Alameda County Employees' Retirement Association

BOARD OF RETIREMENT

INVESTMENT COMMITTEE/BOARD MEETING

THIS MEETING WILL BE CONDUCTED VIA TELECONFERENCE [SEE EXECUTIVE ORDER N-29-20 ATTACHED AT THE END OF THIS AGENDA.]

ACERA MISSION:

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

Wednesday, April 14, 2021
9:30 a.m.

ZOOM INSTRUCTIONS	BOARD OF RETIREMENT - 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 **Meeting ID: 895 9407 9079** **Password: 364914** For help joining a Zoom meeting, see: https://support.zoom.us/hc/en-us/articles/201362193	**GEORGE WOOD, CHAIR**	**ELECTED GENERAL**
	JAIME GODFREY, VICE-CHAIR	**APPOINTED**
	DALE AMARAL	**ELECTED SAFETY**
	OPHELIA BASGAL	**APPOINTED**
	KEITH CARSON	**APPOINTED**
	TARRELL GAMBLE	**APPOINTED**
	LIZ KOPPENHAVER	**ELECTED RETIRED**
	HENRY LEVY	**TREASURER**
	DARRYL L.WALKER	**ELECTED GENERAL[1]**
	NANCY REILLY	**ALTERNATE RETIRED[2]**
	VACANT	**ALTERNATE SAFETY[3]**

[1]Trustee Walker is filling the vacancy created by Trustee Rogers' retirement. See Gov't Code §§ 31524, 31520.1(b)

[2] 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 Elected Safety Member and an Elected General member, are absent).

[3] Trustee Walker is filling the vacancy created by Trustee Rogers' retirement. See Gov't Code §§ 31524, 31520.1(b).

Note regarding accommodations: The Board of Retirement will provide reasonable accommodations for persons with special needs of accessibility who plan to attend Board meetings. Please contact ACERA at (510) 628-3000 to arrange for accommodation.

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 are available online at www.acera.org.

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 and Possible Motion to Recommend that the Board Approve Certain Changes to the Absolute Return Asset Class Structure

   9:30 – 10:00
   Margaret Jadallah, Verus Advisory Inc.
   Clint Kuboyama, ACERA
   Betty Tse, ACERA

2. Discussion and Possible Motion to Recommend that the Board Hire an Overlay Services Provider, Pending Completion of Legal and Operational Due Diligence and Successful Contract Negotiations

   10:00 – 10:45
   Max Chisaka, Parametric Portfolio Associates
   Justin Henne, Parametric Portfolio Associates
   Ben Lazarus, Parametric Portfolio Associates
   Jan Mowbray, Parametric Portfolio Associates
   Stuart Odell, Verus Advisory Inc.
   Julius Cuaresma, ACERA
   Betty Tse, ACERA

Trustee Remarks

Future Discussion Items

Establishment of Next Meeting Date
May 5, 2021 at 9:30 a.m.

EXECUTIVE DEPARTMENT
STATE OF CALIFORNIA

EXECUTIVE ORDER N-29-20

WHEREAS on March 4, 2020, I proclaimed a State of Emergency to exist in California as a result of the threat of COVID-19; and

WHEREAS despite sustained efforts, the virus continues to spread and is impacting nearly all sectors of California; and

WHEREAS the threat of COVID-19 has resulted in serious and ongoing economic harms, in particular to some of the most vulnerable Californians; and

WHEREAS time bound eligibility redeterminations are required for Medi-Cal, CalFresh, CalWORKs, Cash Assistance Program for Immigrants, California Food Assistance Program, and In Home Supportive Services beneficiaries to continue their benefits, in accordance with processes established by the Department of Social Services, the Department of Health Care Services, and the Federal Government; and

WHEREAS social distancing recommendations or Orders as well as a statewide imperative for critical employees to focus on health needs may prevent Medi-Cal, CalFresh, CalWORKs, Cash Assistance Program for Immigrants, California Food Assistance Program, and In Home Supportive Services beneficiaries from obtaining in-person eligibility redeterminations; and

WHEREAS under the provisions of Government Code section 8571, I find that strict compliance with various statutes and regulations specified in this order would prevent, hinder, or delay appropriate actions to prevent and mitigate the effects of the COVID-19 pandemic.

NOW, THEREFORE, I, GAVIN NEWSOM, Governor of the State of California, in accordance with the authority vested in me by the State Constitution and statutes of the State of California, and in particular, Government Code sections 8567 and 8571, do hereby issue the following order to become effective immediately:

IT IS HEREBY ORDERED THAT:

1. As to individuals currently eligible for benefits under Medi-Cal, CalFresh, CalWORKs, the Cash Assistance Program for Immigrants, the California Food Assistance Program, or In Home Supportive Services benefits, and to the extent necessary to allow such individuals to maintain eligibility for such benefits, any state law, including but not limited to California Code of Regulations, Title 22, section 50189(a) and Welfare and Institutions Code sections 18940 and 11265, that would require redetermination of such benefits is suspended for a period of 90 days from the date of this Order. This Order shall be construed to be consistent with applicable federal laws, including but not limited to Code of Federal Regulations, Title 42, section 435.912, subdivision (e), as interpreted by the Centers for Medicare and Medicaid Services (in guidance issued on January 30, 2018) to permit the extension of

otherwise-applicable Medicaid time limits in emergency situations.

2. Through June 17, 2020, any month or partial month in which California Work Opportunity and Responsibility to Kids (CalWORKs) aid or services are received pursuant to Welfare and Institutions Code Section 11200 et seq. shall not be counted for purposes of the 48-month time limit set forth in Welfare an Institutions Code Section 11454. Any waiver of this time limit shall not be applied if it will exceed the federal time limits set forth in Code of Federal Regulations, Title 45, section 264.1.

3. Paragraph 11 of Executive Order N-25-20 (March 12, 2020) is withdrawn and superseded by the following text:

   Notwithstanding any other provision of state or local law (including, but not limited to, the Bagley-Keene Act or the Brown Act), and subject to the notice and accessibility requirements set forth below, a local legislative body or state body is authorized to hold public meetings via teleconferencing and to make public meetings accessible telephonically or otherwise electronically to all members of the public seeking to observe and to address the local legislative body or state body. All requirements in both the Bagley-Keene Act and the Brown Act expressly or impliedly requiring the physical presence of members, the clerk or other personnel of the body, or of the public as a condition of participation in or quorum for a public meeting are hereby waived.

   In particular, any otherwise-applicable requirements that

   (i) state and local bodies notice each teleconference location from which a member will be participating in a public meeting;

   (ii) each teleconference location be accessible to the public;

   (iii) members of the public may address the body at each teleconference conference location;

   (iv) state and local bodies post agendas at all teleconference locations;

   (v) at least one member of the state body be physically present at the location specified in the notice of the meeting; and

   (vi) during teleconference meetings, a least a quorum of the members of the local body participate from locations within the boundaries of the territory over which the local body exercises jurisdiction

   are hereby suspended.

   A local legislative body or state body that holds a meeting via teleconferencing and allows members of the public to observe and address the meeting telephonically or otherwise electronically, consistent with the notice and accessibility requirements set forth below, shall have satisfied any requirement that the body allow members of the public to attend the meeting and offer public comment. Such a body need not make available any physical location from which members of the public may observe the meeting and offer public comment.

Accessibility Requirements: If a local legislative body or state body holds a meeting via teleconferencing and allows members of the public to observe and address the meeting telephonically or otherwise electronically, the body shall also:

(i) Implement a procedure for receiving and swiftly resolving requests for reasonable modification or accommodation from individuals with disabilities, consistent with the Americans with Disabilities Act and resolving any doubt whatsoever in favor of accessibility; and

(ii) Advertise that procedure each time notice is given of the means by which members of the public may observe the meeting and offer public comment, pursuant to subparagraph (ii) of the Notice Requirements below.

Notice Requirements: Except to the extent this Order expressly provides otherwise, each local legislative body and state body shall:

(i) Give advance notice of the time of, and post the agenda for, each public meeting according to the timeframes otherwise prescribed by the Bagley-Keene Act or the Brown Act, and using the means otherwise prescribed by the Bagley-Keene Act or the Brown Act, as applicable; and

(ii) In each instance in which notice of the time of the meeting is otherwise given or the agenda for the meeting is otherwise posted, also give notice of the means by which members of the public may observe the meeting and offer public comment. As to any instance in which there is a change in such means of public observation and comment, or any instance prior to the issuance of this Order in which the time of the meeting has been noticed or the agenda for the meeting has been posted without also including notice of such means, a body may satisfy this requirement by advertising such means using "the most rapid means of communication available at the time" within the meaning of Government Code, section 54954, subdivision (e); this shall include, but need not be limited to, posting such means on the body's Internet website.

All of the foregoing provisions concerning the conduct of public meetings shall apply only during the period in which state or local public health officials have imposed or recommended social distancing measures.

All state and local bodies are urged to use sound discretion and to make reasonable efforts to adhere as closely as reasonably possible to the provisions of the Bagley-Keene Act and the Brown Act, and other applicable local laws regulating the conduct of public meetings, in order to maximize transparency and provide the public access to their meetings.

IT IS FURTHER ORDERED that as soon as hereafter possible, this Order be filed in the Office of the Secretary of State and that widespread publicity and notice be given of this Order.

This Order is not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person.

IN WITNESS WHEREOF I have hereunto set my hand and caused the Great Seal of the State of California to be affixed this 17th day of March 2020.

GAVIN NEWSOM
Governor of California

ATTEST:

ALEX PADILLA
Secretary of State

ACERA

ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

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: April 14, 2021

SUBJECT: Discussion and Possible Motion to Recommend that the Board Approve Certain Changes to the Absolute Return Asset Class Structure

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Recommendation:

Adopt the recommended change to the Absolute Return (AR) Asset Class Structure.

Summary:

Staff and Verus recommend a change to the AR Asset Class structure shown in Table 1 below. The current structure's concentrated alternative premia strategies (50% AR Portfolio target weight) and limited AR Portfolio-level active management is sub-optimal for the current, and likely go-forward, market environment. These sub-optimal characteristics hurt the AR Portfolio's performance over the 2019-2020 period as atypical and rapidly shifting market dynamics, volatility, and quickly evolving investment opportunities required greater diversification, more alpha-oriented strategies[1], and a higher degree of active management for the AR Portfolio to be successful. To address these shortcomings and best position the AR Portfolio to perform well going forward, Staff and Verus are recommending the proposed structural change.

Table 1: Proposed Absolute Return Asset Class Structural Change

Investment Sub-Class	Current Targets	Proposed Targets	Difference
Alternative Premia Strategies	50%	0%	-50%
Fund of Hedge Funds*	40%	80%	40%
Other Alternatives/Opportunistic	10%	20%	10%

*Current and proposed targets include one and two (hedge fund of one) fund-of-hedge-funds managers, respectively.

At its core, the recommended structural change would shift the majority of the current 50% target weighting for alternative premia strategies to a second customized (i.e. Hedge Fund of One[2]) fund of hedge funds (FOHF). This shift would reallocate capital from concentrated alternative premia exposures that are not actively managed at the AR Portfolio level (i.e. actively shifting capital into and out of them) and are not designed to adjust to atypical market environments, into a second FOHF that will actively manage a well-diversified portfolio of underlying alpha-oriented hedge fund strategies. It is expected that this second FOHF exposure will be customizable to meet the AR Portfolio's risk/return/correlation requirements. In addition, Staff anticipates that the recommended structural option may well result in total AR Portfolio management/performance fees competitive with other alpha-oriented structural options and for transparency and liquidity to be relatively high. Finally, Staff and Verus think this structural option best balances expected net return, the resources Staff and Verus have to manage the complexities of a well-diversified AR Portfolio, and the need to actively manage the AR Portfolio while maintaining the existing investment-approval process of the ACERA Board.

[1] Alpha is the return component of an investment strategy derived from manager skill and is differentiated from alternative premia (i.e. well-known and academically proven investment return drivers such as "Value", "Carry", and "Momentum"), and beta (i.e. the investment return component driven by the return of the broader market).

[2] Please see page 15 of Attachment #1 (Verus' AR Portfolio Structure Review) for a complete description of a "hedge fund of one".

Should this structural change be approved by the ACERA Board, Staff and Verus anticipate coming back to the Investment Committee (IC) at an ensuing IC meeting to request approval for the related AR Investment Policy changes and new AR Investment Plan.

Reasons Behind Recommendation:

- *Changes in Market Environment Require More Alpha-Oriented Strategies, Diversification and Active Management:* Since the Great Financial Crisis, the Federal Reserve and other major central banks have enacted extreme monetary policies. These policies include holding their benchmark interest rates close to or below 0% for extended periods without normalization, conducting limitless quantitative easing[3] ("QE"), and signaling to the capital markets that more extreme policies will be enacted whenever there has been meaningful downside volatility in the stock or bond markets. When the current AR Asset Class Structure was developed and implemented over the 2017-2018 period, it was widely assumed that these extreme policies would end and monetary policy, like it had in previous economic cycles, would be normalized (i.e. interest rates raised by several percentage points above 0% and QE stopped or reversed). However, this did not happen when it was expected to in late 2018/early 2019, the time period in which the alternative premia strategies and the broader AR Portfolio began to underperform. Instead, after increasing its benchmark Federal Funds Rate only to 2.25%-2.50% and despite solid economic growth during this time period, the Federal Reserve reversed its tightening cycle, began cutting interest rates and enacted more rounds of QE in response to tightening financial conditions and material losses in the stock market late in 2018. These policies have continued unabated since, including before, and as a response to, COVID-19 economic and market weakness. The resulting capital market environment, characterized by perpetual central bank market interventions, is very different than it has been in the past. Cheap capital is available to sustain otherwise unsustainable business models. Prices of investments have become reliant on low interest rates and central bank interventions and have often become disjointed from their fundamentals. Moreover, excessive risk taking is occurring and market volatility has been artificially suppressed, leading to extreme bouts of volatility when unexpected events occur such as COVID-19.

  In such an environment, there is a risk that alternative premia strategies will struggle, like they have during the 2019-2020 period, because they generally rely on markets operating as they have in the past. Moreover, as they are designed to generate returns from alternative premia (i.e. "Value", "Momentum" and "Quality") in a systematic way over a long-term horizon, they are not designed to rapidly change course when they enter a period of underperformance. With the likelihood that central bank policies will remain extreme into the foreseeable future, it is undesirable to have a large weighting to strategies that are not designed to adjust to atypical market environments. Instead, it is more favorable to have exposure to alpha-oriented strategies that are able to "think on their feet" - evaluate atypical fundamental and market information and rapidly alter investment exposures in anticipation of, or in reaction to, abnormal market scenarios. Moreover, when the market environment is volatile and unusual, having greater diversification can reduce the impact that underperforming strategies have on the total AR Portfolio's performance. Finally, in the current environment it is important to be able to actively manage strategies in the AR Portfolio so that strategies that are performing well or are anticipated to perform well can be quickly invested in and strategies that are not performing well or are anticipated to struggle can be quickly divested from.

- *A Second Customizable Fund of Hedge Funds will Optimize Diversification and Active Management:* The recommended structure would result in two customizable FOHF at 40% portfolio weightings each (80% total). It is anticipated that each FOHF manager would manage a diversified portfolio of 10-20+ underlying hedge fund strategies, resulting in 80% of the AR Portfolio being diversified across 20-40+ underlying hedge fund strategies within these two FOHF. These exposures, added to the existing and potential Other

[3] Quantitative easing is the creation of money by a central bank that is used to purchase securities such as US Treasuries or Agency Mortgage Backed Securities (MBS) that are held on the central bank's balance sheet until the securities' maturity.

Alternatives/Opportunistic strategies would sufficiently diversify the AR Portfolio. In addition, FOHF managers have access to information flow from hedge fund managers and are experienced in investing in a variety of strategies amid varying market environments. This allows these FOHF managers to actively manage their hedge fund portfolios in a highly informed and effective manner. Moreover these managers have access to a wide range of underlying hedge-fund managers, which allows them to actively manage well-diversified, alpha-oriented portfolios suitable for various market conditions.

- *A Second Customizable Fund of Hedge Funds Will Optimize Workflow and Likely Result in Improved Transparency and Competitive Management/Performance Fees:* Managing the complexities of a well-diversified, actively managed AR Portfolio is difficult due to the upfront and ongoing investment, operational, and legal due diligence and oversight needed. Having two (hedge fund of one) FOHF managers overseeing these complexities is optimal given the current resources Staff and Verus have to oversee such an effort, as well as the existing investment-approval process of the ACERA Board. In addition, being able to customize the risk/return/correlation of two FOHF at the FOHF portfolio level to meet the needs of the AR Portfolio is much simpler than having to actively blend a diversified set of alternative investment strategies to achieve the desired risk/return/correlation profile of the total AR Portfolio. Thus, this structural option offers an optimal blend of diversification, active management, alpha-oriented strategies, and customization within the context of available resources and the existing ACERA investment process. Furthermore, hedge fund of ones, like the existing fund of hedge funds manager ACERA has partnered with, can provide heightened levels of investment and fee transparency. Additionally, hedge fund of ones can be customized to meet the liquidity needs of ACERA. Finally, based on ACERA's Total Fund value of $9.7 billion (as of 12/31/20) and a 9% target weighting for the AR Portfolio, the two FOHF managers would each be managing approximately $350 million. At this level of AUM per manager, there will likely be opportunities to negotiate attractive fund-level management fees. Moreover, these FOHF managers may negotiate favorable management and performance fees from the underlying hedge funds in which they invest. Thus, Staff thinks the all-in management/performance fees of this recommended structure will be competitive with other alpha-oriented structural options.

Conclusion:

To optimize the AR Portfolio's return potential going forward, Staff and Verus recommend changing the AR Asset Class' structure. The recommended structure is expected to enhance the AR Portfolio by increasing its diversification, active management, and exposure to alpha-oriented strategies. These improved attributes may well enable the AR Portfolio to quickly adjust to changing and atypical market environments and capitalize on rapidly evolving market opportunities while maintaining the current investment-approval process of ACERA's Board and optimizing Staff's and Verus' workflow. Finally, because the potential capital (approximately $350 million) invested with a second FOHF manager would be large, thereby giving ACERA negotiating leverage, Staff anticipates that ACERA will be able to negotiate management fees down from standard levels, resulting in all-in management/performance fees of this structure that are competitive with other alpha-oriented structural options. All told, Staff and Verus recommend the adoption of the AR Asset Class Structure that is 80% Fund of Hedge Funds and 20% Other Alternatives/Opportunistic shown in Table 1 above.

