to public equity has been high. We use a beta assumption of 1.85 to U.S. large cap equities in our forecast.

Readers may notice that our private equity return forecast fell slightly in 2022 while other equity forecasts increased. Given the recent notable rise in cash rates, the cost of leverage for private equity strategies has jumped considerably. The higher cost of leverage was the reason for this change.

Private equity performance typically differs based on the implementation approach. We provide a 10-year forecast for the entire private equity universe of 9.5%. Direct private equity programs have historically outperformed the broader universe by approximately 1.0%, so we add 1.0% to our direct private equity forecast to reflect this historical outperformance. Private equity fund-of-fund (FoF) programs have historically lagged the universe by 1.0%, so we subtract 1.0% from our forecast accordingly to arrive at this forecast.

PRIVATE EQUITY EXCESS RETURN (PE – U.S. SMALL CAP EQUITY)



Source: CA, Russell, as of 3/31/22

PRIVATE EQUITY IMPLEMENTATION FORECASTS*

	10-Year Forecast
Private Equity Universe Forecast	9.2%
Private Equity FoF Forecast*	8.2%
Private Equity Direct Forecast*	10.2%

Source: Verus, as of 9/30/22

PRIVATE EQUITY UNIVERSE FORECAST

	10-Year Forecast
U.S. Large Cap Forecast	+6.5%
1.85 Beta Multiplier	+2.7%
Nominal Return	9.2%
Inflation Forecast	-2.5%
Real Return	6.7%

Source: Verus, as of 9/30/22

**Private Equity FoF and Private Equity Direct forecasts are based off the actual historical return difference between these strategies and the overall Private Equity Universe. Fund of Funds have historically underperformed the overall Private Equity Universe by 1%, and Direct funds have historically outperformed the overall Private Equity Universe by 1%. Please reach out for more details around this methodology.*

Real assets / alternatives

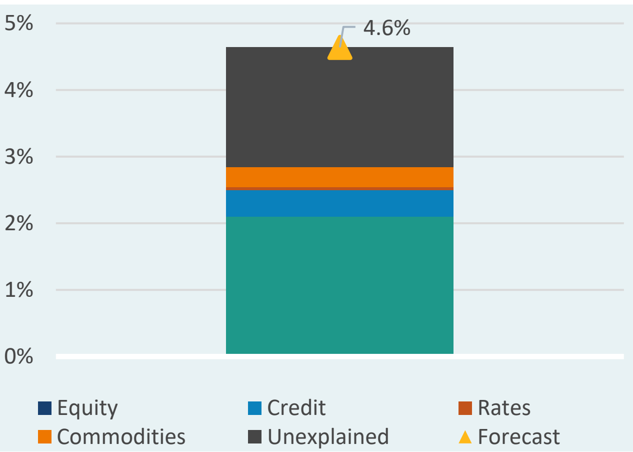
Hedge funds

Hedge fund performance variation through time can be partly explained by public market betas (ex: equity, rates, credit, etc.) and partly explained by non-public sources of return (ex: alternative betas, skill, luck). Certain hedge funds can be mostly explained by public market betas, while others are driven mostly by non-public sources of return. We do not believe hedge funds should be thought of as an asset class, and in most cases we recommend benchmarking and modeling individual hedge funds in line with the underlying asset class exposure set (equity hedge funds modeled as equity exposure, fixed income hedge funds modeled as fixed income exposure, etc.) Our forecast for "hedge funds" that we show here can be thought of as a forecast of the broad universe of hedge funds.

To forecast hedge fund returns, we identified the portion of historical hedge fund performance that can be attributed to public market betas, and the portion of hedge fund returns that cannot be attributed to public market beta. This means our forecast has two components: the public market return (explained return) and the non-public market return (unexplained return).

To forecast the public market beta portion of hedge funds, we take the historical sensitivity of hedge funds to equity, rates, credit, and commodities and pair these with our current 10-year public market forecasts for each asset class. To forecast the non-public market return portion of hedge funds (unexplained return) we simply assume the historical performance contribution of these sources will continue.

