Fresno County Photo: Mt. Huxley

Aon Hewitt Investment Consulting

Fresno County Employees' Retirement Association
February 20, 2019

Empower Results®

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Topics For Today's Discussion

- Overview of Aon & Client Service Team
- Our Philosophy & Beliefs
- Asset Allocation & Asset-Liability Discussion
- Active Management
- Manager Selection
- Manager Monitoring
- Portfolio Design: AHIC's Initial Thoughts
- Q & A
- In Closing
- Appendix

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Overview of Aon & Client Service Team

About Aon

A Strong Portfolio of Businesses

HR Solutions

Aon
A Leading Global Institutional Advisor

- **Investment Consulting (AHIC)**
- Retirement/Actuarial Consulting
- Human Capital Consulting
- Executive and Broad-Based Compensation
- Total Rewards

Risk Solutions

Aon Risk Solutions

- Retail Brokerage
- Risk Assessment and Advisory
- Claims Advocacy and Administration
- Captive Management
- Affinity Programs
- Premium Finance
- Select Personal Lines
- Analytics and Technical Services
- Facultative Reinsurance
- Investment Banking
- Practice Groups
- Client Services
- Treaty Reinsurance

Working with Our Clients

Strategy. Implementation. Ongoing Governance.

Strategy: Pension Risk Management

Design investment strategy with consideration paid to current and future liabilities

Integrated asset-liability management solutions with dedicated resources

Maximize likelihood of achieving stated objectives

FCERA

AHIC Consulting Team

John Lee
Shane Schurter
Phil Kivarkis
Chae Hong
Steve Cummings

AHIC Experience, Resources, and Capabilities

Implementation: Research Leads to Results

154 person manager research staff across all asset classes[2]; Townsend brings additional depth

Demonstrated track record of public fund client performance

Leverage technology to support client initiatives

Ongoing Governance: A Proven Public Sector Partner

- Focused on client outcomes; tailored programs that meet FCERA's unique circumstances and needs
- Resources dedicated to operational due diligence, fiduciary services, and custodial services
- $1.5T[1] in public sector assets under advisement representing 70%[1] of our total client advisory base
- Average Client Satisfaction Score of 9/10[3]

[1] As of 6/30/2018, represents U.S. retainer non-discretionary assets
[2] As of 9/30/2018
[3] Source: Aon Client Conference Survey from September 25, 2019

Investment advice and consulting services provided by Aon Hewitt Investment Consulting, Inc., an Aon Company.

AON
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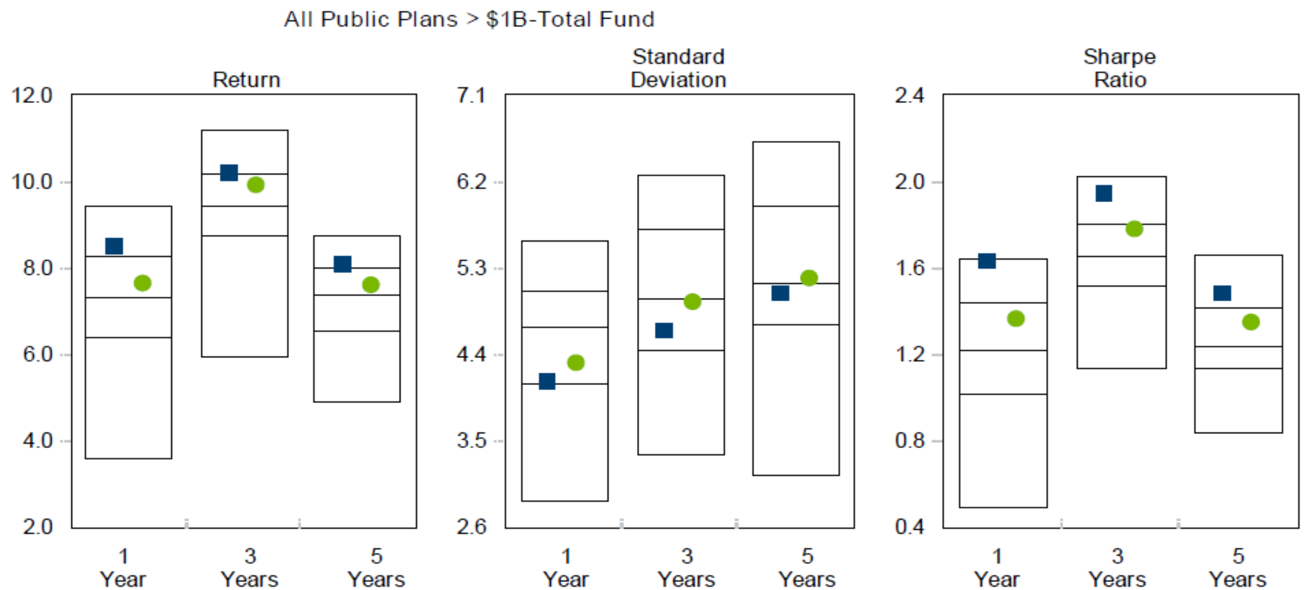
AHIC Public Fund Composite Overview