Attachment:

#1 Absolute Return Portfolio Structure Review, prepared by Verus

Verus

PERSPECTIVES
THAT DRIVE
ENTERPRISE
SUCCESS

APRIL 2021

Absolute Return Portfolio Structure Review

ACERA

Table of contents

VERUSINVESTMENTS.COM

SEATTLE 206-622-3700
LOS ANGELES 310-297-1777
SAN FRANCISCO 415-362-3484
PITTSBURGH 412-784-6678

Introduction

Purpose of absolute return structure review

Comprehensive review of AR structure includes:

— Market environment and overview of absolute return fund types
  - Short-term versus longer-term returns, risk analysis and risk-adjusted returns
  - Risk/return profile and resourcing requirements for different fund structure implementations

— Overview of portfolio structure, objectives and evolution of ACERA Absolute Return portfolio
  - Analysis of returns, risk analysis, and risk-adjusted returns
  - Diversification properties to total portfolio

— Analysis of sub-categories
  - Analysis of returns, risk analysis and risk-adjusted returns
  - Liquidity and expense considerations

— Potential improvements to structure
  - Consideration of appropriateness of structure for ACERA risk tolerances and objectives
  - Alpha versus complexity considerations

Absolute return portfolio evolution

PEARLS (September 2008)

— Included private equity and absolute return. Portfolio of direct PE and absolute return strategies, including non-traditional and uncorrelated. Benchmark Russell 1000 plus 100 bps net.

  - Review of PEARLS in 2017 resulted in separate PE and AR buckets with distinct objectives and benchmarks

Absolute Return (September 2017)

— Separated into its own IPS given different risk/return objectives (low correlation to public equities, higher Sharpe Ratios) and benchmark (HFRI FOF)

— Structure divided into three subcategories

  - Hedge FOF (legacy), Alternative Risk Premia (new), Opportunistic/Other (legacy plus new)
  - Hedge FOF adapted to fit new structure objectives

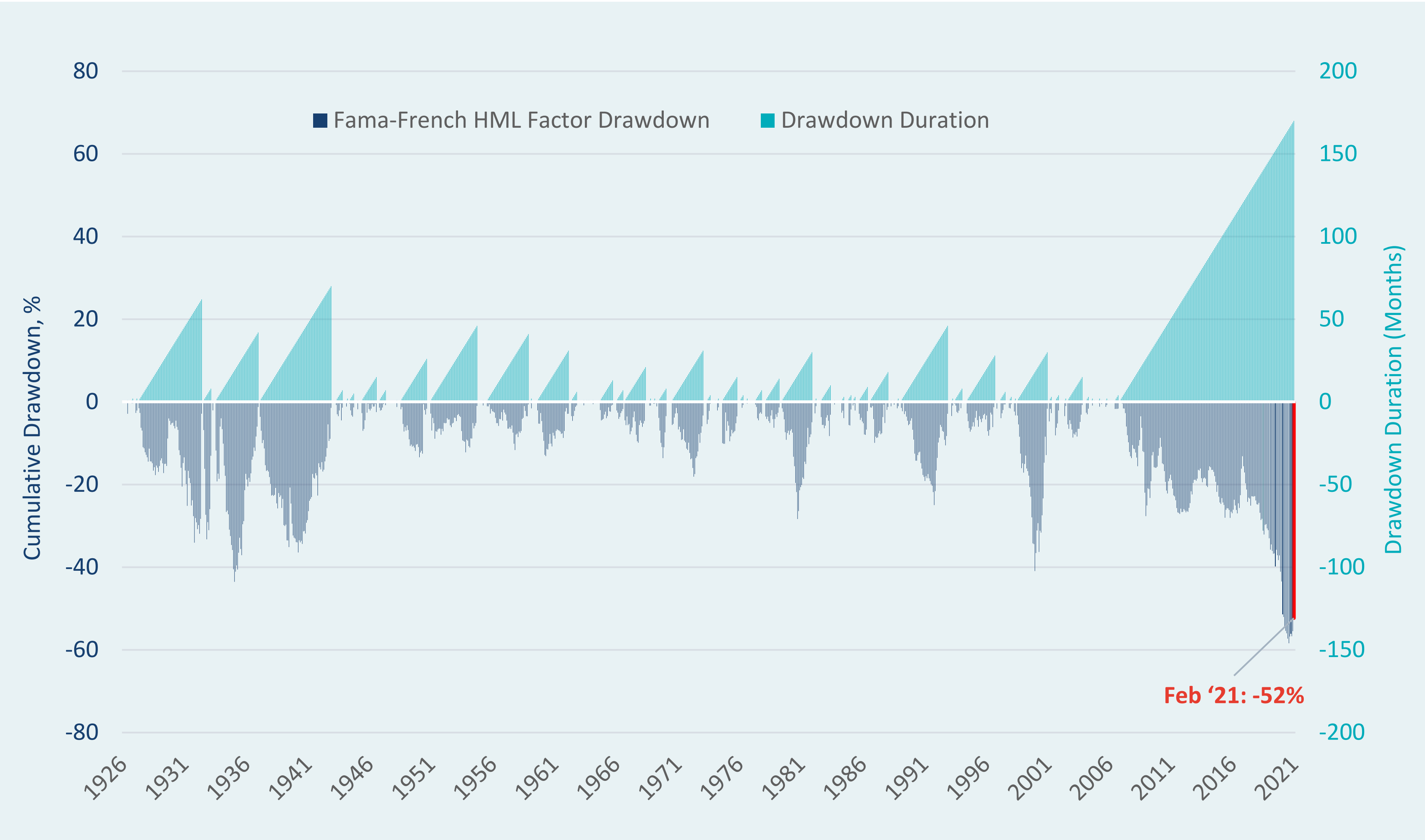
— Diversified AR portfolio with Alt Premia and additional Opportunistic investments

  - Very difficult short-term performance for Alt Risk Premia primarily due to value factor underperformance; some improvement from October 2020 through current period
  - Alt Risk Premia performance has negatively impacted total AR portfolio returns

Market Environment

Long-term perspective on value

HISTORICAL DRAWDOWNS FOR FAMA-FRENCH HML FACTOR 1926 – FEBRUARY 2021

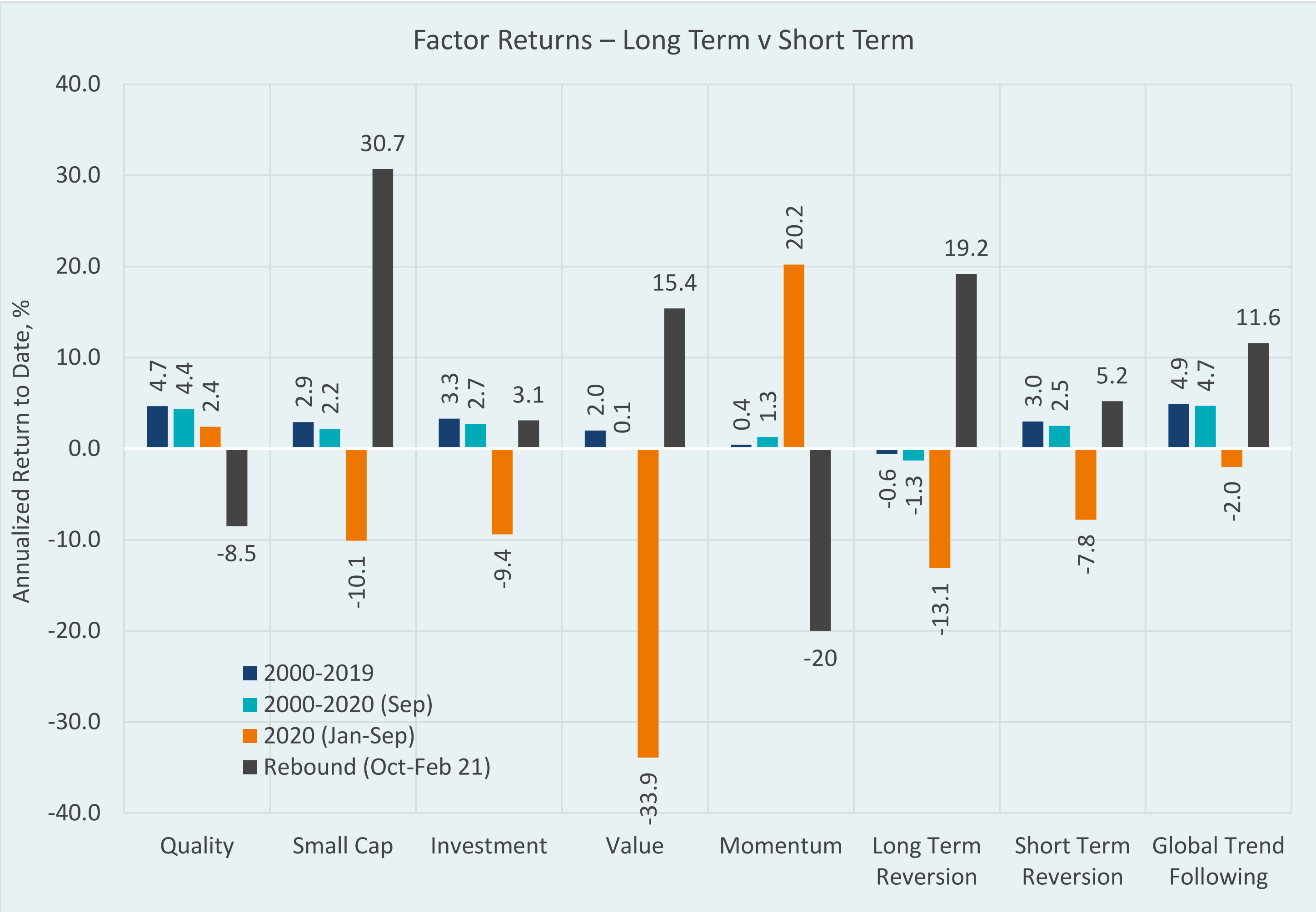


The Fama-French Value factor has declined well beyond its historical max loss – reaching -59% at the end of September 2020.

Value factor has experienced a performance rebound since October 2020 and has returned 15% since then.

Source: MPI

Factors additive over the long term but diminished by short term returns



Fama-French 5-Factor model factors are mostly positive over last 20 years, as has been global trend following, a key component of most alt beta strategies.

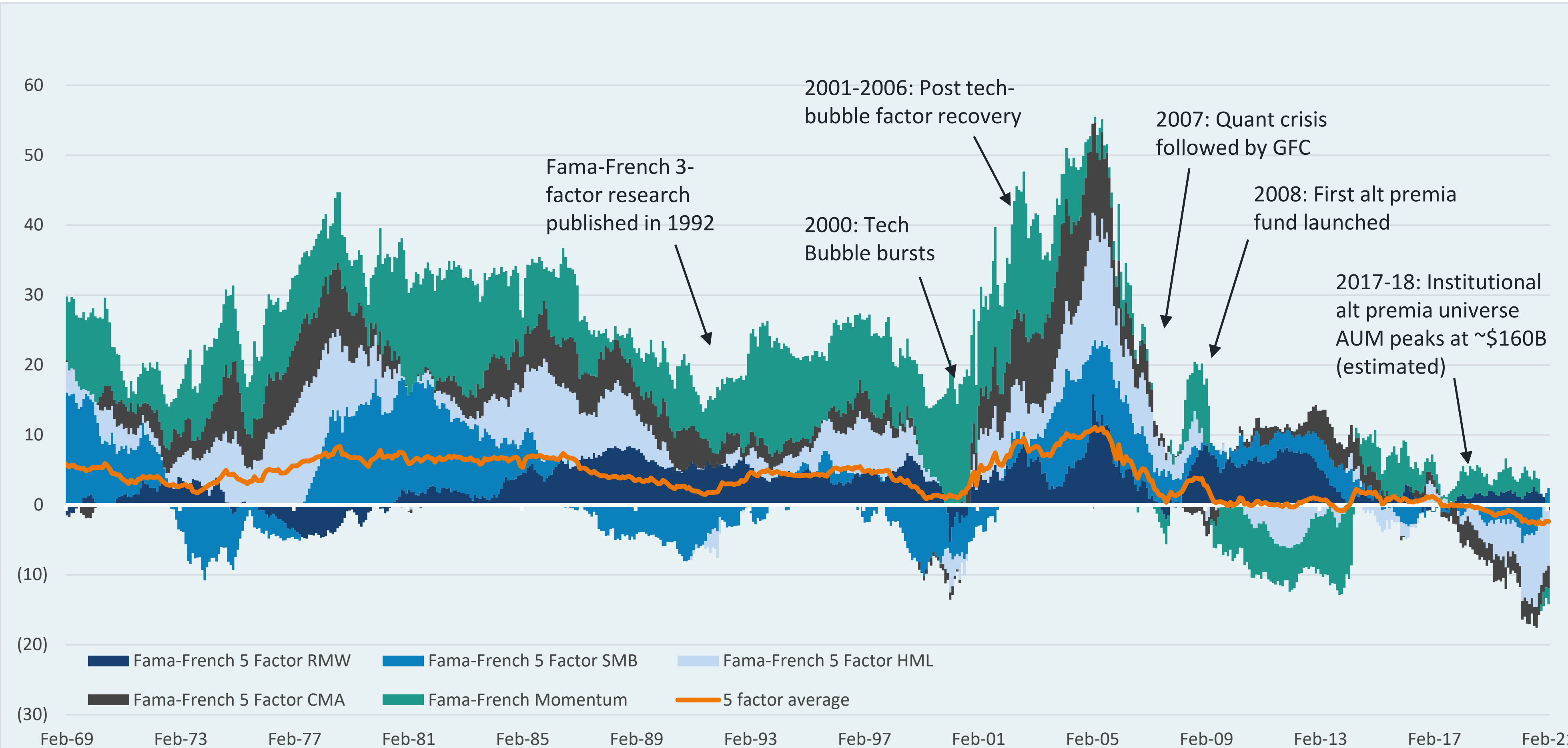
2020 saw major drawdowns in several factors – including Value – with only minor gains elsewhere to offset those losses.

Factor returns have shifted tremendously since October 2020

Factor detail: Quality = Fama French Robust Minus Weak, Small Cap = FF Small Minus Big, Investment = FF Conservative Minus Aggressive, Value = FF High Minus Low, Momentum = FF-Carrhart Momentum, LT Reversion = FF Long Term Reversal, ST Reversion = FF Short Term Reversal, Global Trend Following = SocGen Trend Index (representing momentum in equity + non equity assets)

Market environments and factor returns

5 YEAR ANNUALIZED RETURNS OF FAMA-FRENCH 5 FACTORS



The Fama-French 5 factor model seeks to explain a large percentage of diversified portfolio returns in terms of factors which include: RMW=Robust minus weak operating profitability (Quality), SMB=Small minus big (Small Cap), HML=High minus low value (Value), CMA=Conservative minus aggressive investment by firms (Investment), and Momentum= investing in upward trending securities.

Overview of AR Fund Structures

Approaches to AR implementation

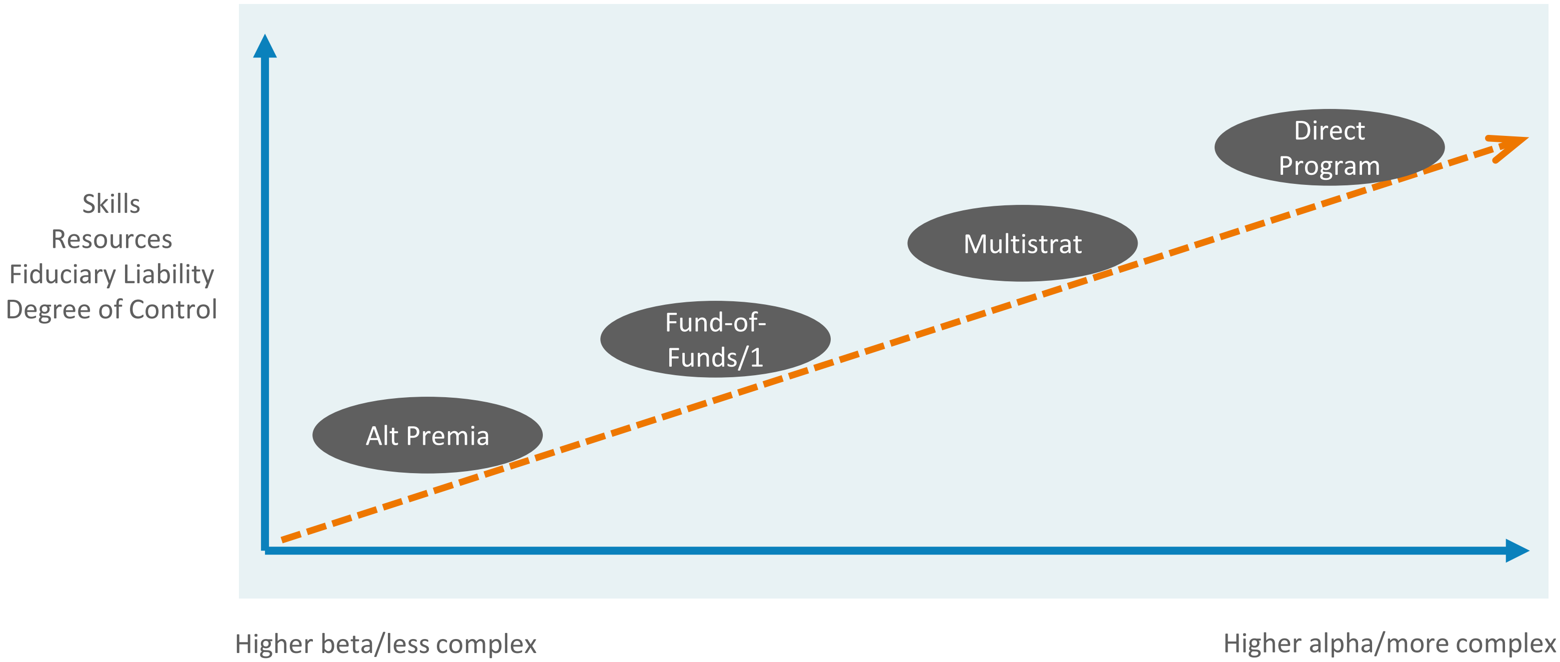
Implementation approach driven by each investor's:

— Investment objectives

— Internal skills and resources (internal and external)

— Tolerance for control, risks, explicit cost

ACTIVE-PASSIVE INVESTOR SPECTRUM



Asymmetric portfolio universe

ASYMMETRIC HEDGE FUND CATEGORIES *

- **Long/Short Equity**
  - Low Net
  - Multi-PM
  - Fundamental Growth
  - Fundamental Value
  - Opportunistic
- **Event Driven**
  - Equity Event & Merger
  - Activist
  - Event Credit
- **Tactical Trading**
  - Systematic Diversified/CTA
  - Global Macro
  - Tail Risk Hedges
- **Relative Value**
  - Long/Short Credit
  - Structured Credit
  - Fixed Income Arbitrage
  - Quantitative Mkt Neutral
  - Insurance Linked
  - Volatility
- **Multi-Strategy**
  - Relative Value Multi-Strategy
  - Directional Multi Strategy
  - Multi Risk Premia (Alt Beta)

Asymmetric portfolios seek to maximize upside while limiting downside risk.