HEDGE FUND FORECAST



Source: Verus, as of 9/30/22

HEDGE FUND PUBLIC MARKET SOURCES OF RETURN (EXPLAINED RETURN)
Equity
Rates
Credit
Commodities

HEDGE FUND NON-PUBLIC SOURCES OF RETURN (UNEXPLAINED RETURN)
Alternative betas
Skill
Luck

Source: Verus

FORECAST

	10-Year Forecast
Public Market % of Return	+2.8%
Non-Public Market % of Return	+1.8%
Nominal Return	+4.6%
Inflation Forecast	-2.5%
Real Return	2.2%

Source: Verus, as of 9/30/22

Private core real estate/REITS

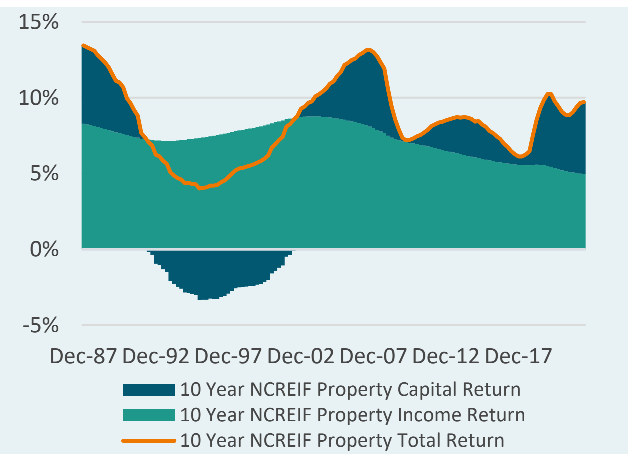
Performance of the NCREIF property index can be decomposed into an income return (cap rate) and capital return. The return coming from income has historically been more stable than the return derived from capital changes.

The cap rate is the ratio of earnings less expenses to price and does not include extraordinary expenses. A more accurate measure of the yield investors receive should include non-recurring capital expenditures; we assume a 2.0% capex expenditure. We also assume income growth will roughly equal the rate of broad economic growth, and we use GDP forecasts as an estimate for future income growth.

Private real estate and REITs have provided very similar returns over the long-term. Investors should be careful when comparing risk-adjusted returns of publicly traded assets to returns of appraisal priced assets, due to data problems and smoothing effects. While private real estate appears to be less volatile than REITs, the true risks to investors are likely very similar.

We assume the effects of leverage and liquidity offset each other. Therefore, our return forecast is the same for private real estate and REITs.

TRAILING 10-YR NCREIF RETURN COMPOSITION



Source: NCREIF, as of 6/30/22

PRIVATE REAL ESTATE

	Private Real Estate 10-Year Forecast
Current Cap Rate	+3.7%
Real Income Growth	+1.6%
Capex Assumption	-2.0%
Inflation	+2.5%
Nominal Return	5.8%
Inflation Forecast	-2.5%
Real Return	+3.3%

Source: Verus, as of 9/30/22

REITS

	10-Year Forecast
Nominal Return Forecast	5.8%
Inflation Forecast	-2.5%
Real Return	3.3%

Source: Verus, as of 9/30/22

Infrastructure

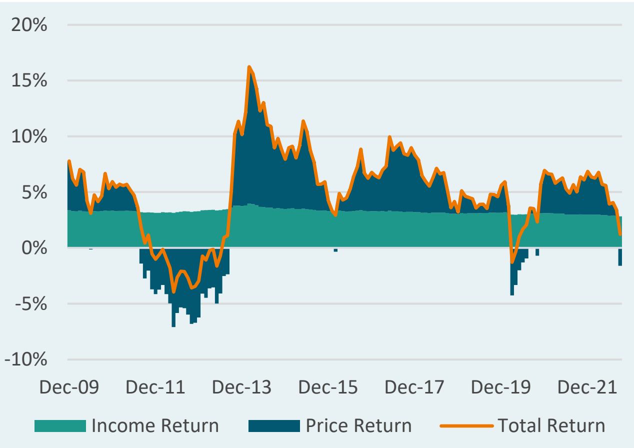
Infrastructure includes a variety of investment types across a subset of industries. There is not one definition for what can be included within infrastructure. Due to the availability of data, we use publicly-traded infrastructure to build up an infrastructure forecast. We believe this forecast can reasonably be used for both private- and publicly-traded infrastructure investments.

The asset class has grown dramatically during the last decade as investors sought assets that might provide more attractive yield relative to fixed income along with the potential for inflation protection.

Similar to real estate investment, income plays a significant role in the returns which investors receive. Income yields jumped during 2022 as prices fell alongside the broad market selloff.