As of September 30, 2018



	Return 1 Year	Return 3 Years	Return 5 Years	Standard Deviation 1 Year	Standard Deviation 3 Years	Standard Deviation 5 Years	Sharpe Ratio 1 Year	Sharpe Ratio 3 Years	Sharpe Ratio 5 Years
■ AHIC Public Fund Composite	8.52 (20)	10.21 (25)	8.09 (22)	4.11 (75)	4.65 (66)	5.03 (64)	1.63 (6)	1.95 (10)	1.48 (17)
● AHIC Public Fund Weighted Benchmark	7.64 (41)	9.93 (33)	7.62 (35)	4.31 (68)	4.94 (53)	5.19 (49)	1.37 (38)	1.78 (28)	1.35 (31)
5th Percentile	9.46	11.21	8.73	5.58	6.27	6.62	1.65	2.03	1.66
1st Quartile	8.26	10.20	8.00	5.08	5.71	5.95	1.44	1.81	1.42
Median	7.31	9.46	7.39	4.67	4.97	5.13	1.22	1.66	1.24
3rd Quartile	6.37	8.73	6.57	4.10	4.46	4.71	1.02	1.52	1.14
95th Percentile	3.62	5.95	4.90	2.88	3.36	3.15	0.49	1.14	0.84
Population	96	91	88	96	91	88	96	91	88

PAST PERFORMANCE DOES NOT GUARANTEE FUTURE RESULTS. Future returns may differ significantly from past returns due to materially different economic and market conditions and other factors. Investments involve risk and the possibility of loss, including a permanent loss of principal. Returns for periods of less than 12 months are not annualized. Returns greater than 12 months are annualized unless otherwise indicated. Performance for each Plan's Total Fund Composite is available on AHIC's performance reporting system. The inception date represents when Plans included in the composite were transitioned to AHIC's new performance reporting system in October 2013. Please note that all plans included within the calculated composite are non-discretionary engagements with AHIC, and AHIC has no discretionary authority to manage the sub-adviser strategies or the amount of allocations within each portfolio. Further, all advice provided to each plan is performed on a customized basis, and there is no single investment strategy applied to any of the plans included within the calculated composite. The Plan's Total Fund Composite returns are reported net of investment management fees with some of the plans included in the Composite being presented net of investment management fees and additional fees (i.e., custody fees, overdraft fees, consulting fees, security loan fees, bank fees, and other misc. fees). See summary of the methodology used in the calculation of the composite on next page and see appendix for the composite disclaimer. Please refer to the next page for the AHIC Public Fund Weighted Benchmark and Public Fund Universe Definition. Parentheses contain percentile rankings. Calculation based on periodicity. Please see additional disclosures on slide 80.