Alternative risk premia, or alt beta, is a sub strategy option within the asymmetric portfolio universe.

Other sub strategies in the hedge fund universe are designed to offer higher alpha, albeit with less liquidity and higher fees. These alpha strategies can be accessed directly or through a fund-of-funds structure.

** Source: Verus, Aksia hedge fund strategy classification scheme*

Comparing alt beta and hedge funds

Alt beta or Alt risk premia-

- Risk premia: ability to extract well-known inefficiencies over time (Value, Carry, Trend, etc.) based on long term risk and return estimates that assume no premia decay.
- Portfolio construction is rules-based with little/no tactical positions and weights determined by liquidity/capacity/risk vs. return expectations.
- Risk management is often reactionary; as volatility of factors or premia increases, notional exposure or leverage will decrease.
- Risk/return expectations for individual premia can be unattractive over shorter time periods; it's the a) diversification power of combining with other premia, and b) leverage that results in an attractive risk/return at the portfolio level and is the basis for investment. Sharpe Ratios lower than for hedge funds.
- Terms: typically, monthly or weekly liquidity with management fees 1.0% or less, and often much lower. Lower management fees can include incentive component. Fees have trended down as managers have renegotiated client fees given recent poor performance.

Hedge funds -

- Focused entirely on alpha, while risk premia are seen as risk factors to control or hedge out rather than harvest. Overlap with a risk premia positions are temporary and driven by non-factor reasons.
- Portfolio construction is usually flexible with some bounds and managed to concentrate positions in highest conviction trades/themes/markets.
- Risk management is active, informed by mix of quantitative measures and qualitative judgement, and often more proactive than reactive.
- Risk/return varies but generally targets a 1.0 Sharpe Ratio. Signals and strategies that generate significantly higher than 1.0 Sharpe are usually very limited in capacity or access.
- Terms: quarterly or quarterly with gates, sometimes annual. Fees are 1-2+% and always with an incentive fee, most often 15-20%.

Source: Investopedia, Pension & Investments October 2017, Hedge Fund Journal July/August 2014

Comparing hedge fund types

Hedge fund-of-funds-

- A hedge fund-of-funds (FOF) is a pooled investment fund that invests in a portfolio of diversified underlying hedge funds of different types. These funds can be managed by teams within the FOF company or else by external managers.
- A FOF aims to achieve broad diversification while maintaining a targeted risk level.
- The FOF manager is responsible for performing formal due diligence on the underlying funds – both their own and those that are external. Due diligence covers and investment and operational aspects of the funds.
- An additional level of fees is charged for fund due diligence and portfolio construction.
- One size fits all solution
- Potential lack of transparency
- Terms: typically monthly or quarterly with management fees 1.5%-2% including underlying funds, plus incentive. Some ability to reduce management fees and, on occasion, performance fees for institutional investors.

Source: Investopedia, Pension & Investments October 2017, Hedge Fund Journal July/August 2014

Direct hedge fund program -

- Customized portfolio focused entirely on alpha and constructed from a heterogeneous universe of hedge funds ranging from diversified multi-strategy to specialized funds.
- Portfolio construction is usually flexible with some bounds and managed to concentrate positions in highest conviction trades/themes/markets.
- Risk management is active, informed by mix of quantitative measures and qualitative judgement, and often more proactive than reactive.
- Direct relationship with the underlying hedge funds and a single layer of fees
- Time frame to build a diversified portfolio is longer than for FOFs
- Operationally and resource intensive, requiring internal and external specialist oversight
- Terms: quarterly or quarterly with gates, sometimes annual. Fees are 1-2+% and always with an incentive fee, most often 15-20%.

Comparing fund-of-fund types

Hedge fund-of-funds-

- A hedge fund-of-funds (FOF) is a pooled investment fund that invests in diversified underlying hedge funds of different types. These funds can be managed by teams within the FOF company or else by external managers.
- A FOF aims to achieve broad diversification across managers, strategies and geographies while maintaining a targeted risk level.
- The FOF manager is responsible for performing formal due diligence on the underlying funds – both their own and those that are external. Due diligence covers and investment and operational aspects of the funds.
- An additional level of fees is charged for fund due diligence and portfolio construction.
- One size fits all solution
- Potential lack of transparency
- Terms: typically monthly or quarterly with management fees 1.5%-2% including underlying funds, plus incentive. Some ability to reduce management fees and, on occasion, performance fees for institutional investors.

Hedge fund of one -

- FOF and fund of ones (Fo1) both pool money and allocate to a number of underlying hedge funds and strategies. FOFs invest directly into hedge funds, whereas, Fo1s invest using a managed account platform.
- The Fo1 is a separate legal entity where the fund manager acts as GP and the investor is a limited partner (and only investor). Funds are held in client-specific custodial account.
- An additional level of fees is charged similar to FOFs.
- Fo1s can be customized by strategy and risk level. Fo1s have greater control over portfolio leverage, trade limits and liquidity constraints. This structure also provides greater portfolio level transparency.
- Set up time is lengthier compared to FOFs. Plus some underlying hedge funds unwilling to run a separate account such that the managed account may not fully replicate the reference FOF strategy.
- Terms: similar to FOFs with perhaps more room to negotiate for large institutional accounts. Some ability to reduce management fees and, on occasion, performance fees for institutional investor.

Source: Investopedia, Pension & Investments October 2017, Hedge Fund Journal July/August 2014

Potential fund structure comparisons

Structure Option	Liquidity	Transparency	Complexity	Resource Requirements	Target Allocations
Current	High (Monthly)	Moderate-High	Moderate	Medium	40% FOF/FO1 50% Alt Premia 10% Other/Opportunistic
More FOF/FO1	Moderately High (Monthly-Quarterly)	Low-Moderate	Low	Low-Medium	80% FOF/FO1 20% Other/Opportunistic
Direct via diversified Multi-Strat	Moderate (Monthly-Quarterly-Annual)	Moderate	Moderate-High	High	40% FOF/FO1* 50% Core Multi-Strategy 10% Other/Opportunistic
Direct customized Program	Moderate (Monthly-Quarterly-Annual)	Moderate-High	Moderate-High	Initially high then moderate (assumes add of specialist advisor)	100% Direct Program 80% Core 20% Satellite

**Initial target allocation for structure alternative with longer-term target allocation of 80% multi-strat/20% other/opportunistic over time as mulit-strat position grows and FOF/FO1 source of funds.*

Fund structure comparisons (cont.)

Structure Option	Full Implementation Timeline	Number of Managers	Estimated Management Fees*
Current	Ongoing	1 FOF/FO1 (12-16 underlying) 3 Alt Premia 2-5 Other/Opportunistic	~ 1.4% mgmt fee (plus incentive)
More FOF/FO1	<6 months	2 FOF/FO1 (25-40 underlying) 2-5 Other/Opportunistic	~ 1.5% to 2% mgmt fee, including underlying funds (plus incentive)
Direct via diversified Multi-Strat	6-12 months	1 FOF/FO1 (12-16 underlying) 4-6 Core Multi-Strat 2-5 Other/Opportunistic	~ 1.5% to 1.75% mgmt fee (plus incentive)
Direct customized Program	12-18 months	8-12 Core 1-5 Satellite	~ 1.5% to 1.75% mgmt fee (plus incentive)

**Note that returns are shown net of fees*

ACERA-specific implementation considerations

— Optimal AR structure for ACERA must achieve a likely improvement over current AR structure

- Greater alpha potential while adhering to AR IPS objectives
- Careful consideration of ACERA resource constraints (staffing and explicit cost)

— Direct hedge fund programs

- Most active and dynamic AR portfolio structure – necessity to move quickly at the Staff and Board levels (intra-monthly meeting decisions required at times; tight due diligence schedules)
- Successful programs require internal and external specialist support*
- Concerns over dynamism and resource requirements given size of allocation

— Fund-of-funds/Fund of Ones

- FOFs and FO1s also alpha-seeking with FO1 allowing for customization to ACERA objectives
- Structure provides additional investment and operational due diligence/resourcing (no additional hires required outside of manager hire)
- Implementation timeline quicker and simpler; fewer managers to monitor while maintaining diversification
- ACERA has had a successful experience using the FO1 structure in its AR portfolio

**External hedge fund specialist support can be in the form of adding a specialist consultant firm (i.e., Cambridge, Albourne) or enhancement to scope of services for general consulting (addition of HF consultant) .*

Fund type performance comparison

Less liquid hedge funds have outperformed

NET ANNUALIZED RETURNS ENDED 2/28/21

ROLLING 3-YEAR RETURNS

Source: HFR Index descriptions can be found in the appendix.

Source: HFR

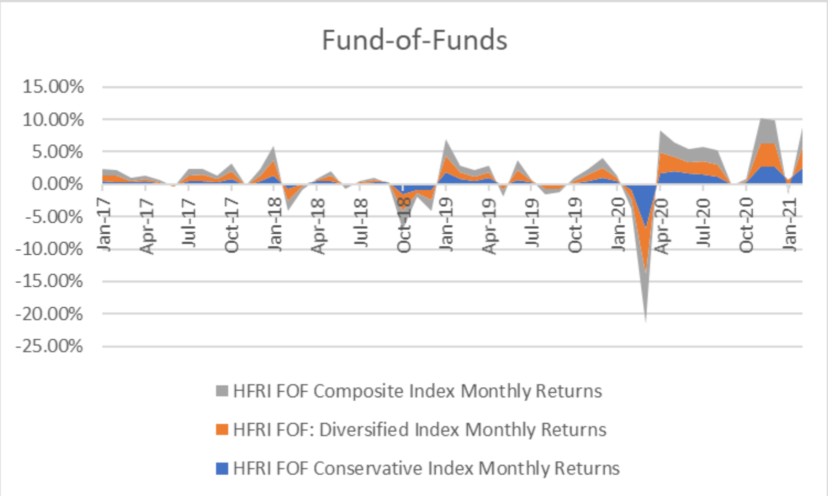
Less liquid (direct) hedge funds, as represented by HFRI indices have outperformed liquid alternatives funds as represented by HFRX index.

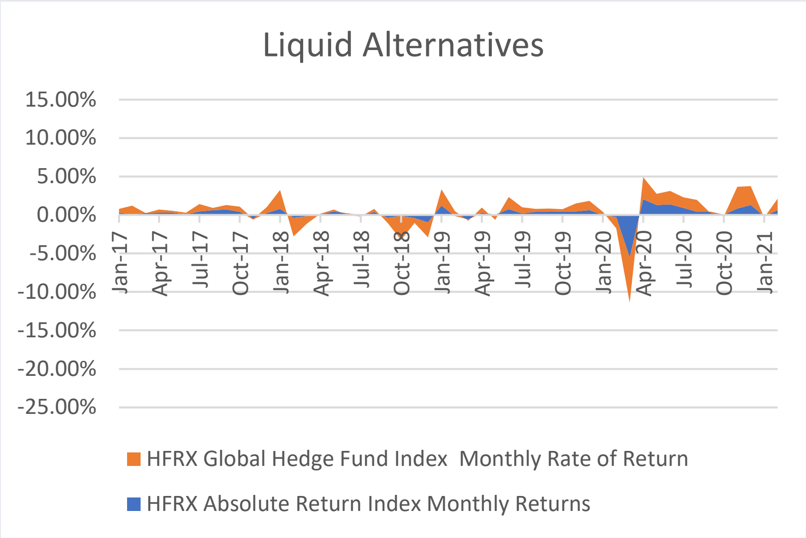
Fund-of-funds introduce an additional management fee but accommodate continual investment and operational oversight.

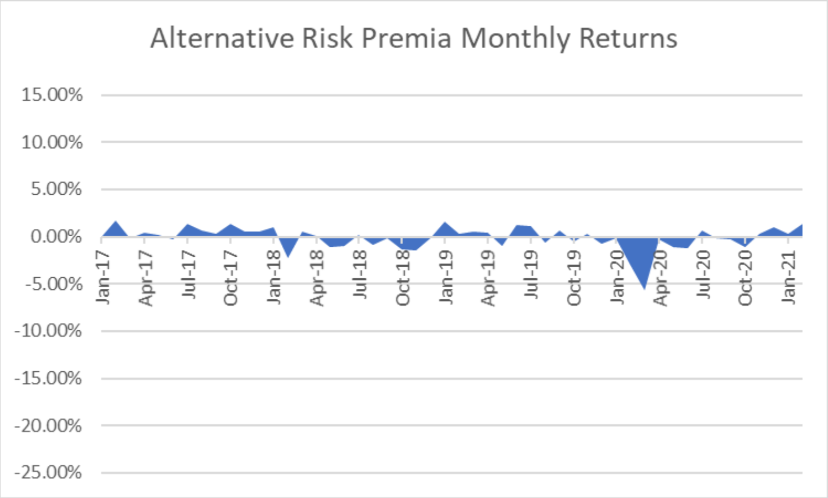
Successful direct hedge fund programs require ongoing monitoring and specialist expertise, both in-house and advisory.

Fund type performance comparison

All fund types negatively impacted in Q1 '20 with significant drawdowns







RETURN PROFILE (1/1/2017-2/28/2021)

Monthly Returns	HFRI FOF Conservative	HFRI FOF Diversified	HFRI FOF Composite	HFRX Absolute Return	HFRX Global HF	HFR Alt Risk Premia
Average	0.38%	0.47%	0.50%	0.21%	0.31%	-0.11%
Maximum	2.74%	3.54%	3.94%	2.04%	2.88%	1.69%
Minimum	-6.78%	-7.00%	-7.63%	-5.52%	-5.88%	-5.67%

Source: HFR monthly net-of-fee returns. Index descriptions can be found in the appendix.

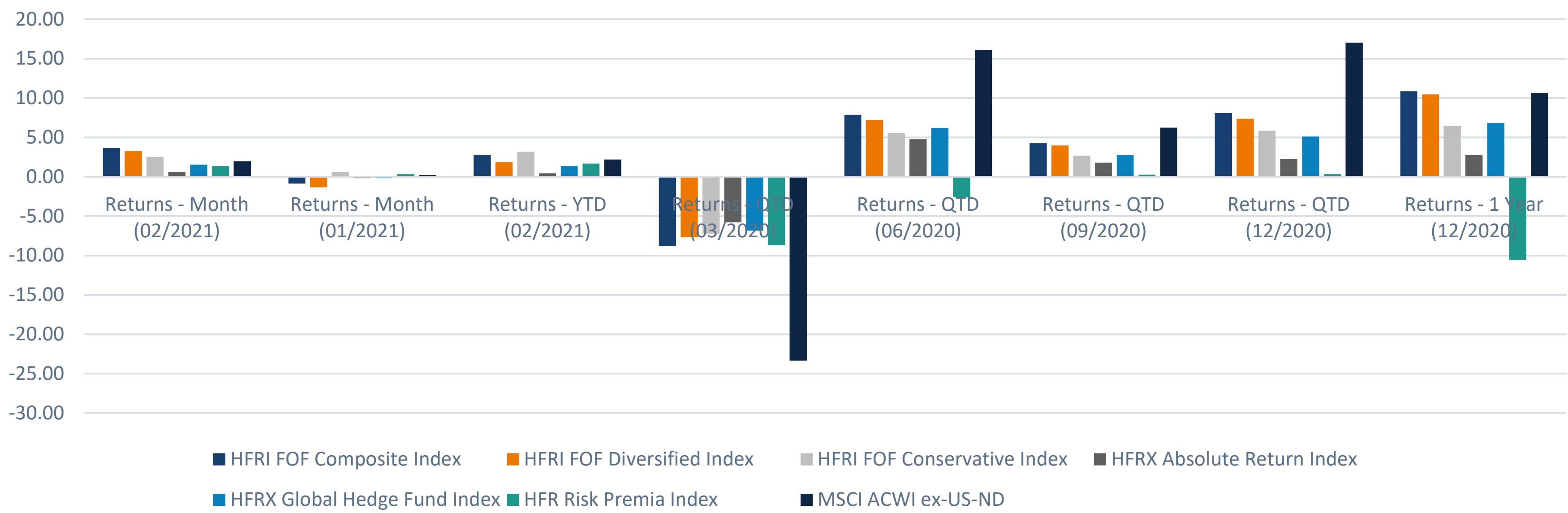
Short-term performance comparison

Alpha-oriented fund types were able rebound following Q1 dislocation

— All AR fund types lost money to varying degrees during the first quarter due to severe dislocations in markets at the onset of the global pandemic.

— Q2-Q4 2020 showed appreciation as equity markets rallied back, bond markets remained strong, and hedge funds benefited from relative value spreads normalizing after fiscal and monetary stimulus went into effect. Alpha-oriented approaches were able to more nimbly capture this appreciation.

2020 AND YTD 2021 RETURNS



Returns are all net of fees. Source: HFR; Index descriptions can be found in the appendix.