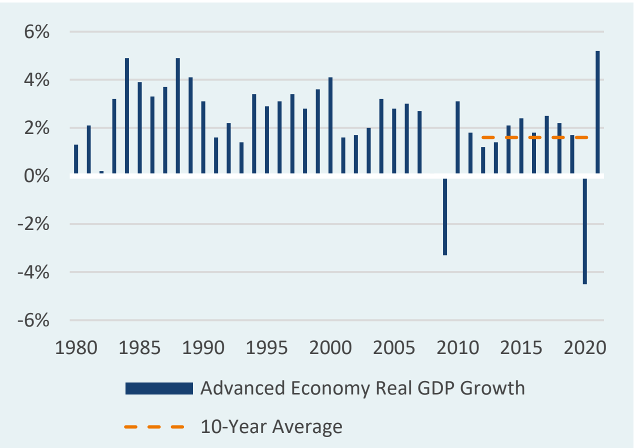
This asset class is generally believed to provide investors with exposure to broad economic growth. Therefore, we use past ten year developed economy real GDP growth as a proxy for future expected infrastructure income growth.

5-YR ROLLING RETURN COMPOSITION



Source: S&P Global Infrastructure Index, as of 9/30/22

ADVANCED ECONOMY REAL GDP GROWTH



Source: IMF, as of 9/30/22

FORECAST

	10-Year Forecast
Global Inflation	+2.4%
Yield	+3.9%
Income Growth	+1.6%
Nominal Return	7.8%
U.S. Inflation Forecast	-2.5%
Real Return	5.4%

Source: Verus, as of 9/30/22

ACERA Custom Index Construction

Asset Class	Weighting	Sub-weighting	Index
US Equity	24.0%		
		90.0%	S&P 500
		10.0%	Russell 2000
Non-US Equity	24.0%		
		67.5%	MSCI EAFE (represents DME component of ACWI)
		22.5%	MSCI Emerging Markets (represents EME component of ACWI)
		10.0%	MSCI EAFE Small Cap
Private Equity	11.0%		Cambridge US Private Equity
Fixed Income	14.0%		
		75.0%	Bloomberg US Agg
		15.0%	Bloomberg Global Sovereign ex-US
		10.0%	Bloomberg US High Yield
Private Credit	4.0%		S&P LSTA Leveraged Loan Index
Real Estate	9.0%		NCREIF Property
Absolute Return	8.0%		HFRI Fund of Funds Composite
Real Assets	6.0%		
		85.0%	S&P Global Infrastructure
		15.0%	Bloomberg Commodity

Methodology

CORE INPUTS

— We use a fundamental building block approach based on several inputs, including historical data and academic research to create asset class return forecasts.
— For most asset classes, we use the long-term historical volatility after adjusting for autocorrelation.
— Correlations between asset classes are calculated based on the last 10 years. For illiquid assets, such as private equity and private real estate, we use BarraOne correlation estimates.

Asset	Return Methodology	Volatility Methodology*
Inflation	25% weight to the University of Michigan Survey 5-10 year ahead inflation expectation and the Survey of Professional Forecasters (Fed Survey), and the remaining 50% to the market's expectation for inflation as observed through the 10-year TIPS breakeven rate	-
Cash	75% * current federal funds rate + 25% * U.S. 10-year Treasury yield	Long-term volatility
Bonds	Nominal bonds: current yield; Real bonds: real yield + inflation forecast	Long-term volatility
International Bonds	Current yield	Long-term volatility
Credit	Current option-adjusted spread + U.S. 10-year Treasury – effective default rate	Long-term volatility
International Credit	Current option-adjusted spread + foreign 10-year Treasury – effective default rate	Long-term volatility
Private Credit	Levered gross return (LIBOR + spread + original issuance discounts) – management fees – carried interest	Estimated volatility
Equity	Current yield + real earnings growth (historical average) + inflation on earnings (inflation forecast) + expected P/E change	Long-term volatility
Intl Developed Equity	Current yield + real earnings growth (historical average) + inflation on earnings (intl. inflation forecast) + expected P/E change	Long-term volatility
Private Equity	US large cap domestic equity forecast * 1.85 beta adjustment	1.2 * Long-term volatility of U.S. small cap
Commodities	Collateral return (cash) + spot return (inflation forecast) + roll return (assumed to be zero)	Long-term volatility
Hedge Funds	Return coming from traditional betas + 15-year historical idiosyncratic return	Long-term volatility
Core Real Estate	Cap rate + real income growth – capex + inflation forecast	65% of REIT volatility
REITs	Core real estate	Long-term volatility
Value-Add Real Estate	Core real estate + 2%	Volatility to produce Sharpe Ratio (g) equal to core real estate
Opportunistic Real Estate	Core real estate + 3%	Volatility to produce Sharpe Ratio (g) equal to core real estate
Infrastructure	Current yield + real income growth + inflation on earnings (inflation forecast)	Long-term volatility
Risk Parity	Expected Sharpe Ratio * target volatility + cash rate	Target volatility