AHIC Public Fund Composite Overview
As of September 30, 2018

Number of Clients in AHIC Public Fund Composite			
	1 Year	3 Years	Since Inception
Dates	Oct-2017 to Sep-2018	Oct-2015 to Sep-2018	Oct-2013 to Sep-2018
Min to Max # of Clients*	15 to 16	15 to 20	15 to 20

** Range represents the minimum to maximum number of clients included in the AHIC Public Fund Composite during the stated time period*

				Annual Results (%)			Composite Dispersion (%)				
Year End	Total Composite Assets (USD millions)	Average Composite Assets (USD millions)	Number of Clients	Composite Net Performance	Public Fund Weighted Benchmark	Peer Median Universe	High	Low	Composite 3 year Std. Dev.	Benchmark 3 Year Std. Dev.	Peer Universe 3 Year Std. Dev.
2017	685,922	42,870	16	16.42	15.77	15.56	19.76	5.69	5.27	5.55	5.57
2016	660,431	36,691	18	7.68	8.13	7.56	10.81	3.20	5.80	6.00	5.85
2015	580,898	30,574	19	0.66	-0.07	0.18	3.14	-1.80	N/A	N/A	N/A
2014	553,138	29,113	19	6.78	6.45	6.26	8.51	2.79	N/A	N/A	N/A

PAST PERFORMANCE DOES NOT GUARANTEE FUTURE RESULTS. Future returns may differ significantly from past returns due to materially different economic and market conditions and other factors. Investments within portfolios, and therefore, portfolios, involve risk and the possibility of loss, including a permanent loss of principal. Returns for periods of less than 12 months are not annualized. Returns greater than 12 months are annualized unless otherwise indicated. Performance for each Plan's Total Fund Composite is available on AHIC's performance reporting system. The inception date represents when Plans included in the Composite were transitioned to AHIC's new performance reporting system in October 2013. Please note that all plans included within the calculated composite are nondiscretionary engagements with AHIC, and AHIC has no discretionary authority to manage the sub-adviser strategies or the amount of allocations within each portfolio. Further, all advice provided to each plan is performed on a customized basis, and there is no single investment strategy applied to any of the plans included within the calculated composite. The Plan's Total Fund Composite returns are reported net of investment management fees with some of the plans included in the composite being presented net of investment management and additional fees (i.e., custody fees, overdraft fees, consulting fees, security loan fees, bank fees, and other misc. fees.

-The AHIC Public Fund Composite is calculated using the following methodology: (1) Performance for each Plan begins one year after becoming an AHIC client and after a full quarter of performance (2) The monthly returns of the AHIC Public Fund Composite are calculated by taking the weighted average of the underlying Plan's Total Fund Composite monthly return (3) Returns for periods longer than one year are geometrically linked and annualized (4) The U.S. dollar is the currency used to express performance. Please see appendix for composite disclaimer.

-The Aon Hewitt Investment Consulting (AHIC) Public Fund Composite includes public pension plans that meet the following criteria: (1) AHIC was the current or terminated non-discretionary consultant (2) Effective the date a client terminates AHIC, future performance for that terminated client is no longer included in the AHIC Public Fund Composite while Past Performance for that client will still be represented in the Composite (3) Every quarter, the AHIC Finance Group provides an updated list of public pension clients along with the date that AHIC was hired and/or terminated to ensure all current clients are included in the AHIC Public Fund Composite and all terminated clients are no longer included in the Composite after AHIC's termination date.(4) The pension plan needs to calculate monthly returns in order to be represented in the AHIC Public Fund composite.

-The AHIC Public Fund Weighted Benchmark is comprised of a weighted average of the Plans' Total Fund Benchmarks. The benchmark for each client included within the composite is selected by each individual client and represented as a blend of multiple benchmarks and based on a weighted average of the number of plans. The weighting of the average will change on quarterly basis.