Risk-adjusted statistics

Statistics by fund type	Standard deviation	Sharpe Ratio	Beta to MSCI ACWI	Correlation to MSCI ACWI	Maximum Drawdown
HFRI FOF Composite Index	6.5	0.7	0.4	0.9	9.0
HFRI FOF Diversified Index	6.0	0.7	0.3	0.9	8.2
HFRI FOF Conservative Index	4.8	0.7	0.2	0.8	7.6
HFRX Absolute Return Index	3.5	0.3	0.2	0.7	5.8
HFRX Global Hedge Fd Index	5.3	0.4	0.3	0.9	9.0
HFR Risk Premia Index	4.4	-0.8	0.2	0.7	15.5
Benchmark					
MSCI ACWI	*16.0*	*0.7*	*1.0*	*1.0*	*24.3*

Source: HFR, eVestment Alliance. Statistics shown for 4 years ended 2/28/21. Index descriptions can be found in the appendix.

Structure alternatives

Main takeaways:

— Adaptability to market movements

- Alt Premia strategies are long-term in nature and beta focused; cost effective but slow to adapt
- Less liquid hedge funds have outperformed more liquid hedge funds (liquid alts) which have, in turn, outperformed Alt Premia strategies
  - Premium for idiosyncratic alpha
  - Can adapt to changing market environments to exploit opportunities and alter risk levels
  - Fund-of-funds alpha-focused but have performed worse, on average, than direct funds due to cost structure

— Practical considerations of structure alternatives

- Less liquid, direct programs require hands on active management and monitoring
  - Research intensive requiring specialist expertise, including advisory for direct, customized programs
  - Ability to make opportunistic decisions quickly (sometimes intra-month)
  - The 80/20 rule applies (or in this case 91/9)
- FOFs (and fund of ones) take on investment and operational due diligence for an additional fee
  - Alpha-focused with lowest resource requirements

— We believe that additional FO1 exposure is optimal for ACERA's AR portfolio

ACERA Portfolio Analysis

AR allocations

Target

Sub-categories	Target Allocations	Min./Max. Ranges
AR Portfolio	**9.0%**	**5% to 10.5%**
▪ *Alternative Premia Strategies*	*4.5%*	*2% to 6%*
▪ *Fund of Funds*	*3.6%*	*2% to 6%*
▪ *Other Alternatives/Opportunistic*	*0.9%*	*0% to 4.5%*

Current (as of 2/28/2021)

Sub-categories	Current Allocations	Min./Max. Ranges
AR Portfolio	**7.1%**	**5% to 10.5%**
▪ *Alternative Premia Strategies*	*2.0%*	*2% to 6%*
▪ *Fund of Funds*	*3.6%*	*2% to 6%*
▪ *Other Alternatives/Opportunistic*	*1.6%*	*0% to 4.5%*

AR performance

Annualized returns as of 2/28/21	YTD	1 Year	3 Years	5 Years	7 Years	Since inception	SI date
AR Portfolio	4.0%	3.8%	0.5%	2.5%	2.5%	3.0%	9/2011
Benchmark							
HFRI FOF	*2.2%*	*14.8%*	*5.4%*	*5.8%*	*3.8%*	*4.4%*	

Calendar year returns	2020	2019	2018	2017	2016
AR Portfolio	-1.1%	1.8%	-2.2%	3.3%	5.4%
Benchmark					
HFRI FOF	*10.9%*	*8.4%*	*-4.0%*	*7.8%*	*0.5%*

Source: State Street, Investment Metrics

AR risk-adjusted performance

	Benchmark HFRI FoF Composite	Absolute Return Portfolio	MSCI ACWI
Max Drawdown	-9.0	-10.6	-21.2
Sharpe Ratio	0.7	0.5	0.8
Beta	0.3	0.1	1.0
Correlation to MSCI ACWI	0.9	0.4	1.0
Annualized StDev	5.0	4.4	14.1

*Since inception of AR Portfolio (9/2011)

Portfolio performance and risk targets are:

- AR portfolio returns to exceed benchmark
- Correlation to global equities less than or equal to 0.5

AR portfolio observations

Current Absolute Return structure:

— AR portfolio is below its target allocation at this time (7.1% vs 9% target)

- Alternative Premia is currently at its minimum range within the AR policy (2%)

— Alt Premia component of AR portfolio has performed poorly, largely due to historically poor value factor returns without other offsetting factor tailwinds

- Since October 2020, Alt Premia has again produced positive returns
- Value factor may rebound as the economy reopens

— Fund-of-Funds (FO1) component is meeting expectations

- ACERA's Fund-of-Funds (FO1) component of AR portfolio performed poorly during Q1 '20 but was able to adapt to changing market environment and produce alpha Q2-Q4 '20 and 2021 YTD.
- Higher explicit fees than Alt Premia managers but also higher net-of-fee returns

— Opportunistic/Other component is meeting expectations

- Underlying positions within Opportunistic/Other have had mixed results but are producing positive returns at the component level.
- Two of the three illiquid legacy positions from PEARLS are in liquidation mode

Conclusions

Recommendations

— Action item recommendations for ACERA April Board meeting

- Change AR structure from current to 80% FOF and 20% Opportunistic/Other
- Initiate manager search for a second Fund of One (FO1) manager to complement ACERA's existing FO1 manager
  - Focus on firms that construct FO1s for potentially better customization than off-the-shelf FOF
  - Send detailed questionnaire to a short list of competitive FO1 managers
  - Second FO1 manager to meet AR IPS objectives and offer diversification from existing FO1 in the AR portfolio
  - Assume a four-month timeframe to complete the search and present a finalist candidate to the ICM

— Likely future action items

- Asset allocation review in May 2021 will consider different asset mixes, including those with modestly different target allocations to absolute return. Once SAA re-affirmed and/or changed,
  - Approve changes to Absolute Return IPS to reflect structural change and any target allocation change
  - Approve updated AR investment plan for implementation of revised structure
- Verus and ACERA staff may approach Trustees with compelling Opportunistic/Other strategies in the future following completion of FO1 search

Appendix

Absolute return definitions

Fund	Description
HFRI Fund Weighted Composite Index (HFRI Composite Index)	The HFRI Fund Weighted Composite Index is a global, equal-weighted index of over 1,400 single-manager funds that report to HFR Database. Constituent funds report monthly net of all fees performance in US Dollar and have a minimum of $50 Million under management or a twelve (12) month track record of active performance.
HFRI FOF Composite Index (HFRI FOFs)	Fund of Funds invest with multiple managers through funds or managed accounts. The strategy designs a diversified portfolio of managers with the objective of significantly lowering the risk (volatility) of investing with an individual manager. The Fund of Funds manager has discretion in choosing which strategies to invest in for the portfolio. A manager may allocate funds to numerous managers within a single strategy, or with numerous managers in multiple strategies. The minimum investment in a Fund of Funds may be lower than an investment in an individual hedge fund or managed account. The investor has the advantage of diversification among managers and styles with significantly less capital than investing with separate managers.
HFRX Global Hedge Fund Index	The HFRX Global Hedge Fund Index is designed to be a liquid representative of the overall composition of the hedge fund universe. It is comprised of all eligible hedge fund strategies; including but not limited to convertible arbitrage, distressed securities, equity hedge, equity market neutral, event driven, macro, merger arbitrage, and relative value arbitrage. The strategies are asset weighted based on the distribution of assets in the hedge fund industry. Hedge Fund Research, Inc. (HFR) utilizes a UCITSIII compliant methodology to construct the HFRX Hedge Fund Indices. The methodology is based on defined and predetermined rules and objective criteria to select and rebalance components to maximize representation of the Hedge Fund Universe. HFRX Indices utilize quantitative techniques and analysis; multi-level screening, cluster analysis, Monte-Carlo simulations and optimization techniques to ensure that each Index is a pure representation of its corresponding investment focus.
HFRI FOF: Diversified Index	FOFs classified as 'Diversified' exhibit one or more of the following characteristics: invests in a variety of strategies among multiple managers; historical annual return and/or a standard deviation generally similar to the HFRI Fund of Fund Composite index; demonstrates generally close performance and returns distribution correlation to the HFRI Fund of Fund Composite Index. A fund in the HFRI FOF Diversified Index tends to show minimal loss in down markets while striving for superior returns in up markets.

Absolute return definitions

Fund	Description
HFRI FOF: Conservative Index	FOFs classified as 'Conservative' exhibit one or more of the following characteristics: seeks consistent returns by primarily investing in funds that generally engage in more 'conservative' strategies such as Equity Market Neutral, Fixed Income Arbitrage, and Convertible Arbitrage; exhibits a lower historical annual standard deviation than the HFRI Fund of Funds Composite Index. A fund in the HFRI FOF Conservative Index strives for generally consistent performance regardless of market conditions.
HFRX Absolute Return Index	The HFRX Absolute Return Index is designed to be a liquid representative of the overall composition of the hedge fund universe. It is comprised of all eligible hedge fund strategies; including but not limited to convertible arbitrage, distressed securities, equity hedge, equity market neutral, event driven, macro, merger arbitrage, and relative value arbitrage. As a component of the optimization process, the index selects constituents which characteristically exhibit lower volatilities and lower correlations to standard directional benchmarks of equity market and hedge fund industry performance. Hedge Fund Research, Inc. (HFR) utilizes a UCITSIII compliant methodology to construct the HFRX Hedge Fund Indices. The methodology is based on defined and predetermined rules and objective criteria to select and rebalance components to maximize representation of the Hedge Fund Universe. HFRX Indices utilize quantitative techniques and analysis; multi-level screening, cluster analysis, Monte-Carlo simulations and optimization techniques to ensure that each Index is a pure representation of its corresponding investment focus.
HFR Asset Manager Risk Premia Index (Alt Risk Premia Index)	The HFR Asset Manager Risk Premia Index is designed to represent the performance of the universe of managers offering risk premia investment products. The index encompasses multiple risk premia styles across multiple asset classes. The underlying constituents are equally weighted and rebalanced on a quarterly basis.
Multi-strategy	Multi-strategy hedge funds rely on in-house expertise to manage various underlying investment strategies which can span styles, markets, instruments, exposures (directional, market neutral), sectors and varying diversification levels. Underlying strategies seek to exploit specialized alpha-seeking skill sets, and underlying managers are paid on their individual P&L.

Statistical definitions

Beta - A measure of systematic (undiversifiable) or market risk, the part of risk in a portfolio or security that is attributable to general market movements. Beta is calculated by dividing the covariance of a security by the variance of the market.

Correlation – A measure of the relative movement of returns of one security or asset class relative to another over time. A correlation of 1 means the returns of two securities move in lock step, a correlation of -1 means the returns of two securities move in the exact opposite direction over time. Correlation is used as a measure to help optimize the benefits of diversification when constructing an investment portfolio.

Maximum Drawdown – the maximum loss from a peak to a trough of a portfolio before a new peak attained. Maximum drawdown measures the downside risk over a specified time period.

Standard Deviation - A measure of volatility, or risk. Measures risk by indicating how far from the average, or mean, return one is likely to fall in any given time period. The rules of statistics dictate that you will fall within 1 standard deviation of the mean 2/3 of the time and within 2 standard deviations 95% of the time. For example, if a security has an average annual rate of return of 10% and a standard deviation of 5%, then two-thirds of the time, one would expect to receive an annual rate of return between 5% and 15%.

Sharpe Ratio - A measure of that explains the return of an investment compared to its risk. The Sharpe Ratio indicates excess portfolio return for each unit of risk over the risk free rate (usually short-term Treasuries or LIBOR) per unit of volatility. The higher the Sharpe Ratio, the greater its risk-adjusted return.

Manager descriptions – liquid funds

Fund	Description
Portfolio – Liquid Funds	
AQR GSS (terminated)	Equity market neutral hedge fund strategy that uses multi-factor quantitative models to build risk balanced portfolios across the US, UK, Europe, Japan, Australia, Canada and Asia ex-Japan. The strategy is currently an Alternative Premia substitute in ACERA's Absolute Return portfolio.
Blackstone SOF	Fund of hedge fund designed to target and profit from idiosyncratic investment opportunities across liquidity profiles, duration, asset class and geography while typically maintaining beta neutrality and shorter duration.
CFM ISDiversified	Alternative Premia strategy that uses multi factor quantitative models to build risk balanced portfolio across asset classes (equity, fixed income, commodities and currencies) and alternative premia styles.
Lighthouse	Customized fund of hedge fund strategy designed to provide diversified exposure to fundamental equity styles across geographies, along with relative value, fixed income strategies in a portfolio offers more liquidity and less directionality than the HFRI benchmark.
P/E FX	Global currency strategy that invests long/short across developed and emerging market FX markets based on a quantitative approach targeting fundamental macroeconomic and financial factors in a transparent and liquid portfolio.
Two Sigma RP	Alternative Premia strategy that uses multi factor quantitative models to capture the firm's take on alternative risk premia (value, momentum, quality, volatility, size, carry, seasonality, liquidity, safety) to single name equity and macro asset classes.

Manager descriptions – illiquid funds

Fund	Description
Portfolio – Illiquid Funds (legacy PEARLS)	
AG OWL (stub position)	Strategy invested primarily in a portfolio of non-performing and re performing loans then attempted to improve servicing in order to achieve attractive returns.
AG STAR (stub position)	Strategy invested primarily in a portfolio of complex and thereby mispriced CMBS and non-Agency RMBS pools that were well positioned to benefit from stabilizing credit and market environment.
Dyall II	Strategy focused on acquiring minority equity interests in institutional hedge fund and private equity managers ranging in size from $1.5 billion to $10 billion in assets under management.

ALAMEDA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

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 Board of Retirement

From: Julius Cuaresma, Investment Analyst jcc

Betty Tse, Chief Investment Officer Betty Tse

Date: April 14, 2021

Subject: Discussion and Possible Motion to Recommend that the Board Hire an Overlay Services Provider, Pending Completion of Legal and Operational Due Diligence and Successful Contract Negotiations

Recommendation:

Adopt a recommendation to Hire an Overlay Services Provider, Pending Completion of Legal and Operational Due Diligence and Successful Contract Negotiations.

Due Diligence Process and Results:

At the January 8, 2020 Investment Committee meeting, Staff and Verus ("We") introduced Cash Overlay and Rebalancing operational services to the Committee. These services included equitizing non-strategic, excess free cash and automatic rebalancing. Both services could potentially lead to the goal of improving returns, while adhering to Committee-approved strategic asset allocation (SAA) targets to the extent possible. We also weighed the importance of short-term cash in meeting daily needs against the long-term drag on meeting ACERA's targeted 7.0% actuarial return. After this introductory educational presentation, the Committee guided us to conduct further due diligence.

In April 2020, Verus, on behalf of ACERA, initiated a shortlist RFI. At the July 8, 2020 Investment Committee meeting, we provided an update, including near-term findings from this RFI. We refreshed the Committee on the Overlay services that could improve ACERA's current operational efficiency, albeit with fixed minimum fees and associated risks, e.g., increased equity exposure via derivatives. However, given the 2020 COVID-environment, we, with the Committee's guidance, determined that such services were not urgent, but would be an important operational item for us to proceed with due diligence when possible and appropriate.

Staff performed independent due diligence through its respective networks and Verus' network. Due diligence included meetings with: the Overlay Providers (and their suggested references), '37 Act Counties and other pensions[1]. Please see Attachment 1, Verus' Investment Memorandum and Recommendation. Staff highlighted the following three considerations:

1) ACERA has historically managed cash balances of about $30 M per month on average;
2) The portfolio's underweight private markets' exposure relative to SAA targets;
3) Current rebalancing methodology vs. viable options.

Conclusions:

Staff and Verus:

1) Concluded, after analyzing consideration #1, that any excess cash, by definition, would not have met the Committee's 0% SAA to cash. Through equitization, any excess cash would have higher expected returns than cash's 0% expected return;

[1] Parametric, NISA, and Russell each provided multiple references - we met with 9 references (3 meetings for each candidate). Staff also issued a '37 Act County questionnaire and conducted additional Parametric reference checks with their '37 Act County client base.

2) Rationalized consideration #2, such that our recommended Overlay services would only be used to replicate the portfolio's public market exposure (please see Table 1) since private markets are inherently difficult to replicate;
3) Simplified consideration #3 by focusing only on the portfolio's free cash, and thus, we have intentionally saved the considerations of rebalancing for a later time;
4) Determined, given these three considerations and their respective conclusions, that Parametric would be the optimal ACERA partner in meeting Staff's current operational needs in a simple and measured manner. While the other candidates have similar capabilities, Parametric relatively has more experience with '37 Act Counties (please see Chart 1) and proven experience to serve as a bespoke extension of Staff, including a seamless ability to check daily cash flow activity.

Table 1

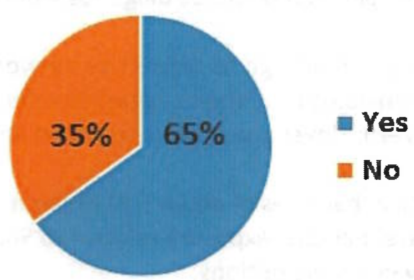
The Overlay would only target ACERA's public market asset classes. Current Allocations as of 2/28/2021.

Asset Class	SAA Target	Current	Overlay SAA Target Allocation
Public Markets			
US Equity	25%	28%	38%
International Equity	25%	28%	38%
Fixed Income	16%	17%	24%
Private Markets			
Real Estate	8%	6%	0%
Private Equity	8%	8%	0%
Absolute Return	9%	7%	0%
Real Assets	5%	5%	0%
Private Credit	4%	1%	0%
	100%	**100%**	**100%**

Chart 1

65% or 13 Counties have Overlay Services – 11 of the 13 counties are clients of Parametric.

'37 Act Counties with Overlay Services



Attachments:

#1 Investment Memorandum and Recommendation, prepared by Verus

#2 Presentation materials, prepared by Parametric

Memorandum

To: ACERA
From: VERUS
Date: April 14, 2021
RE: Overlay Services Provider Recommendation

Executive Summary

In December 2019, Verus and ACERA staff began researching overlay services providers and their service offerings to determine whether an overlay service provider could be beneficial for ACERA and evaluate and compare different overlay service providers and their services. A presentation was made at the January 2020 IC meeting resulting in approval to continue to evaluate overlay services and service providers.

In April 2020, a Request for Information("RFI") was initiated for overlay services, and responses were received from six initial potential candidates, including ACERA's existing rebalance advisor, OPR. Staff and Verus evaluated and discussed the RFI responses and reduced the list of finalists to three candidates, based their experience working with other public plans and ability to meet ACERA's potential needs which included cash equitization overlay services.