**Long-term historical volatility data is adjusted for autocorrelation (see Appendix)*

Full suite of Verus 10-year return & risk assumptions

Asset Class	Index Proxy	Ten Year Return Forecast Geometric	Ten Year Return Forecast Arithmetic	Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)
Equities								
U.S. Large	S&P 500	6.5%	7.6%	15.6%	0.21	0.28	0.76	0.79
U.S. Small	Russell 2000	5.4%	7.5%	21.5%	0.10	0.20	0.42	0.49
International Developed	MSCI EAFE	9.1%	10.5%	17.8%	0.33	0.40	0.21	0.27
International Small	MSCI EAFE Small Cap	9.2%	11.3%	22.1%	0.27	0.36	0.29	0.36
Emerging Markets	MSCI EM	8.5%	11.2%	25.2%	0.21	0.31	0.02	0.10
Global Equity	MSCI ACWI	7.4%	8.7%	17.1%	0.23	0.32	0.47	0.52
Global Equity ex-US	MSCI ACWI ex-US	9.0%	10.7%	19.9%	0.29	0.37	0.16	0.23
Private Equity	CA U.S. Private Equity	9.2%	12.1%	25.8%	0.23	0.34	-	-
Private Equity Direct	CA U.S. Private Equity	10.2%	13.0%	25.8%	0.27	0.38	-	-
Private Equity (FoF)	CA U.S. Private Equity	8.2%	11.1%	25.8%	0.19	0.30	-	-
Fixed Income								
Cash	30 Day T-Bills	3.3%	3.3%	1.2%	-	-	-	-
U.S. TIPS	Bloomberg U.S. TIPS 5-10	4.1%	4.3%	5.6%	0.14	0.18	0.06	0.08
U.S. Treasury	Bloomberg Treasury 7-10 Year	3.8%	4.0%	7.1%	0.07	0.10	(0.02)	0.01
Long U.S. Treasury	Bloomberg Treasury 20+ Year	3.8%	4.6%	13.2%	0.04	0.10	(0.01)	0.05
Global Sovereign ex U.S.	Bloomberg Global Treasury ex U.S.	2.2%	2.7%	10.0%	(0.11)	(0.06)	(0.47)	(0.44)
Global Aggregate	Bloomberg Global Aggregate	3.0%	3.2%	6.7%	(0.05)	(0.01)	(0.30)	(0.28)
Core Fixed Income	Bloomberg U.S. Aggregate Bond	4.3%	4.4%	4.6%	0.22	0.24	0.05	0.07
Core Plus Fixed Income	Bloomberg U.S. Universal	4.6%	4.7%	4.6%	0.28	0.30	0.17	0.14
Short-Term Gov't/Credit	Bloomberg U.S. Gov't/Credit 1-3 Year	3.9%	4.0%	3.7%	0.16	0.19	0.11	0.11
Short-Term Credit	Bloomberg Credit 1-3 Year	4.3%	4.4%	3.7%	0.27	0.30	0.40	0.40
Long-Term Credit	Bloomberg Long U.S. Credit	5.3%	5.9%	11.0%	0.18	0.24	0.11	0.16
High Yield Corp. Credit	Bloomberg U.S. Corporate High Yield	6.4%	7.0%	11.2%	0.28	0.33	0.44	0.47
Bank Loans	S&P/LSTA Leveraged Loan	6.8%	7.2%	9.2%	0.38	0.42	0.53	0.54
Global Credit	Bloomberg Global Credit	4.5%	4.8%	7.9%	0.15	0.19	0.00	0.03
Emerging Markets Debt (Hard)	JPM EMBI Global Diversified	8.9%	9.4%	10.7%	0.52	0.57	0.05	0.09
Emerging Markets Debt (Local)	JPM GBI-EM Global Diversified	7.0%	7.7%	12.3%	0.30	0.36	(0.28)	(0.23)
Private Credit	S&P LSTA Leveraged Loan Index	8.2%	9.0%	13.0%	0.38	0.44	-	-
Private Credit (Direct Lending - Unlevered)	S&P LSTA Leveraged Loan Index	6.8%	7.2%	9.2%	0.38	0.42	-	-
Private Credit (Direct Lending - Levered)	S&P LSTA Leveraged Loan Index	9.1%	10.1%	15.3%	0.38	0.44	-	-
Private Credit (Credit Opportunities)	S&P LSTA Leveraged Loan Index	8.5%	9.4%	13.8%	0.38	0.44	-	-
Private Credit (Junior Capital / Mezzanine)	S&P LSTA Leveraged Loan Index	9.0%	10.0%	15.1%	0.38	0.44	-	-
Private Credit (Distressed)	S&P LSTA Leveraged Loan Index	9.1%	12.7%	29.1%	0.20	0.32	-	-