-The Public Fund Universe consisting of 108 Public pension plans with assets greater than $1 billion. The Public Fund Universe has aggregate assets of $2.5 trillion with an average fund size of $23.1 billion compiled by BNY Mellon Performance & Risk Analytics and Investment Metrics as of 9/30/2018.

Please see additional disclosures on slide 80.

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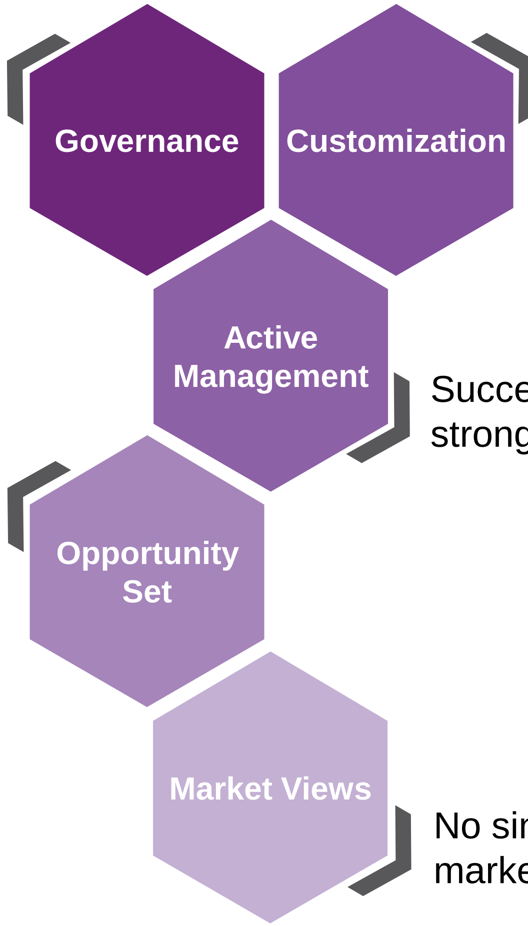
Our Philosophy & Beliefs

AHIC Global Investment Philosophy

Necessary condition for investment success

Client circumstances, objectives and risk tolerance



Success with active management requires strong conviction

Global opportunity set can improve efficiency

No single investment strategy is ideal in all market conditions

Portfolio Construction Beliefs

There is no single ideal portfolio; each pool of assets must be structured in relation to unique objectives, constraints and risk tolerance. Below we highlight the themes and key tenants that we believe should drive investment structure:

- **Gain exposure to the broad opportunity set across each asset class**
  - Eliminate un-intended structural biases
  - Recognize risks associated with structural biases and be comfortable with such risks
- **Pay little for beta**
  - Use active management for alpha; not diversification
- **Eliminate style-box approach to portfolio construction**
  - Style boxes are a rigid and artificial construct
- **Focus manager selection efforts on skill and not style**
  - Hire active managers that can add value regardless of their style and capitalization orientation
  - Allow managers with identifiable skill broad latitude to potentially add value
- **Use active risk budgeting as a risk control and allocation tool**
- **Seek to keep fees low**
  - higher fees do not translate to higher value-added

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Asset Allocation & Asset-Liability Discussion