All three finalists that were selected for further consideration have the resources, capability as well as operational experience to meet ACERA's needs, and Verus has experience working with all of them. Based on staff and Verus' analysis of the finalists we are recommending ACERA retain Parametric as the Plan's overlay services provider.

In addition to evaluating overlay services providers, ACERA staff and Verus reviewed and discussed the types of overlay services available, including cost/benefit analysis. Staff and Verus are in agreement in our recommending that the initial scope of overlay services be limited to "equitization" of any residual (non-strategic) Plan cash.

There was also agreement among staff and Verus that the overlay services/service provider could be evaluated over time and potentially be expanded to other areas of portfolio management operations including rebalancing and cash flow/liquidity management.

The addition of a cash overlay" equitization" program is expected to increase long-term returns to ACERA incrementally over time. "Equitization" replaces any exposure the Plan has to non-strategic cash with a mix of liquid stocks and bonds in proportion to the long-term strategic asset allocation of the Plan as stocks and bonds are projected to outperform cash over the long run. The addition of an overlay services provider would also provide additional breadth and depth of resources to ACERA's staff. The addition of overlay services to ACERA's Plan will cost more than the current approach of holding residual Plan level cash but should provide net-of-fee performance benefits.

Overlay Services
Overlay Services is a broad term that applies to any service that uses derivatives to add (and/or reduce) exposures to certain markets. The primary benefit of utilizing overlay services is that they do not require the purchase or sale of physical securities in order to gain the effective exposures, and only a small amount cash needs to be held as collateral in order to maintain the effective exposures. The remaining cash can be used elsewhere to manage liquidity and cash flows or invested elsewhere.

Overlay service providers can be extremely efficient and low-cost in gaining market exposures using derivatives, particularly in the most liquid stock, bond, currency and commodity markets. The types of derivatives that are utilized to gain these exposures can vary over time depending on the objective, pricing, liquidity and term. Overlay service providers who execute trades on behalf of their clients are often best equipped to decide which instrument is best to utilize for a particular strategy or objective based on current market conditions.

Transaction costs for buying and selling the derivatives to obtain market exposures in overlay service programs varies by type of instrument, market exposure it is replicating and the timing of buying or selling the security. That being said, transaction costs for derivatives in the broad equity and fixed income markets are lower than the transaction costs of buying and selling the physical securities, particularly if purchases and sales are continuously occurring, as would be the case in a cash equitization overlay program.

Cash Equitization
Cash equitization is a term used to describe a specific type of overlay service that buys derivatives to gain exposure to liquid asset classes, often in accordance with the Plan's long-term strategic asset allocation but limits the program exposures to investing only any excess (non-strategic) cash that exists within the Plan.

The expected value of a cash equitization program over a full market cycle would be the expected risk premium the investor assigns to a particular asset allocation, applied to the amount of (non-strategic) cash that is held in the plan, using derivatives to obtain those asset allocation exposures. As the level of cash varies, day by day, the equitization program also adjusts the level of market exposure on a daily basis, thereby ensuring that the excess cash remains fully invested at all times and that there are no unintended exposures, including explicit leverage. The main premise for having a cash equitization program is to produce higher long-term returns for the Plan by having excess cash "invested" in the markets, earning a sizable premium over cash.

Staff and Verus reviewed and discussed ACERA's historical (non-strategic) cash levels as well as expectations of cash levels in the future. ACERA believes that an average Plan cash level of approximately $30 million would be a reasonable projection going forward. Assuming a $30 million average cash balance on $10 billion in total Plan assets and assuming equitization generates an annualized risk premium of 3.5% over cash (net of fees and transaction costs) the equitization overlay program alone, is conservatively projected to add an incremental $1 million per year to the expected value of ACERA's plan. However, the incremental value of an equitization program will not always be positive relative to leaving the cash uninvested in the markets, particularly over shorter investment horizons making it important to evaluate the value of the program in conjunction with the investment horizon based on the risk (volatility) of the underlying market (E.g. the proportional mix of equity and fixed income market indices) derivative exposures.

Rebalance and Other Overlay exposure services

Rebalance overlay services also rely on derivatives to obtain market exposures, but instead of only using the derivatives to gain market exposure for non-strategic cash, as with equitization, they are applied to some/all of the underlying strategic asset classes based on the Plan's rebalance policy or other objectives. In cases where an asset class is overweight relative to its policy, the overlay services provider could reduce the effective exposure using short positions with derivatives. Rebalance overlay services can also be constructed to use explicit leverage and may be combined with other programs including cash equitization, cash flow management and active manager and risk management.

The expected value to the Plan of a rebalance overlay program is less quantifiable than an equitization program in terms of expected value add over time because rebalance policies and implementation is an active portfolio decision where the frequency and methods (using physicals versus derivatives) of rebalancing should be considered relative to the total cost of operating the program and impact on tracking error.

Should ACERA desire to evaluate the Plan's rebalance policy/methodology in the future, the use of overlay services could be considered in conjunction with that analysis.

Research and Due Diligence Process

In April 2020, Verus and Staff sent a Request for Information ("RFI") for overlay services to six providers, including ACERA's rebalancing consultant, Optimal Portfolio Rebalancing (OPR). The list of providers included all the institutional rebalancing and cash overlay managers that could be identified. The RFI requested information on their organizations, cash overlay and rebalancing capabilities and teams, methodologies and means of implementation, fee schedules and reporting capabilities. A summary comparison of the six providers is listed in Appendix A of this memorandum.

Two of the RFI respondents, OPR and Alphaengine, do not provide cash overlay implementation services and were removed from further consideration. Should ACERA decide to change/reevaluate rebalance methodologies, these providers could be reconsidered in conjunction with a broader overlay/rebalance and/or risk management program.

Staff and Verus together conducted virtual due diligence calls with all of the remaining finalists followed by internal discussion among ACERA staff and Verus. The due diligence calls with the providers were focused on gaining a better understanding of the organization and assignment of responsibilities, the types of services offered, methodologies, limitations and types of instruments, types of clients and client utilization, trade execution and reporting and performance measurement. State Street, one of the finalists for overlay services, is ACERA's Plan custodian, was removed from further consideration based on a preference to utilize an independent provider whose primary business is overlay services and can also provide ACERA with a level of additional external monitoring and validation of custody accounts.

The remaining finalists, NISA, Parametric and Russell are all capable, established, overlay service providers. Each provider has their preferred approaches to overlay services based on their investment philosophy (active, passive, custom) and as well as their implementation methods (futures, options, swaps). These firms all have established teams dedicated to overlay services as well as robust infrastructure, reporting and client service capabilities.

Stated fee schedules for overlay services across the finalists were similar, 2-3.5bps based on the AUM for the specific client mandate subject to a $150-200k minimum cost to manage any overlay program, regardless of AUM within the program. The fixed cost minimum is largely attributable to the client specific upfront administrative and operational setup as well as ongoing operations, including reporting and account reconciliation, that is required for each individual client.

A cash equitization only overlay program for ACERA, assuming an average monthly cash balance of $30 million, would fall within the minimum stated fixed fees of $150-200K. A $150k fixed fee minimum is equivalent to 50 bps on $30 million. While this would appear to be a high cost and asset managers who invest in physical securities would likely charge less for a $30 million passive allocation, it's important to recognize that a cash equitization overlay program can accommodate the equitization of any size cash balance and adjust it on a daily basis, regardless of which custody account(s) the cash resides. This cannot be done efficiently using asset managers who invest using physical securities. To the extent portfolio level rebalancing/overlay and/or active portfolio risk management services are added in the future, the fees would range from 2-3.5bps on any incremental amounts (above the minimum equivalents). As the stated fee schedules were not significantly different across providers, it was not a major consideration in the recommendation of overlay services provider for ACERA.

Staff and Verus together conducted additional due diligence on each of the remaining finalists, conducting multiple reference calls for each finalist which included several '37 act plans. The client reference calls focused on gaining a better understanding of their rationale for hiring and utilizing an overlay services provider, the types of overlay services being utilized, staff's role in the management of these programs, how successful the programs have been and how they measure that success. We also inquired into their experience with client service, reporting and trade execution and reconciliation and handling of trading errors.

Verus has clients who work with all three finalists. They are all institutional quality providers and could meet ACERA's needs in terms of capability and execution. One important consideration that was discussed, given ACERA's relatively small investment and operations staff, was the level of client service, support and monitoring that would be provided. Based on ACERA's needs and objectives for an overlay services provider and the overlay program services offered, staff and

Verus were in agreement in recommending Parametric be selected to provide overlay services for ACERA.

Manager summaries

NISA

NISA was founded in November 1993 in St. Louis, Missouri, where they are still located today, and are 100% employee owned. Since inception, NISA's focus has been on providing customized solutions. All of NISA's senior investment professionals involved in the overlay strategy have been working together at NISA for over 15 years. They began managing overlay programs in 1998 and consider this to be a focused business area with $155 billion derivatives notional value across 83 clients as of 12/31/2019. Of that amount, $34 billion represents assets on behalf of 7 public fund clients, with an additional 2 new public fund clients funded in January 2020.

NISA employs approximately 330 total employees, of which 74 are investment professionals. Client service is a team based approach with a minimum of five people assigned to client service with one person assigned as a primary day to day contact.

NISA classifies overlay services into four key categories, I) asset allocation, II) exposure replication or replacement, III) liability focused hedging programs, and IV) client-directed/tactical derivative implementation. The $155 billion in derivatives notional value includes exposure to developed and emerging market equity, developed market fixed income, commodities, and developed and emerging market currencies. NISA has experience trading the developed and emerging market asset classes in both OTC and futures form. Their depth of market understanding and their internal tools allow them to evaluate the appropriateness of a variety of instruments including futures, forwards, swaps and options, when structuring programs to meet clients' needs.

NISA services offerings include index replication, cash equitization, rebalancing, option strategies, and other custom overlay strategies including for commodity, equity, fixed income and currency allocations.

Operations are an integral part of the investment process for any overlay program, particularly collateral management. NISA views collateral management as an intrinsic part of the implementation of derivatives solutions, and, as such, generally handles the entire collateral process. They have developed systems and processes to efficiently manage collateral transfers associated with derivative transactions.

PARAMETRIC

Parametric was founded in April 1987 as a subsidiary of Pacific Financial Asset Management Company and then a subsidiary of PIMCO Advisory until June 2001, when its management team along with outside investors completed a management-led buyout. In 2003, Eaton Vance, a public corporation, acquired Parametric in a transaction subsequently completed in 2012. To enhance its product set and capabilities, the group acquired Managed Risk Advisors in 2007 and then The Clifton Group in 2012. Parametric maintains offices in Seattle, WA, Westport, Connecticut, and Minneapolis, Minnesota and are a wholly owned subsidiary of Eaton Vance Corp.

On October 8th, Morgan Stanley announced their intention to acquire Eaton Vance for roughly $7 billion (50% cash/50% stock). The transaction is expected to be completed in the second quarter of 2021. Morgan Stanley has not expressed any detailed plans on how Eaton Vance or any of its managers/providers, including Parametric, will be integrated into Morgan Stanley's organization but the expectation is that Eaton Vance and its affiliates, will continue to operate autonomously as affiliates of Morgan Stanley after the transaction closes.

Verus' Public Markets team has a Provisional Flag on all Eaton Vance strategies (including affiliates which includes Parametric) as they continue to monitor the impact of the pending acquisition on Eaton Vance's strategies and services. Verus acknowledges that the acquisition and subsequent integration will play out over the next couple years. Verus will reevaluate the Provisional Flag following the formal completion of the acquisition. Verus will be looking for clarity around any changes to employee incentive structure, continued investment autonomy of the Eaton Vance and affiliate investment teams and explicit details on the integration of the two firms and resulting impacts on the culture of Eaton Vance and its affiliates.

Parametric's overlay investment management program was developed in 1986 by The Clifton Group in partnership with the firm's first overlay service client and its consultant, which was acquired by Parametric on December 31, 2012. Through the Clifton Group, Parametric has an extensive history managing overlay programs over several decades and through various market conditions. They currently service 227 institutional clients with $97.6 billion in assets under management. Parametric has 31 public fund clients in the overlay program representing $25.5 billion in assets under management.

The Parametric overlay program has been developed over three decades of research and development with significant investments in both people and technology, including a proprietary information technology platform. Parametric's overlay program is also considered a primary business focus for the firm. The Parametric overlay services group is comprised of 34 dedicated investment personnel who serve as an extension of their client's staff, with a focus on employing a best practices approach to creating, modifying, and implementing customized overlay solutions. Parametric's overlay team has subject matter experts across a variety of asset classes and implementation types (e.g. equities, FX, rates, credit, volatility, option hedging) serving as a resource for specific client exposure management needs.

The overlay program utilizes a team approach for portfolio management which expands client coverage through shared responsibilities. Parametric has a Managing Director of Customized Exposure Management (CEM) that oversees 22 portfolio managers/traders and 12 analysts who are dedicated to the overlay program. Each client is assigned to a team of 3-4 portfolio managers and 2-3 investment analysts. The team approach assists in broadening the investment perspective by incorporating the expertise and experience of the entire group in determining investment strategy, conducting research, providing custom analyses, selecting appropriate investment vehicles, and implementation of overlay portfolios. This team approach is a key aspect in the continuity plan as it mitigates the risks involved with the departure of key personnel.

Parametric views overlay programs as having 3 components that have distinct and overlapping design considerations, including I) Cash Overlay, II) Rebalancing and III) Transition Overlay. Cash overlay is the most used component with rebalancing considered a natural extension of a cash overlay program. They will often manage rebalancing alongside a cash overlay program as well as assist with transition management if needed.

RUSSELL

Russell Investments, headquartered in Seattle, WA was founded in 1936 and subsidiary Russell Investments Implementation Services, LLC (RIIS) was incorporated and registered as a broker-dealer with the SEC in 1953. Since 2001, Russell has been registered as both a broker-dealer and an investment advisor. **Since June 2016, Russell Investments has been owned by TA Associates and Reverence Capital Partners.**

RIIS AUM represents approximately 29% of Russell Investments' global assets under management. Overlay services AUM represents approximately 47% of RIIS AUM. RIIS offers a suite of customized solutions across designed to improve investment performance by reducing unintended risk, managing costs, and lightening the administrative. Russell describes their core capability as removing unintended exposures and/or adding intended exposures in the most efficient means possible. RIIS provides overlays, transition management, currency management, commission recapture, and execution services across equity, fixed income, derivatives, and foreign currency. In addition to their core services, RIIS' approach is to develop a relationship with their overlay clients and advisors providing strategic advice or assistance with staff.

The overlay services and implementation group, which is part of RIIS, consists of 18 investment professionals (excluding traders and operations staff), primarily based in Seattle, with three individuals in London and one in New York. The overlay services team in Seattle would be responsible for the management of any overlay services for ACERA. The overlay services group has 71 clients and $41 billion in AUM, of which 18 clients and $16.5 billion in AUM are Public pension plan clients.

RIIS is able to access and utilize a broad set of securities depending on the client mandate and objectives. Securities that RIIS can trade across includes exchange traded futures, currency forwards, swaps, options, swaptions, as well as physical securities such as ETFs (equity/fixed income) and long duration bonds.

Besides the dedicated overlay services team composed of business strategists, portfolio managers, and analysts, the overlay/exposure management platform is supported by other groups, such as quantitative strategies that provide research and performance measurement functions for overlay clients, trading (derivatives, physicals, and currencies), and operational teams that also support other services and functions within RIIS.

There is a lead and back-up portfolio manager and analyst assigned to each client. The assigned portfolio manager works with the client to understand their objectives and desired exposures and can bring in other resources as required. The analysts work together with the portfolio managers to ensure data is accurate and complete, as well as in compliance with guidelines at the end of the day. RIIS uses a hybrid portfolio management approach, where a trading portfolio manager runs the daily process across larger groups of accounts in early morning as clients are cleared for trading. Then later in the morning, the lead or back-up portfolio manager will instruct trades after issues are resolved or if trades with custom instructions are needed.

Performance reports are generally delivered on a monthly basis however asset summaries can be sent as often as daily depending on client preferences.

Recommendation

Verus and ACERA staff recommend that ACERA negotiate an agreement with Parametric to provide cash "equitization" overlay services on behalf of the Plan. The addition of an overlay services manager for cash equitization should improve long-term returns for the Plan on a net-of-fee basis while augmenting ACERA's internal operational capabilities. Parametric was deemed to be the best fit for ACERA and is experienced in working with other '37 Act counties.

Appendix A– Overlay Service Providers – April 2020 RFI

Firm name	Location	Website	Year founded	# clients	AUM ($MM)	# public fund clients	public fund AUM ($MM)	Strategy
AlphaEngine Global Investments Solutions (AEGIS)	Plano, TX	www.alphaengine.net	2002	6	2,360	1 (a)	900 (a)	active/dynamic hedging
NISA	St. Louis, MO	www.nisa.com	1993	120	155,000	15	34,272	Custom. Active, passive, liability hedging, currency, risk premia.
Optimal Portfolio Rebalancing (Doug McCalla)	Kalaheo, HI	None	1998	1	8,300	1 (b)	8,300 (b)	volatility-based
Parametric	Minneapolis, MN	www.parametricportfolio.com	1987	331	97,971	53	16,524	active/dynamic rebalancing
Russell	Seatle, WA	www.russellinvestments.com	1953	219	267,051	54	79,895	active/dynamic/custom
SSGA	Boston, MA	www.ssga.com	1978	685	330,038	79	64,627	active/dynamic/passive/custom

Data as of 12/31/19

(a) This CA public fund client temporarily paused its dynamic overlay program. RFI response states that AlphaEngine has been shortlisted for a 1B overlay search by a large CA county.

(b) Another 9B public fund uses "legacy components" of Optimized Portfolio Relancing's processes per RFI response.