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

Full suite of Verus 10-year return & risk assumptions

		Ten Year Return Forecast						
Asset Class	Index Proxy	Geometric	Arithmetic	Standard Deviation Forecast	Sharpe Ratio Forecast (g)	Sharpe Ratio Forecast (a)	10-Year Historical Sharpe Ratio (g)	10-Year Historical Sharpe Ratio (a)
Other								
Commodities	Bloomberg Commodity	5.7%	6.9%	16.3%	0.15	0.22	(0.20)	(0.13)
Hedge Funds	HFRI Fund Weighted Composite	4.6%	4.9%	7.7%	0.17	0.21	0.70	0.71
Hedge Fund of Funds	HFRI Fund of Funds Composite	3.6%	3.9%	7.7%	0.04	0.08	-	-
Hedge Funds (Equity Style)	Custom HFRI Benchmark Mix*	7.4%	8.4%	14.6%	0.28	0.35	-	-
Hedge Funds (Credit Style)	Custom HFRI Benchmark Mix*	7.1%	7.5%	9.8%	0.39	0.43	-	-
Hedge Funds (Asymmetric Style)	Custom HFRI Benchmark Mix*	4.8%	4.9%	4.8%	0.31	0.33	-	-
Real Estate Debt	Bloomberg CMBS IG	5.2%	5.5%	7.5%	0.25	0.29	0.26	0.28
Core Real Estate	NCREIF Property	5.8%	6.5%	12.6%	0.20	0.25	1.94	1.87
Value-Add Real Estate	NCREIF Property + 200bps	7.8%	8.9%	15.5%	0.29	0.36	-	-
Opportunistic Real Estate	NCREIF Property + 300bps	8.8%	10.8%	21.3%	0.26	0.35	-	-
REITs	Wilshire REIT	5.8%	7.5%	19.4%	0.13	0.22	0.32	0.40
Global Infrastructure	S&P Global Infrastructure	7.8%	9.1%	17.3%	0.26	0.34	0.28	0.35
Risk Parity**	S&P Risk Parity 10% Vol Index	8.3%	8.8%	10.0%	0.50	0.55	-	-
Currency Beta	MSCI Currency Factor Index	1.6%	1.7%	3.4%	(0.49)	(0.46)	0.20	0.21
Inflation		2.5%	-	-	-	-	-	-

Investors wishing to produce expected geometric return forecasts for their portfolios should use the arithmetic return forecasts provided here as inputs into that calculation, rather than the single-asset-class geometric return forecasts. This is the industry standard approach, but requires a complex explanation only a heavy quant could love, so we have chosen not to provide further details in this document – we will happily provide those details to any readers of this who are interested.

**To represent hedge fund styles, we use a combination of HFRI benchmarks: Equity Style = 33% HFRI Fundamental Growth, 33% HFRI Fundamental Value, 33% HFRI Activist. Credit Style = 20% HFRI Distressed/Restructuring, 20% HFRI Credit Arbitrage, 20% HFRI Fixed Income-Corporate, 20% HFRI Fixed Income-Convertible Arbitrage, 20% HFRI Fixed Income-Asset Backed. Asymmetric Style = 50% HFRI Relative Value, 50% HFRI Macro*

***The Risk Parity forecast shown here assumes a 10% target volatility strategy. We recommend customizing this forecast to the target volatility specifications of the risk parity strategy that an investor wishes to model. Please speak with your Verus consultant for customization needs.*