Appendix B – Overlay Service Providers – RFI Summary of Finalists

	Parametric Portfolio Associates, LLC	Russell Investments	State Street Global Advisors	NISA Advisors
Headquarters	Seattle, WA	Seattle, WA	Boston, MA	St Louis, MO
Firm Inception	1987	1936	1792	1993
Overlay Service Inception	1987	1992	1995	1993
Ownership	Majority-owned subsidiary of Eaton Vance Corp. Will be owned by Morgan Stanley (May 2021 exp)	Owned by TA Associates and Reverence Capital Partners	A division of State Street Bank and Trust Company, a wholly-owned subsidiary of State Street Corporation	100% employee owned
Product Mix	▪ Fund cash equitization ▪ Manager cash equitization ▪ Overlay transition and reallocation management ▪ Rebalancing ▪ Exposure management ▪ Currency management — Interest rate management	▪ Cash equitization ▪ Exposure management ▪ Beta management for portable alpha ▪ Liability-driven investing ▪ Fund restructuring ▪ Tactical asset allocation ▪ Currency overlays ○ Liquidity management	▪ Beta replication ▪ Liquidity management / cash equitization ▪ Completion ▪ Custom hedging ▪ Currency management ▪ Tactical overlay ▪ Income generation —	▪ Beta replication ▪ Liquidity management / cash equitization ▪ Completion ▪ Custom hedging ▪ Currency management ▪ Tactical overlay — Income generation

Appendix B con't - Overlay Service Providers – RFI Summary of Finalists

	Parametric Portfolio Associates, LLC	Russell Investments	State Street Global Advisors	NISA Advisors
Reporting	Daily tracking report available online which include • fund cash levels • manager values • asset class exposures • margin summary ▪ custom portfolio metrics	Customized reporting that can include: – synthetic index replication analysis – counterparty exposure – total fund risk management – liquidity at risk ▪ overlay highlights	Customized reporting that can include: – synthetic index replication analysis – counterparty exposure – total fund risk management – liquidity at risk – overlay highlights	Full suite of customizable daily reporting that can include: – portfolio exposures – manager balances – summary of flows – attribution ▪ counterparty exposure
Advantages	– Experience with sophisticated and complex overlays – Core business is focused on portfolio solutions – Long track record of overlay investment management experience – Daily tracking reports available online	– Experience with large overlay mandates – Largest asset base – Two separate fee structures available – Customized reporting available	– Experience with sophisticated and complex overlays – Largest asset base – Customized reporting available	– Overlay management is a core business at SSGA – Experience with sophisticated and complex overlays – Large asset base – Competitive fee structure – Customized reporting available
Considerations	– **MORGAN STANLEY ACQUISITION OF EATON VANCE**	– Ownership changes since 2014	– **STATE STREET BANK, ALSO SERVES AS THE PLAN CUSTODIAN** – Allegations of fraud within the transition management unit of State Street's broker-dealer unit	1) Large client focused with customized client solutions –

PARAMETRIC

Alameda County Employees' Retirement Association (ACERA)

Overlay Solutions

April 14, 2021

Parametric - Difference and Data

Rigorous, disciplined, and rules-based approach

Transparent, cost-effective implementation expertise

Customizable, flexible solutions

$358B+	30+	140+	500+
assets under management, with $184B across institutional[1]	years of experience across equity, derivative, and implementation strategies	investment professionals, including 104 CFA charterholders and nine PhDs	institutional client relationships

All numbers are approximate as of 12/31/2020.
[1]AUM includes both discretionary and non-discretionary assets of Parametric Portfolio Associates® LLC (the Firm). Fixed Income assets previously offered by Eaton Vance Management and managed by Parametric as of January 1, 2020, were transferred throughout the first quarter of 2020.
Please refer to the disclosures for additional information regarding the Firm.

Diversity & Inclusion (D&I) – Current State

Diversity Office

Executive Committee

Incorporate diversity, equity and inclusion throughout the organization.

Human Resources

Diversity & Inclusion Leadership Council

Develop corporate strategies and practices to drive diversity, equity and inclusion.

Diversity & Inclusion Operating Council

Employee engagement to drive diversity, equity and inclusion.

Attract | Recruit

Retain | Develop

Partner with Community

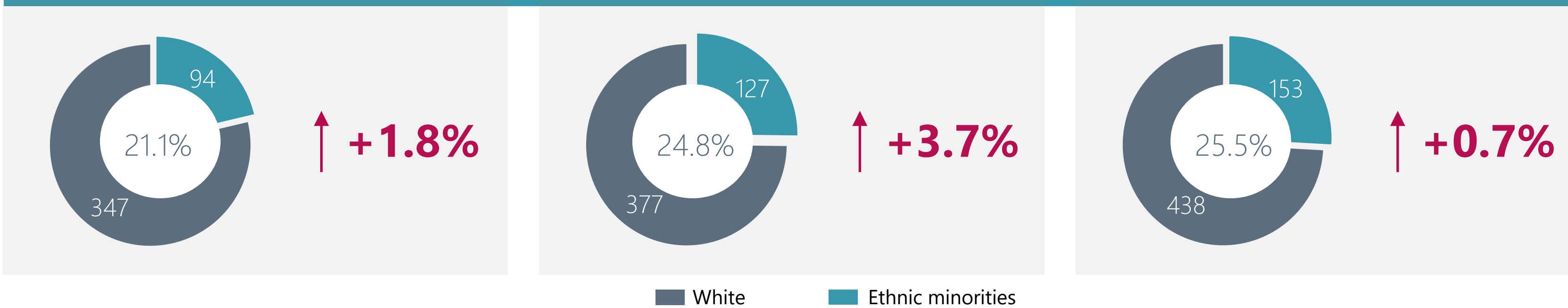
Messaging & Metrics

Employee Engagement – Employee Resource Groups (ERG)

Representation – Ethnicity and Gender YOY

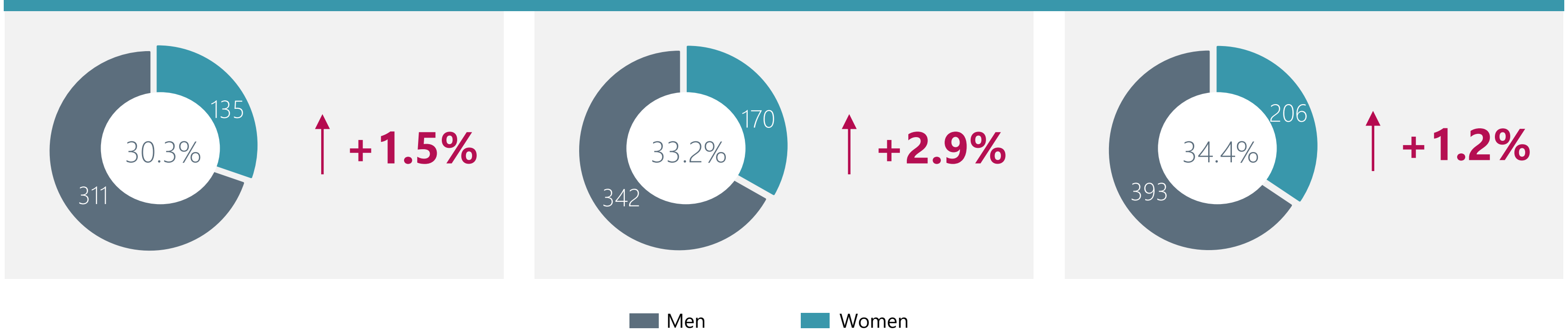
Ethnic Minorities (Parametric all)

2018 | 2019 | 2020



Gender (Parametric All)

2018 | 2019 | 2020



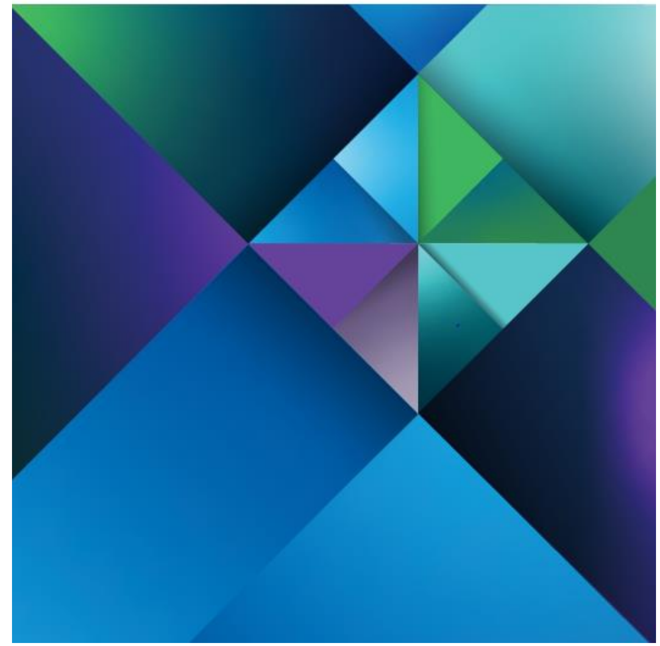
*Does not include Undeclared

Morgan Stanley and D&I

Morgan Stanley's Drive to Change

- Announced the addition of a new core value, Commit to Diversity and Inclusion
- Developed the Institute for Inclusion to oversee the mentoring and development of our diverse employees
- Supported change outside Morgan Stanley through donations to HBCUs, Carver Bank, and others totaling $30M

2020 Diversity and Inclusion Report



https://www.morganstanley.com/assets/pdfs/Morgan_Stanley_2020_Diversity_and_Inclusion_Report.pdf

True diversity is achieved when a company's employee base represents the society in which it lives.

~ James P. Gorman
Chairman and CEO, Morgan Stanley

Overlay Solutions Overview

Parametric Overlay Solutions by the Numbers

$110B

overlay assets
under management[1]

39

dedicated investment
professionals

$1 trillion

exposure value
traded in 2020

34+

years of experience
managing overlay programs[2]

All numbers are approximate as of 12/31/2020.
[1]Assets under management include overlay assets managed on a discretionary and non-discretionary basis.
[2]34 years reflects history of The Clifton Group which was acquired by Parametric in 2012.

Team Assigned to ACERA Overlay Account

Dedicated Relationship Manager

Dan Ryan
Senior Director, Client Relationship Management

Investment Team

Justin Henne, CFA
Managing Director

Dan Wamre, CFA
Portfolio Manager

Antony Motel, CFA
Portfolio Manager

James Thorson, CFA
Associate Portfolio Manager

Jan Mowbray, CFA
Associate Portfolio Manager

Max Chisaka
Investment Analyst

Connor Syfko
Investment Analyst

Noah Heitshusen
Investment Analyst

The ACERA overlay team is supported by a team of 15 investment and quantitative analysts who coordinate with custodial banks, produce daily overlay analytics, conduct overlay research, and prepare custom client analysis. Further, other overlay portfolio managers who serve as subject matter experts (e.g. options, currency, etc.) will be made available to ACERA as needed.

Solving Implementation Challenges with Core Overlay

Parametric Core Overlay Solutions can help mitigate policy implementation challenges

Solution	*What it provides:*
Cash overlay	> **Eliminates cash drag on operating and manager cash balances** > **Improved liquidity and reduced transaction costs** > **Increased expected returns**
Rebalancing overlay	> Daily monitoring of portfolio allocations and thresholds > Prompt rebalancing of portfolio exposures > Reduced transaction costs and tracking error
Transition overlay	> Reduction of performance risk through mitigation of exposure gaps > Added flexibility in manager terminations and new manager searches > Exposure throughout long-settled redemptions (e.g. hedge fund receivables)
Currency overlay	> Mitigation of unintended currency risks > Ability to efficiently adjust currency exposure > Seamless integration with overlay program

Intended component may not meet benefits listed.

Benefits of an Overlay Program

Investors employ customized overlay strategies that help them achieve policy objectives. Overlay strategies offer:

Return/cost improvement

Increased expected returns, reduced tracking error and transaction costs

Risk management

More robust risk controls, portfolio governance, and access to risk specialists

Increased efficiency

Greater liquidity, flexibility, and comprehensive reporting

Investing in an overlay program involves risk. Please refer to the risks and other disclosures in the appendices.

Cash Overlay

- Identity sources of residual cash and desired market exposures
- Determine the appropriate overlay instruments based on overlay components and each investor's objectives
- Establish communication framework to communicate major portfolio activities

- Monitor cash balances through automated custodial data feeds
- Execute trades to ensure overlay exposures are in line with cash balances
- Continually evaluate potential overlay program changes and instrument suitability

- Increase expected returns and reduce transition costs
- Eliminate cash drag while maintaining on-demand liquidity
- Simplify cash flow management while providing customized multi-asset exposures

There is no assurance that intended results will be achieved. All investments are subject to loss

ACERA Overlay Program Initial Setup

- *Overlay Components Used:* Fund Cash Overlay
- *Instruments Utilized:* Exchange Traded Futures
- *Overlay Program Size:* Based on ACERA fund level cash balance ($15 - $45 Million)
- *Benchmarks:* Public Markets Only – US Equity (Russell 3000), International Equity (MSCI ACWI ex. US IMI) and Fixed Income (Bloomberg Barclays US Aggregate)
- *Reporting Provided to ACERA:* Daily fund wide tracking report, monthly performance summary and any custom reporting to meet ACERA's specific needs

Overlay Program Mechanics

- ACERA has $30 million in cash exposure to be securitized
- 15% of this cash is moved to the liquidity account to support overlay exposure
- Move 5% to the futures account for initial margin, leaving balance to support daily futures cash flows

Current Structure: Single Cash Account: $30M Cash

$30M ACERA's Custodial Cash Account

New Structure: Addition of Liquidity Account and Futures Account. $30M Cash

$25.5M ACERA's Custodial Cash Account

- No change in account structure or investment choice
- On-demand source of liquidity

$3M PPA Liquidity Account

- Invested in ACERA's desired cash strategy
- Parametric uses this cash to manage daily futures cash flows

$1.5M PPA Futures Account

- Remains in futures account
- Unaffected by market movements

For illustrative purposes only.

ACERA Cash Assumptions and Overlay Asset Allocation

Parametric conducted a cash securitization back test covering a 15-year period (February 2006 to February 2021) assuming $30 Million in cash each month, reset monthly and securitized in line with the below ACERA target asset allocation

Asset Class	Benchmark[1]	Target Allocation
US Equity	Russell 3000	38%
International Equity	MSCI ACWI ex. US IMI	38%
Fixed Income	Bloomberg Barclays US Aggregate	24%

[1]In instances in which no futures contract exists, Parametric attempts to replicate the benchmark utilizing a basket of alternative liquid futures

This analysis uses monthly index return data in an attempt to illustrate the theoretical benefits of a cash securitization program. Target allocations for each asset class provided by ACERA. Two back tests are constructed: one in which cash is overlaid and one in which it is not. Management fees are subtracted from the overlay model before summary statistics are made and comparisons drawn. The Benefit to Cost ratio compares the dollars earned in a strategy versus the dollars spent to establish the strategy

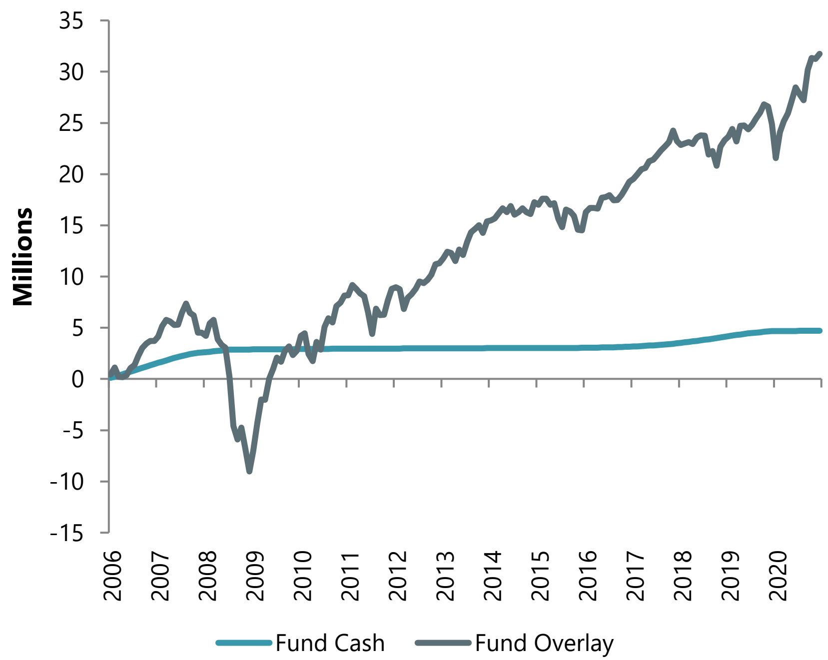
For illustrative purposes only. It is not possible to invest directly into indexes. Information subject to change.

Cash Securitization Historical Simulation: Sample 15 Year Period $30 Million Cash Balance

Portfolio	Annualized Return[1] (Net)	Cumulative 15-Year Return in Dollars (Net)	Average Yearly Return in Dollars (Net)
No Overlay (Cash Only)	1.05%	$4,706,543	$313,770
Overlay	6.45%	$31,736,243	$2,115,750
Incremental Return	5.40%	$27,029,700	$1,801,980

Benefit/Cost	
Average Yearly Incremental Overlay Return (Net)	$1,801,980
Annual Fee	$120,000
Benefit/Cost Ratio	Over 15X

Growth of Securitized Cash Over Time



[1]The cash target is reset to the original base level each month. Transaction costs are assumed to average 5 bps. This analysis is net of management fees and transaction costs.

Returns provided are based on unmanaged indexes or basket liquid futures constructed with the goal of replicating the underlying index. It is not possible to invest directly in the index. Synthetic returns will deviate from those of the indexes because a cash securitization program utilizing futures will always have tracking error.

Hypothetical performance is for illustrative purposes only, does not represent actual returns of any investor, and may not be relied upon for investment decisions. Actual client returns will vary. All investments are subject to loss.

Material provided is supplemental to the GIPS® compliant presentation. Please refer to the GIPS® compliant presentation and other disclosures in the appendices.

Source: Bloomberg, Parametric, Date: March 2021

Overlay Solutions: What Are the Risks?

Risk	Description	How Parametric mitigates
Market	Market performs in a way that was not anticipated. For example, cash outperforms capital markets.	Systematic market risk is an inherent part of the overlay program and can neither be diversified away nor mitigated. Client-specific policy guidelines are established to clearly define desired market risk based on client asset allocation targets.
Communication/ information	Overlay index exposures are maintained based on underlying investment values provided by one or more third parties. There are often delays in the receipt of updated information which can lead to exposure imbalance risks. Manager changes and inadequate communication regarding cash-flow moves into and out of the fund can lead to unwanted asset class exposures and loss.	Parametric establishes communication links with custodial, manager, and other sources to obtain and verify positions and cash flow data as soon as it becomes available. Suspect data may be researched and staff notified.
Margin/liquidity	Potential for the market to move in a manner adverse to the overlay position, causing a mark-to-market loss of capital to the fund and a resulting need to raise liquidity or to close positions. This could happen at a time when underlying fund or positions are also declining in value.	Parametric strives to be aware of potential collateral and cash requirements to reduce the risk of needing to remove positions. Additional margin requirements are communicated via email, and margin adequacy is available to the client daily.
Tracking error	Futures (synthetic) index returns fail to track benchmark index returns perfectly. This divergence between the price behavior of a position or portfolio and the price behavior of a benchmark is tracking error and impacts performance.	Parametric seeks to minimize tracking error by using liquid futures contracts with sufficient daily trading volume and open interest. All derivative contracts will have some tracking error.
Leverage	Creation of market exposure in excess of underlying collateral value may lead to significant capital losses and result in position liquidation.	Parametric obtains daily collateral pool values and adjusts beta overlay positions to maintain the ratio of total exposure to collateral within a predefined client-determined band.
Collateral	The program may experience losses on the underlying designated assets in addition to potential losses on the index market exposure overlaying these assets.	This risk can't be mitigated by an overlay manager. Parametric discusses the potential for negative performance in the collateral used for the overlay prior to alpha transport applications with client.

Residual Cash Securitization with Parametric

Expected Benefits

- A market risk premium can be captured through the overlay program while still maintaining “on demand” fund liquidity and without disrupting underlying managers.
- Unwanted cash exposure is effectively eliminated without the introduction of leverage.
- Transaction cost savings through use of futures to manage liquidity instead of physical capital movements.
- Fund can carry additional liquidity while preserving exposure to capital market returns.
- Increased liquidity may save staff time and reduce the disruptions, costs, and performance calculation challenges related to regular cash flow movements.

There is no assurance that expected benefits will be achieved. All investments are subject to loss

Portfolio Management Process

ACERA account data is delivered into proprietary investment management system[1]

Proprietary technology validates portfolio data and generates custom overlay analytics

Overlay team evaluates and confirms overlay analytics

Necessary overlay adjustments are executed after system and multi-person verification

Comprehensive overlay program reporting is published to secure ACERA client portal

[1] In some cases data may not be available on a daily basis or is not accessible because the balance is held by a manager who does not make information available electronically.
For illustrative purposes only.

State-of-the-Art Proprietary Technology

Parametric's risk management systems have been internally developed and continually upgraded to mitigate program implementation risk.

Customization
Comprehensive, on-demand reporting capabilities offering daily transparency

Adaptive
Ability to implement frequent changes without reliance on third-party providers

Commitment
Firmwide commitment to technology, with continued significant investments

Integrated
Seamless integration of all aspects of Parametric's operations into one system

Provided for illustrative purposes only.

Overlay Stakeholder Responsibilities

Parametric makes overlay adjustments using data obtained through the custodial feed, limiting the need for ACERA involvement.

	ACERA	Parametric	State Street
Establish overlay program parameters	✓	✓	
Transfer cash margin account at custodian level to support overlay positions	✓		✓
Communicate irregular activity (large cash flows, asset allocation changes, tactical adjustments, etc.)	✓	✓	
Obtain relevant portfolio data (account market values, etc.)		✓	✓
Record and reconcile trades, holdings, and balances		✓	✓
Monitor cash balances subject to the overlay program		✓	
Discretion to implement cash overlay		✓	

Overlay Program Reporting

Parametric's comprehensive reporting, as applicable, can provide ACERA increased oversight and governance of total portfolio exposures.

Information provided may include:

> Individual manager account values

> Total cash balance including fund level and residual manager cash

> Total asset class exposures and deviation from policy targets

> Overlay positions and liquidity analytics

> Performance on a daily and monthly basis at the total fund level as well as by individual overlay component and asset class

> Custom portfolio metrics specific to ACERA needs

The above reporting is available to ACERA staff and Verus through Parametric's secure, easy-to-access client portal

Partnering with Parametric

> Provide a high-touch, consultative approach with a team experienced in structuring and executing overlay strategies.

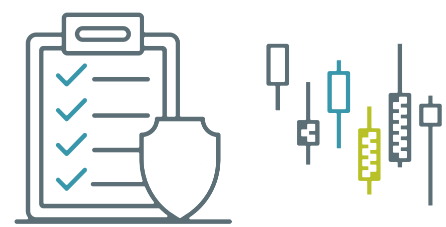
> Add value through portfolio construction and the implementation of a rules-based, risk-focused, and transparent investment process.

> Develop creative solutions for ACERA's investment challenges.

Parametric provides…

A trusted fiduciary to construct, implement, monitor, and periodically modify an overlay program designed to help achieve policy objectives.

ACERA team gets…



More time to focus on value-added priorities: asset allocation, manager selection, and ongoing investment risk management.

Appendices

Biographies

Brian Langstraat, CFA
Chief Executive Officer
Brian is responsible for Parametric's firmwide strategy and organizational development. He joined Parametric in 1990 and has held positions in portfolio management, product development, portfolio administration, marketing, and client service. He assumed the role of CEO in 2001, and he was elected to the Eaton Vance Corp. board of directors in 2014. Brian has been a featured speaker at events such as Inside ETFs, and he has appeared on the Bloomberg Trillions podcast and in several financial publications. He earned a BA in economics and sociology from the University of Washington.

Justin Henne, CFA
Managing Director, Investment Management and Strategy
Justin leads the investment team responsible for the implementation and enhancement of Parametric's Overlay Services Strategy. He joined Parametric in 2004 (originally as an employee of the Clifton Group, which was acquired by Parametric in 2012) and has extensive experience managing overlay portfolios for institutional investors. He has traded a wide variety of derivative instruments to help his clients meet unique exposure and risk management objectives. Justin is a member of the CFA Society of Minnesota and holds a Series 3 license. He earned a BA in financial management from the University of St. Thomas.

Ben Lazarus, CFA
Senior Director, Institutional Relationships
Ben joined the firm in 2004 (originally as an employee of the Clifton Group, which was acquired by Parametric in 2012). He is responsible for developing, coordinating, and executing institutional business development strategies in the western US. In addition, he has developed new distribution partnerships for Parametric and has presented on the use of derivatives at different industry events. From 2015 to 2016, Ben was the senior vice president of US sales at Nuveen Investments. Ben earned a BA in psychology from the University of California, San Diego, and an MBA in marketing and strategic management from the University of Minnesota. A CFA charterholder, Ben is a member of the CFA Society of Minnesota.

Jan Mowbray, CFA
Associate Portfolio Manager
Jan is responsible for designing, trading, and managing overlay portfolios. Prior to joining Parametric in 2015, Jan worked at Voyageur Asset Management for over 18 years as a senior portfolio manager. She earned a BA in individualized studies with a focus on business and finance from Metropolitan State University. A CFA charterholder, Jan is a member of the CFA Society of Minnesota.

Max S. Chisaka
Senior Investment Analyst
Max is responsible for coordinating with custodial banks to receive client account information, producing daily investment management reports used by portfolio managers to trade existing accounts. Prior to joining Parametric in 2015, he worked at Wells Fargo Securities as a securities lending analyst. Max also worked in Wells Fargo's Trust Operations as a trade settlement specialist and as a compliance analyst. He earned a MS in investment management and financial analysis from Creighton University as well as an MBA and BS in finance from Southwest Minnesota State University.

Parametric Overlay Team

- **Justin Henne, CFA** — Managing Director, Investment Management & Strategy
  - **Clint Talmo, CFA** — Director, Investment Strategy
    - **Jason Nelson, CFA** — Portfolio Manager
    - **Dane Fickel, CAIA** — Portfolio Manager
    - **Justin Horner, CFA** — Assoc. Portfolio Manager
    - **Tyler Nowicki, CFA** — Assoc. Portfolio Manager
    - **Ben Adams, CFA** — Assoc. Portfolio Manager
  - **Dan Wamre, CFA** — Sr. Portfolio Manager
    - **Antony Motl, CFA** — Portfolio Manager
    - **Jan Mowbray, CFA** — Assoc. Portfolio Manager
    - **James Thorson, CFA** — Assoc. Portfolio Manager
  - **Ricky Fong, CFA** — Sr. Portfolio Manager
    - **Drew Carlson, CFA** — Portfolio Manager
    - **Zach Olsen, CFA** — Assoc. Portfolio Manager
    - **Nick Tunell, CFA** — Assoc. Portfolio Manager
    - **Evan Hewitt, CFA** — Assoc. Portfolio Manager
    - **Tim Post, CFA** — Associate Portfolio Manager
    - **Lucas Triana** — Portfolio Manager
  - **Alex Braun, CFA** — Portfolio Manager
    - **Macki Anderson, CFA** — Portfolio Manager
    - **Joe Zeck, CFA** — Assoc. Portfolio Manager
    - **Heather Wolf, CFA** — Assoc. Portfolio Manager
  - **David Phillips, CFA** — Director, Liability Driven Investing
  - **Pat Persons** — Researcher[1]

INVESTMENT SUPPORT

Olivia Burger	Andrew Crossman	Mark Holiday	James Ostrem	Hunter Kelly	Noah Heitshusen	Hannah Babon	Brendon Cleland-Babcock
Rob Stiller	Max Chisaka	Connor Syfko	Shane Claugherty	Maeva McGonigal	Moises Garcia	Omar Khosht	

[1]Research efforts support the Parametric Overlay Team. There is no direct reporting relationship.

Parametric's D&I Mission and Guiding Principles

Diversity Mission

To foster an environment where employees can bring their authentic selves and diversity of thought to further innovation and provide creative solutions for our clients.

Guiding Principles

- We focus on attracting, hiring, developing and retaining a diverse employee population of top talent.
- We are committed to a work environment that is based on collaboration, fairness and mutual respect for each other.
- We drive innovative business solutions through an open-minded approach and acceptance of each other's varied perspectives.
- We seek to understand the varied perspectives of our clients so that we can provide customized solutions that fit their investment needs.

FY20 Parametric D&I Highlights

Internal Structure

- Implement Diversity and Inclusion Operating Council (DIOC)
- Developed Listening Systems:
  - ✓ 71 participants in DIOC Employee Survey
  - ✓ 30 participants in Senior Women Focus Group (director level and above)
  - ✓ 15 participants in EC/employee focus group

Communications

- Establish Messaging & Metrics pillar and launch monthly D&I newsletter

Attract and Recruit

- Hired diverse group of 2020 Summer Interns: 66.7% Female and 57% POC (converted 3 interns into FTE)
- Attended diversity career fairs/treks and created partnerships with diversity groups (Forte Foundation, iRelaunch)

Employee Engagement

- 339 of 607 (55.8%) completed Unconscious Bias Training
  - ✓ 254 attended virtual sessions with Dominic Rollins in 2020, 44 completed online session through Workday
- In response to George Floyd, held a Town Hall with CDO Ingrid Jacobs to address racial injustice. Also began hosting Caring Conversations open to all employees
- 40 managers attended train-the-trainer version of Caring Conversations
- 28 volunteers on DIOC and DILC
- Diversity scores on Employee Engagement Survey went up YOY from 4.71 to 4.88 (out of 6)
- EC Members determined all D&I OKRs for FY21

Attract and Recruit

Inclusive Hiring Training

Diversity & Inclusion Office partnered with Talent Acquisition and Human Resources to empower managers with best practices ensuring we cast a wide net, to identify and consider a broad and diverse range of candidates, ultimately, leading to best qualified candidate.

Diversity Fellowships

Parametric is sponsoring Fellowships for opportunity and advancement in quantitative finance at the University of Washington and the University of Minnesota to help bring more diverse candidates to the quantitative graduate programs we regularly recruit from.

These fellowships will make it possible for six diverse candidates to obtain master's degrees from these universities.

Brand Ambassador Program

Empower employees to participate in recruiting and networking opportunities to increase diversity in our candidate pool.

Recruiting Partnerships

Engage and partner with external organizations, universities, and networks to increase Parametric brand awareness with new audiences.

Active partnerships:

- Forte, Rainier Scholars, YearUp, Out & Equal, ALPFA, iRelaunch

Retain and Develop

Mentoring Programs

- Women's Mentoring Circles: enhance our culture so that women feel a true sense of inclusion at Parametric and empower men in leadership to become active allies. 20 mentors and 50+ mentees for pilot cohort.
- Mentors Over Coffee: connecting employees throughout the firm to have informal conversations about their positions, career paths, and departments.

Inclusive Leadership

Pilot training for a select group of managers through our Advanced Manager Acumen Program, with an eventual roll out to all managers.

Employee Resource Groups

Often formed at a grassroots level, ERGs are voluntary, employee-led groups that can help strengthen the bond a worker feels for a company.

WLE
Women's Leadership Exchange

Mosaic
Multicultural Group

EV PRIDE+

EVolve
Young Professionals Group

D&I Monthly Events

Monthly internal events, panels, and conversations about topics regarding diversity, inclusion, and celebration of heritage months. Examples:

- Black History Month, Pride Month, Women's History Month, etc.
- Responsible Investing, Allyship, Intersectionality, Multigenerational Workforce, Caring Conversations

Responsible Investing/ESG at Parametric

We believe understanding client goals is key

We have **20 years** of experience, **$29B+** in AUM,*
and a dedicated responsible investing team

Memberships and affiliations:

PRI Principles for Responsible Investment

Ceres

Interfaith Center on Corporate Responsibility

Council of Institutional Investors®

*Source: Parametric as of 12/31/2020.

Rebalancing Overlay

> Determine overlay instruments to track underlying portfolio exposures and benchmarks

> Determine portfolio tracking methodology, including process to update exposures that aren't valued daily by custodian

> Establish rebalancing methodology incorporating the investor's risk and tracking-error tolerances

> Monitor daily portfolio values with an emphasis on total exposures by asset class and deviations relative to thresholds

> Adjust overlay positions to rebalance back to policy targets once thresholds are exceeded

> Continually evaluate potential overlay program modifications and overlay instrument suitability

> Achieve favorable risk-adjusted outcomes

> Reduce tracking error through timely and efficient reallocation of portfolio exposures

> Minimize exposure gaps and reduce trading costs during rebalance process

There is no assurance that intended results will be achieved. All investments are subject to loss.

Transition Overlay

> Identify exposure gaps as a result of manager changes or updated portfolio targets

> Collaboratively create a transition plan for manager changes, asset allocation adjustments, or exposure changes

> Determine asset class exposures effected, investment instrument selection, and trade timing

> Coordinate with other asset managers to determine the timing of physical sales/purchases

> Use overlay positions to replace desired exposure as physical assets are traded

> Remove overlay positions as new physical positions are funded

> Mitigation of exposure gaps

> Flexibility to accelerate manager changes

> Exposure maintenance during long-settled redemptions, such as hedge fund redemptions

There is no assurance that intended results will be achieved. All investments are subject to loss.

Currency Overlay

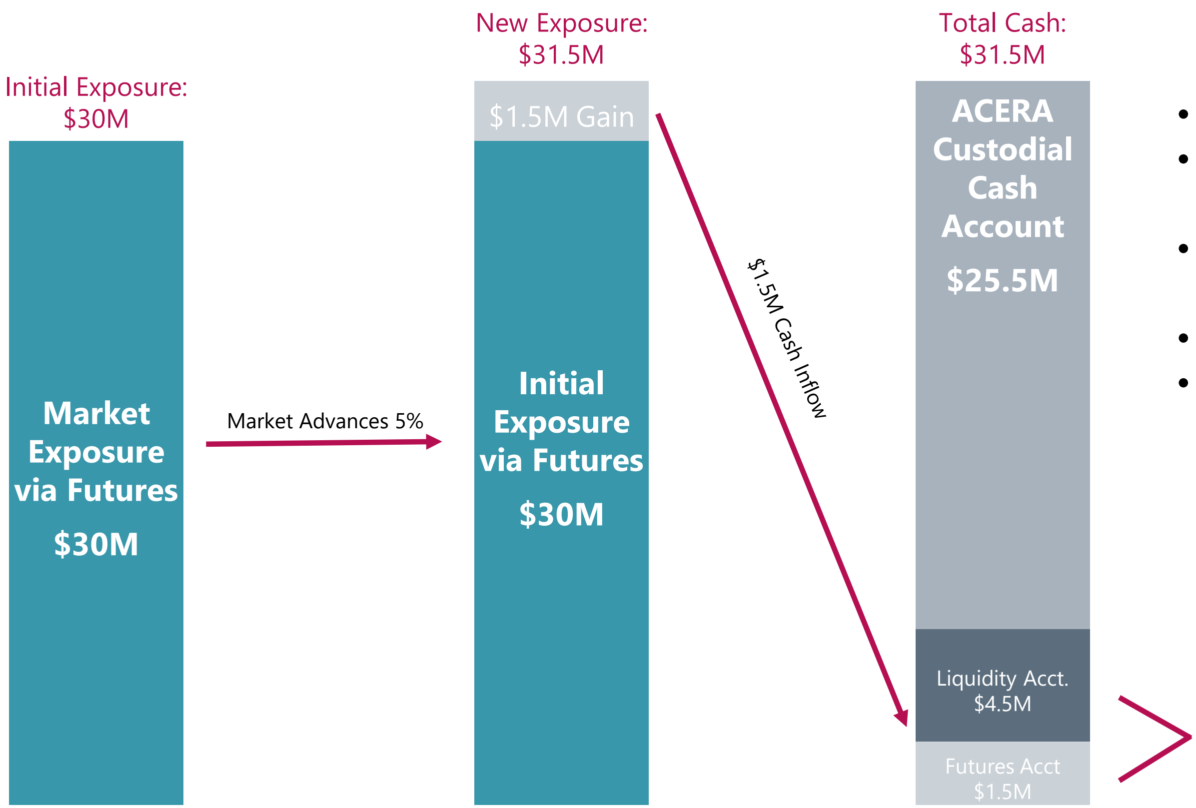
- Determine the effect of currency exposure on the risk-return profile of the fund
- Create a customized solution to meet unique client currency exposure objectives
- Determine the appropriate currency instruments and portfolio-tracking methodology to manage the program

- Monitor currency exposure daily to determine efficacy of the overlay and need for position adjustments
- Margin requirements and ongoing profit/loss can be incorporated in a cash overlay program
- Continually evaluate potential overlay program modifications and overlay instrument suitability

- Ability to efficiently add or remove currency exposures
- Mitigate unintended currency risk and provide ongoing currency exposure monitoring
- Tracking error balanced with costs of implementation

There is no assurance that intended results will be achieved. All investments are subject to loss.