Correlation assumptions

	Cash	US Large	US Small	Intl Large	Intl Small	EM	Global Equity	PE	US TIPS	US Treasury	Global Sovereign ex-US	US Core	Core Plus	Short-Term Gov't/Credit	Short-Term Credit	Long-Term Credit	US HY	Bank Loans	Global Credit	EMD USD	EMD Local	Commodities	Hedge Funds	Real Estate	REITs	Infrastructure	Risk Parity	Currency Beta
Cash	1.0																											
US Large	-0.2	1.0																										
US Small	-0.2	0.9	1.0																									
Intl Large	-0.2	0.9	0.8	1.0																								
Intl Small	-0.3	0.9	0.8	1.0	1.0																							
EM	-0.2	0.7	0.6	0.8	0.8	1.0																						
Global Equity	-0.2	1.0	0.9	1.0	0.9	0.8	1.0																					
PE	-0.2	0.7	0.6	0.6	0.6	0.6	0.7	1.0																				
US TIPS	0.0	0.4	0.3	0.4	0.4	0.4	0.4	0.2	1.0																			
US Treasury	0.2	0.0	-0.1	0.0	0.0	0.0	0.0	-0.2	0.8	1.0																		
Global Sovereign ex-US	0.1	0.0	-0.2	-0.1	-0.1	0.0	-0.1	-0.2	0.7	0.9	1.0																	
US Core	0.0	0.3	0.2	0.4	0.4	0.5	0.4	0.1	0.7	0.6	0.5	1.0																
Core Plus	0.1	0.3	0.2	0.3	0.3	0.3	0.3	0.0	0.8	0.9	0.9	0.7	1.0															
Short-Term Gov't/Credit	0.0	0.4	0.3	0.4	0.4	0.4	0.4	0.1	0.9	0.8	0.8	0.7	1.0	1.0														
Short-Term Credit	0.2	0.1	0.1	0.2	0.2	0.2	0.2	-0.1	0.7	0.8	0.6	0.6	0.8	0.8	1.0													
Long-Term Credit	0.0	0.4	0.4	0.5	0.5	0.5	0.5	0.0	0.7	0.5	0.4	0.6	0.8	0.8	0.8	1.0												
US HY	0.0	0.5	0.4	0.5	0.5	0.5	0.5	0.1	0.7	0.6	0.7	0.6	0.8	0.9	0.6	0.7	1.0											
Bank Loans	-0.2	0.8	0.8	0.8	0.8	0.7	0.8	0.5	0.5	0.1	0.1	0.5	0.4	0.6	0.3	0.7	0.6	1.0										
Global Credit	-0.3	0.6	0.7	0.6	0.7	0.6	0.7	0.5	0.3	-0.2	-0.2	0.2	0.1	0.3	0.0	0.5	0.4	0.8	1.0									
EMD USD	-0.1	0.6	0.5	0.7	0.7	0.7	0.7	0.4	0.6	0.3	0.3	0.6	0.6	0.7	0.4	0.7	0.7	0.8	0.7	1.0								
EMD Local	0.0	0.5	0.4	0.7	0.6	0.8	0.6	0.4	0.5	0.2	0.1	0.6	0.4	0.5	0.3	0.5	0.5	0.7	0.5	0.8	1.0							
Commodities	-0.2	0.4	0.4	0.5	0.5	0.5	0.5	0.3	0.2	-0.3	-0.3	0.2	-0.1	0.0	-0.1	0.2	0.1	0.5	0.5	0.3	0.4	1.0						
Hedge Funds	-0.2	0.8	0.9	0.9	0.9	0.8	0.9	0.6	0.3	-0.2	-0.2	0.3	0.1	0.3	0.0	0.5	0.4	0.8	0.8	0.7	0.6	0.5	1.0					
Real Estate	-0.2	0.6	0.5	0.5	0.5	0.4	0.6	0.4	0.2	-0.1	-0.1	0.2	0.0	0.1	-0.1	0.1	-0.1	0.4	0.4	0.4	0.4	0.3	0.5	1.0				
REITs	-0.2	0.7	0.6	0.6	0.6	0.5	0.7	0.5	0.6	0.3	0.3	0.4	0.5	0.5	0.2	0.5	0.6	0.6	0.5	0.6	0.5	0.3	0.6	0.7	1.0			
Infrastructure	-0.2	0.8	0.7	0.8	0.8	0.7	0.8	0.7	0.5	0.1	0.0	0.5	0.3	0.5	0.2	0.5	0.6	0.8	0.7	0.7	0.7	0.5	0.8	0.3	0.7	1.0		
Risk Parity	-0.2	0.7	0.7	0.8	0.7	0.7	0.8	0.4	0.6	0.1	0.1	0.4	0.4	0.5	0.2	0.6	0.6	0.8	0.7	0.8	0.6	0.6	0.8	0.4	0.7	0.8	1.0	
Currency Beta	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	0.2	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.1	0.0	0.0	0.0	1.0

Note: as of 9/30/22 - Correlation assumptions are based on the last ten years. Private Equity and Real Estate correlations are especially difficult to model – we have therefore used BarraOne correlation data to strengthen these correlation estimates.