Futures/Cash Levels after Market Advance

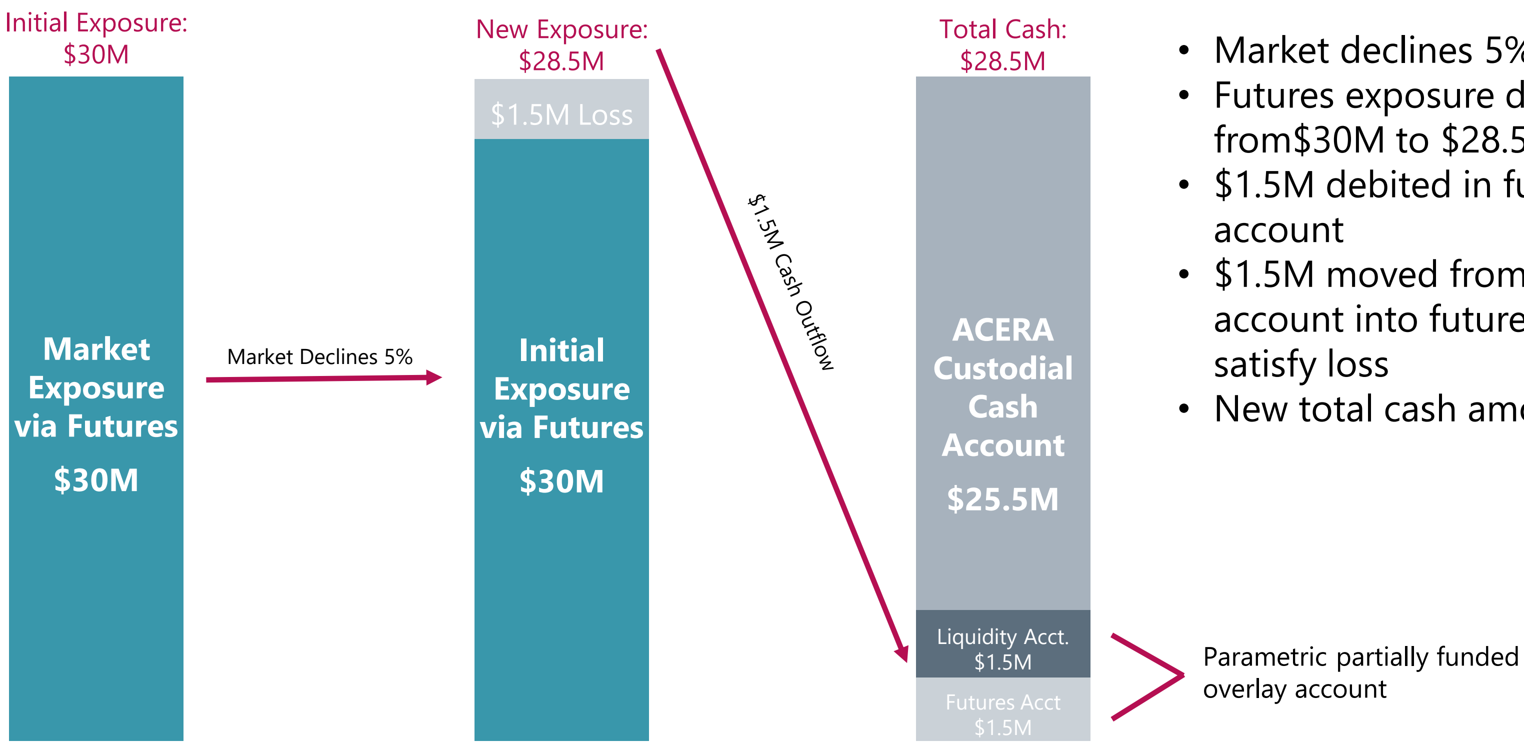


- Market advances 5%
- Futures exposure increases from$30M to $31.5M
- $1.5M gain deposited into liquidity account
- New total cash amount $31.5M
- ACERA's custodial cash and futures account cash unaffected

Parametric partially funded overlay account

For illustrative purposes only.

Futures/Cash Levels after Market Decline



- Market declines 5%
- Futures exposure decreases from$30M to $28.5M
- $1.5M debited in futures account
- $1.5M moved from liquidity account into futures account to satisfy loss
- New total cash amount $28.5M

For illustrative purposes only.

Replicating ACERA's Asset Allocation

Asset Class	Target	Overlay Instrument(s) Available?	Overlay Benchmark	Secondary Overlay Benchmark(s)
US Equity	25%	Yes	Russell 3000	n/a
International Equity	25%	Yes	MSCI ACWI ex. US IMI	n/a
Fixed Income	16%	Partial	Bloomberg Barclays Aggregate (Treasury-Based)	Citigroup WGBI ex US BBG High Yield
Real Estate	8%	No	Allocated pro rata to Equity and Fixed Income	n/a
Private Equity	8%	No	Allocated to US and International Equity	n/a
Absolute Return	9%	No	Allocated to 50% Equity / 50% Fixed Income	n/a
Real Assets	5%	Partial	Allocated to US and International Equity	S&P Global LargeMidCap Commodity & Resources / S&P Global Infrastructure / BBG Commodities
Private Credit	4%	No	Allocated to 50% US Equity / 50% Fixed Income	n/a
Total Fund	**100%**			

Allocation information obtained from sources publicly available.

Synthetic vs. Physical Transaction Costs

	US Large Cap	US Small Cap	Developed Intl. Equity	Emerging Equity	Fixed Income
Synthetic[1]	0.0223%	0.0333%	0.0421%	0.0712%	0.0069%
Physical[2]	0.0908%	0.2653%	0.1559%	0.3176%	0.0766%
Difference	4.07	7.96	3.71	4.46	11.14

Date: 3/17/2021
Sources: ITG and Bloomberg
[1]Futures Contracts Used: S&P 500, Russell 2000, MSCI EAFE & MSCI EM. Parametric utilizes a Treasury-based approach to carry fixed income exposures (e.g. Bloomberg Barclays Aggregate). A basket of treasury futures is carried with the goal of mirroring the duration profile of the Bloomberg Barclays Aggregate Index.
[2]Physical cost outlines physically trading entire index on the following indices: S&P 500, Russell 2000, MSCI EAFE & MSCI EM & Bloomberg Barclays Aggregate
For illustrative purposes only. Information subject to change. Not a recommendation to buy or sell any security.

Synthetic Indexes[1]

Our most frequently used index benchmarks are as follows:

>Domestic equity[2]

S&P 500® Index
S&P 400® Mid Cap Index
MSCI USA IMI Index
MSCI Small Cap USA Index
Russell 1000® Index
Russell 2000® Index
Russell 3000® Index
Wilshire 5000 Index

>Fixed income

Bloomberg Barclays US Aggregate Bond Index
Bloomberg Barclays US Aggregate Gov/Credit Index
Bloomberg Barclays Intermediate US Gov/Credit Index
Bloomberg Barclays US Long Gov/Credit Index
Bloomberg Barclays US Aggregate Long Treasury Index
Bloomberg Barclays US Long Treasury Index
Bloomberg Barclays US Universal Index
Citi US Broad Investment-Grade (USBIG) Bond Index
BofA Merrill 1-3 Year US Treasury Index
Various Constant Duration Benchmarks

>International equity

MSCI EAFE℠ Index
MSCI ACWI ex-US℠
MSCI ACWI ex-US IMI
MSCI Emerging Markets Index
MSCI World ex-US℠
S&P Global Broad Market Index

>Global equity

MSCI ACWI IMI
MSCI World℠

>Commodities

S&P Goldman Sachs Commodity Index
Bloomberg Commodities Index (BCOM)
Custom Commodity Baskets

>International fixed income

Citigroup WGBI ex-US
Bloomberg Barclays Global Aggregate Index ex-US

>Currency

Indexes
Individual Currency Exposure

[1]Please note that only broad-market (versus style, etc.) futures are available and/or liquid enough for use. Individuals may not invest directly into indexes.

[2] In the case of style asset exposure needs (ismall cap growth, etc.), Parametric can manage ETF exposures to fulfill client needs. Customized nonstandard indexes can be replicated using swaps.
For informational purposes only. This is not an offer to buy or sell securities.

Disclosures

Parametric Portfolio Associates® LLC ("Parametric"), headquartered in Seattle, is registered as an investment advisor with the Securities and Exchange Commission under the Investment Advisors Act of 1940. Parametric is a leading global asset management firm, providing investment strategies and customized exposure management directly to institutional investors and indirectly to individual investors through financial intermediaries. Parametric offers a variety of rules-based investment strategies, including alpha-seeking equity, fixed-income, alternative and options strategies. Parametric also offers implementation services, including customized equity, traditional overlay and centralized portfolio management. Parametric is part of Morgan Stanley Investment Management, the asset management division of Morgan Stanley, and offers these capabilities through offices located in Seattle, Boston, Minneapolis, New York City, and Westport, Connecticut. This material may not be forwarded or reproduced, in whole or in part, without the written consent of Parametric. Parametric and its affiliates are not responsible for its use by other parties.

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Charts, graphs and other visual presentations and text information were derived from internal, proprietary, and/or service vendor technology sources and/or may have been extracted from other firm data bases. As a result, the tabulation of certain reports may not precisely match other published data. Data may have originated from various sources including, but not limited to, Bloomberg, MSCI/Barra, FactSet, or other systems and programs. Parametric makes no representation or endorsement concerning the accuracy or propriety of information received from any other third party.

References to specific securities and their issuers are for illustrative purposes only and are not intended to be and should not be interpreted as a recommendation to purchase or sell such securities. Any specific securities mentioned are not representative of all securities purchased, sold or recommended for advisory clients. Actual portfolio holdings vary for each client and there is no guarantee that a particular client's account will hold any, or all, of the securities identified. It should not be assumed that any of the securities or recommendations made in the future will be profitable or will equal the performance of the listed securities.

This material contains hypothetical, back-tested and/or model performance data, which may not be relied upon for investment decisions. Hypothetical, back-tested and/or model performance results have many inherent limitations, some of which are described below. Hypothetical returns are unaudited, are calculated in U.S. dollars using the internal rate of return, reflect the reinvestment of dividends, income and other distributions, but exclude transaction costs, advisory fees and do not take individual investor taxes into consideration. The deduction of such fees would reduce the results shown.

Model/target portfolio information presented, including, but not limited to, objectives, allocations and portfolio characteristics, is intended to provide a general example of the implementation of the strategy and no representation is being made that any client account will or is likely to achieve profits or losses similar to those shown. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently achieved by any particular trading program. One of the limitations of hypothetical performance results is that they are generally prepared with the benefit of hindsight. In addition, simulated trading does not involve financial risk, and no simulated trading record can completely account for the impact of financial risk in actual trading. For example, the ability to withstand losses or to adhere to a particular trading program in spite of trading losses are material points which can also adversely affect actual trading results. There are numerous other factors related to the markets in general or to the implementation of any specific trading program which cannot be fully accounted for in the preparation of hypothetical performance results and all of which can adversely affect actual trading results. Because there are no actual trading results to compare to the hypothetical, back-tested and/or model performance results, clients should be particularly wary of placing undue reliance on these hypothetical results. Perspectives, opinions and testing data may change without notice. Detailed back-tested and/or model portfolio data is available upon request. No security, discipline or process is profitable all of the time. There is always the possibility of loss of investment.

Benchmark/index information provided is for illustrative purposes only. Investors cannot invest directly in an index. Returns for indexes are calculated gross of management fees. Deviations from the benchmarks provided herein may include but are not limited to factors such as: the purchase of higher risk securities, over/under weighting specific sectors and countries, limitations in market capitalization, company revenue sources, or client restrictions. Parametric's proprietary investment process considers factors such as additional guidelines, restrictions, weightings, allocations, market conditions, and other investment characteristics. Thus returns may at times materially differ from the stated benchmark and/or other disciplines and funds provided for comparison.

Disclosures (Continued)

Derivatives such as futures, swaps, and other investment strategies have certain disadvantages and risks. Futures require the posting of initial and variation margin. Therefore a portion of risk capital must be preserved for this purpose rather than being allocated to a manager. Liquid futures may not exist for published benchmarks which may result in tracking error. Also, some intraperiod mispricing may occur. Swaps require periodic payments, may be less liquid than futures, and may have counterparty/credit risk. Some investment strategies require a cash investment equal to the desired amount of exposure.

Parametric is headquartered at 800 5th Ave, Suite 2800, Seattle, WA 98104. Parametric's Minneapolis office is located at 3600 Minnesota Drive, Suite 325, Minneapolis, MN 55435. For more information regarding Parametric and its investment strategies, or to request a copy of Parametric's Form ADV, please contact us at 206.694.5575 (Seattle) or 952.767.7700 (Minneapolis), or visit www.parametricportfolio.com.

PIOS® Composite

Parametric Portfolio Associates LLC

PIOS Composite
Performance Presentation
As of December 31, 2019

Period	Returns: Total Gross Return AWR	Returns: Total Net Return AWR	Returns: Index	3 Yr. Annualized Standard Deviation: Composite	3 Yr. Annualized Standard Deviation: Index	Dispersion: Internal Equal Wtd.	Assets: Number of Portfolios *	Assets: Composite (MM) *	Assets: Total Firm (MM) *
2010	6.59%	6.43%	-	6.19%	-	7.20%	140	20,853	-
2011	2.80%	2.65%	-	5.53%	-	7.10%	188	19,771	-
2012	5.20%	5.04%	-	4.50%	-	5.22%	206	22,547	63,431
2013	4.81%	4.65%	-	3.54%	-	9.46%	215	30,045	80,896
2014	2.98%	2.83%	-	2.76%	-	6.11%	270	36,290	94,545
2015	-0.86%	-1.01%	-	2.82%	-	5.60%	333	43,711	99,248
2016	3.40%	3.24%	-	2.69%	-	8.53%	334	46,915	111,470
2017	9.03%	8.87%	-	2.97%	-	9.69%	335	45,026	137,760
2018	-2.86%	-3.01%	-	3.34%	-	5.17%	354	37,077	122,628
2019	8.72%	8.56%	-	3.69%	-	10.79%	381	47,378	287,828

** The composite was not included in the Firm Assets prior to 2012 as it was being managed by a prior firm.*

Index: None

Parametric Portfolio Associates® LLC is an independent investment advisor registered under the Investment Advisers Act of 1940. Parametric Portfolio Associates® LLC provides rules-based investment management services to institutional investors, individual clients and commingled investment vehicles, including Systematic Alpha and Income Strategies, Custom Core, Centralized Portfolio Management ("CPM"), Policy Implementation Overlay Service ("PIOS"), Customized Exposure Management ("CEM"), Volatility Risk Premium ("VRP"), and Systematic Alternative Risk Premia ("SARP"), Tax-Advantaged Bond Strategies (TABS), and Taxable Bond Strategies. The Firm has complied with the GIPS standards retroactive to January 1, 2000.

Prior to July 1, 2019, the firm included only the Parametric Investment & Overlay Strategies. On July 1, 2019, the firm was redefined to include the Parametric Custom Tax-Managed & Centralized Portfolio Management Strategies. On January 1, 2020, the firm was redefined to include the Tax-Advantaged Bond Strategies (TABS), and Taxable Bond Strategies previously managed by Eaton Vance Management, an investment affiliate of Parametric's parent company, Eaton Vance Corporation. For the purpose of complying with the GIPS standards, the Firm is defined and held out to the public as Parametric Portfolio Associates® LLC.

Parametric Portfolio Associates LLC claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. Parametric Portfolio Associates LLC has been independently verified for the periods January 1, 2000 to December 31, 2019. The verification report is available upon request.

Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. Verification does not ensure the accuracy of any specific composite presentation.

PIOS® Composite (Continued)

Parametric Portfolio Associates LLC

Composite creation date is December 2013.

This composite is not compared against a benchmark. There is no observable benchmark or index that exists with an objective similar to that of the strategy. It is not possible to directly invest in an index.

Derivative securities are used in the accounts which comprise this composite. The firm's strategies contain derivatives such as futures, options, swaps, and other investment strategies that may involve certain advantages and risks. Futures require the posting of initial and variation margin. Therefore, a portion of risk capital must be preserved for this purpose rather than being allocated to a manager. Swaps require periodic payments, which may be less liquid than futures, and certain swaps may have counterparty/credit risk. Some investment strategies may require a collateral investment equal to the desired amount of exposure.

Portfolio returns are calculated based on the sum of the daily gain/loss in the client account divided by the total portfolio value of the previous month end. The total portfolio value is the market value of the client's manager portfolios, as defined in the guidelines. The client account overlay target value at the prior month end is used for the composite asset weighted performance calculation.

Portfolio returns reflect the reinvestment of dividend and interest income.

Performance results are expressed in U.S. dollars.

Composite gross returns are after transaction costs and other direct expenses, but before management fees. Net returns reflect the deduction of model investment management fees, 0.15%. The fees for the investment management services herein are described in the fee schedule.

The separate account management fee schedule is as follows: First $50M @ 0.15%; Thereafter @ 0.10%.

The dispersion of annual returns is measured by equal-weighted standard deviation of portfolio returns within the composite for the full year.

Policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

A list of composite descriptions is available upon request.

Performance prior to January 2013 was achieved by the Clifton Group Investment Management prior to its merger with Parametric Portfolio Associates, LLC and has been linked to the performance history of Parametric Investment & Overlay Strategies. Performance results prior to January 2013 should not be interpreted as the actual historical performance of Parametric Investment & Overlay Strategies. Parametric Investment & Overlay Strategies has adhered to the performance record portability requirements of the GIPS standards in regard to the presentation and linking of this performance track record.

Past performance is not a guarantee of future results.