Autocorrelation adjustment

- We adjust all volatility forecasts that use the long-term historical volatility for autocorrelation.
- Autocorrelation occurs when the future returns of a time series are described (positively correlated) by past returns.
- Time series with positive autocorrelation exhibit artificially low volatility, while time series with negative autocorrelation exhibit artificially high volatility.
- Many asset classes that we tested showed positive autocorrelation, meaning the volatility forecasts that we use in the forecasting process are too low for those asset classes.
- The result of this process was that several asset classes have higher volatility forecasts than if we had made no adjustment for autocorrelation.

Autocorrelation has been shown to be statistically significant across many asset classes, which implies an adjustment is appropriate

Investment Committee Workplan for 2023

February 8, 2023

	Action Items	Information Items
January 11	**<u>Board Action Item:</u>** 1. Proposed Findings Regarding State of Emergency Pursuant to Gov't Code §54953(e)(3): Staff Recommendation: The Board finds that it has reconsidered the circumstances of the state of emergency and (1) the state of emergency continues to directly impact the ability of the members to meet safely in person, and (2) state or local officials continue to impose or recommend measures to promote social distancing.	1. Semiannual Performance Review for the Period Ending June 30, 2022 – Real Estate 2. Semiannual Performance Review for the Period Ending June 30, 2022 – Private Equity 3. Semiannual Performance Review for the Period Ending June 30, 2022 – Private Credit 4. Semiannual Performance Review for the Period Ending June 30, 2022 – Real Assets 5. Proposed Investment Committee Work Plan for 2023
February 8	1. Discussion of and Possible Motion to Recommend that the Board Approve the Proposed New Manager Structure for the International Equity Asset Class 2. Discussion of and Possible Motion to Recommend that the Board Adopt the 2023 – 2029 Investment Plan for ACERA's Real Assets Asset Class 3. Discussion of and Possible Motion to Recommend that the Board Adopt the 2023 - 2026 Updated Private Equity Investment Plan	1. 2023 Capital Market Assumptions 2. Investment Committee Work Plan 2023
March 8	1. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Real Assets Portfolio – XXXX, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder) 2. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of	1. Status Update on the General Investment Consultant (GIC) Search *2. Quarterly report of ACERA's investment manager, consultant, and custodian bank fees for the fourth quarter of 2022* *3. Quarterly report on ACERA's rebalancing activities for the fourth quarter 2022*

Notes:

1. This workplan is subject to change without prior notice. Periodic rearrangements of agenda items will be made to the workplan to provide a reasonable length of time for each meeting.
2. Meeting date is assumed to be the second Wednesday of each month.
3. Educational sessions may be added to the Agenda from time-to-time e.g., Portable Alpha, Market and Currency Overlay, Equity Overlay, and Emerging Managers in Private Equity investments. Recommendations and reports on ACERA's Real Estate, Private Equity, Absolute Return, Private Credit, and Real Assets investments will be added to the Agenda from time-to-time.
4. The schedule of the Action/Information Items pertaining to the GIC RFP Search may be subject to change.

Investment Committee Workplan for 2023

February 8, 2023

	Action Items	Information Items
	ACERA's Private Equity Portfolio – XXXX, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder)	*4. Quarterly report on ACERA's securities lending activities for the fourth quarter of 2022* *5. Quarterly report on ACERA's Directed Brokerage (DB) Program for the fourth quarter of 2022* *6. Quarterly report on Investment Products and Services Introductions (IPSI) for the fourth quarter of 2020* *7. Updated Investment Committee Work Plan 2023*
April 12	1. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Private Equity Portfolio – XXXX, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder) 2. Discussion and Possible Motion to Recommend that the Board Adopt a New Investment Plan for ACERA's Real Estate Asset Class	
May TBD (regular meeting will be moved due to SACRS Conference)	1. Discussion and Possible Motion to Recommend that the Board Approve a Second Dedicated Emerging Markets Equity Manager Search (Placeholder) 2. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Private Equity Portfolio – XXXX, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder) 3. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Private Credit Portfolio, Pending Completion of	1. Semiannual Performance Review for the Period Ending December 31, 2023 – Real Estate (Tentative)

Notes:

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2. Meeting date is assumed to be the second Wednesday of each month.
3. Educational sessions may be added to the Agenda from time-to-time e.g., Portable Alpha, Market and Currency Overlay, Equity Overlay, and Emerging Managers in Private Equity investments. Recommendations and reports on ACERA's Real Estate, Private Equity, Absolute Return, Private Credit, and Real Assets investments will be added to the Agenda from time-to-time.
4. The schedule of the Action/Information Items pertaining to the GIC RFP Search may be subject to change.

Investment Committee Workplan for 2023

February 8, 2023

	Action Items	Information Items
	Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder)	
June 14	1. Discussion of and Possible Motion to Recommend to the Board to Approve the Finalists for ACERA's General Investment Consultant (GIC) Search (Tentative) 2. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Real Estate Portfolio – XXXX, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder)	1. Update on the ESG Implementation (Tentative) *2. Quarterly report of ACERA's investment manager, consultant, and custodian fees for the first quarter of 2023* *3. Quarterly report on ACERA's rebalancing activities for the first quarter of 2023* *4. Quarterly report on ACERA's securities lending activities for the first quarter of 2023* *5. Quarterly report on ACERA's Directed Brokerage (DB) Program for the first quarter of 2023* *6. Quarterly report on Investment Products and Services Introduction (IPSI) for the first quarter of 2023* *7. Updated Investment Committee Work Plan 2023*
July 12	1. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Private Equity Portfolio – XXXX, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder) 2. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Real Assets Portfolio – XXXX, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder)	1. Semiannual Performance Review for the Period Ending March 31, 2023 – Total Fund Review Highlighting Public Markets Asset Classes and Absolute Return (Tentative) 2. Semiannual Performance Review for the Period Ending December 31, 2022 – Private Equity (Tentative) 3. Semiannual Performance Review for the Period Ending December 31, 2022 – Private Credit (Tentative)

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Investment Committee Workplan for 2023

February 8, 2023

	Action Items	Information Items
		4. Semiannual Performance Review for the Period Ending December 31, 2022 – Real Assets (Tentative)
August 9	1. Interview of ACERA's General Investment Consultant (GIC) Finalists and Possible Motion by the Investment Committee to Recommend one Finalist to the Board (Tentative)	
September 13	1. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Private Equity Portfolio – XXXX, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder) 2. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Private Credit Portfolio, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder)	*1. Quarterly report of ACERA's investment manager, consultant, and custodian bank fees for the second quarter of 2023* *2. Quarterly report on ACERA's rebalancing activities for the second quarter of 2023* *3. Quarterly report on ACERA's securities lending activities for the second quarter of 2023* *4. Quarterly report on ACERA's Directed Brokerage (DB) Program for the second quarter of 2023* *5. Quarterly report on Investment Products and Services Introduction (IPSI) for the second quarter of 2023* *6. Updated Investment Committee Work Plan for 2023*

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Investment Committee Workplan for 2023

February 8, 2023

	Action Items	Information Items
October 11	1. Discussion of and Possible motion to Recommend that the Board Adopt the Amended ACERA Placement Agent Disclosure Policy (Placeholder) 2. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Real Estate Portfolio – XXXX, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder) 3. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Real Assets Portfolio – XXXX, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder)	
November TBD (regular meeting will be moved to SACRS Conference)	1. Discussion of and Possible Motion to Recommend that the Board Adopt Amendments to ACERA's Directed Brokerage (DB) Policy (Placeholder) 2. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Private Equity Portfolio – XXXX, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder)	
December 13	1. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Private Equity Portfolio – XXXX, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder)	1. Semiannual Performance Review for the Period Ending September 30, 2023 – Total Fund and Public Markets including Absolute Return 2. Semiannual Performance Review for the Period Ending June 30, 2023 – Private Equity

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Investment Committee Workplan for 2023

February 8, 2023

	Action Items	Information Items
	2. Discussion of and Possible Motion to Recommend to the Board to Approve an up to $XX million Investment in XX as part of ACERA's Private Credit Portfolio, Pending Completion of Legal and Investment Due Diligence and Successful Contract Negotiations (Placeholder)	3. Semiannual Performance Review for the Period Ending June 30, 2023 – Real Assets 4. Semiannual Performance Review for the Period Ending June 30, 2023 – Private Credit 5. Semiannual Performance Review for the Period Ending June 30, 2023 – Real Estate 6. CA Gov. Code § 7514.7 Information Report 7. Annual Update – ESG Implementation Plan *8. Quarterly report of ACERA's investment manager, consultant, and custodian bank fees for the third quarter of 2023* *9. Quarterly report on ACERA's rebalancing activities for the third quarter 2023* *10. Quarterly report on ACERA's securities lending activities for the third quarter of 2023* *11. Quarterly report on ACERA's Directed Brokerage (DB) Program for the third quarter of 2023* *12. Quarterly report on Investment Products and Services Introductions (IPSI) for the third quarter of 2023* *13. Updated Investment Committee Work Plan 2023*

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