FCERA's Glide Path

Asset Class	Current Q2 18	Q3 18	Q4 18	Q1 19	Q2 19	Q3 19	Q4 19	Q1 20	Q2 20	Q3 20	Q3 20	Q1 21	Q2 21	Target 9/30/2021
Domestic Equities	**17%**	**18%**	**18%**	**19%**	**19%**	**20%**	**21%**	**22%**	**22%**	**23%**	**23%**	**24%**	**24%**	**25%**
Large Cap	14%	15%	15%	15%	15%	16%	17%	17%	17%	18%	18%	19%	19%	20%
Small/Mid Cap	3%	3%	3%	4%	4%	4%	4%	5%	5%	5%	5%	5%	5%	5%
International Equities	**19%**	**19%**	**20%**	**20%**	**21%**	**21%**	**21%**	**21%**	**22%**	**22%**	**23%**	**23%**	**24%**	**24%**
International Large	9%	9%	10%	10%	12%	12%	12%	12%	13%	13%	14%	14%	15%	15%
International Small	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Emerging Markets	7%	7%	7%	7%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Total Public Equity	**36%**	**37%**	**38%**	**39%**	**40%**	**41%**	**42%**	**43%**	**44%**	**45%**	**46%**	**47%**	**48%**	**49%**
Fixed Income	**31%**	**30%**	**29%**	**28%**	**27%**	**27%**	**26%**	**25%**	**25%**	**25%**	**24%**	**23%**	**23%**	**23%**
US Credit Fixed Income	5%	5%	5%	5%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%
High Yield Fixed Income	5%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%	3%
Bank Loans	5%	5%	4%	4%	4%	4%	4%	3%	3%	3%	3%	3%	3%	3%
Global Sovereign	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Emg Markets Debt Local	5%	5%	5%	4%	4%	4%	4%	4%	4%	4%	3%	3%	3%	3%
TIPS	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	4%	3%	3%	3%
Real Assets	**11%**	**11%**	**11%**	**11%**	**11%**	**11%**	**11%**	**11%**	**10%**	**10%**	**10%**	**10%**	**9%**	**8%**
Commodities	3%	3%	3%	3%	3%	3%	3%	3%	2%	2%	2%	2%	1%	0%
Real Estate	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Infrastructure	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Alternative Investments	**22%**	**22%**	**22%**	**22%**	**22%**	**21%**	**21%**	**21%**	**21%**	**20%**	**20%**	**20%**	**20%**	**20%**
Hedge Funds	8%	8%	8%	8%	8%	7%	7%	7%	7%	6%	6%	6%	6%	6%
Private Equity	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%	6%
Private Credit	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Source: FCERA Investment Policy Statement dated 9/5/2018

Investment Strategy Development: Our Process

Timeline

The Asset-Liability process typically involves three phases

- Phase 1 -- Planning: consider the financial goals and objectives, portfolio constraints, liability profile, and assumptions for use in the study
- Phase 2 – Analysis: asset-liability projection analysis, where we evaluate risk/reward tradeoffs of a variety of strategies if so desired
- Phase 3 – Presentation: present these results to various decision-making bodies, so that they can make an informed decision regarding their investment policy

Driven by Objectives

Asset allocation is the single most important investment decision for the plan sponsor

- Which asset mix produces the desired expected return and cost profile for the retirement plan?
- How should we construct the return-seeking and risk-reducing portions of the portfolio?

Each client has different objectives and key concerns

- Align recommended solutions to the client's desired financial outcomes

Custom Solutions

Implement solutions which best address client's desired cost and risk profile

- Solutions are not one-size-fits-all
- Solutions tailored to each client's objectives and constraints
- Analysis which aids understanding of the situation, and informs the optimal approach which:
  - Meets the stated goals;
  - Is consistent with risk tolerance;
  - Is likely to meet liabilities effectively in the long run; and
  - Allows the client to manage its pension costs to the best extent possible

Executive Summary: Key Findings for FCERA

Current State Overview

- Pension plan is **79.7%**[1] funded on a market value of assets basis as of June 30, 2018
- **7.00%**[1] Actuarial Assumed Rate of Return
- Asset hurdle rate of **11.19%**, via cash funding and investment returns, needed to maintain or improve actuarial funded status

Asset Allocation

- **86%** return-seeking assets with 14% risk-reducing/safety assets to withstand stressed markets
- Current Policy has an expected return assumption of **7.09%** over the next 30 years[2]
- Current investment strategy may be enhanced with additional diversification[3]

Asset-Liability Projections

- Relative to the Current Policy, optimized asset allocations (in the 50th percentile outcomes) are expected to result in…
  - **2–4** fewer years to full funding
  - **2–4%** improvement in downside funded ratio

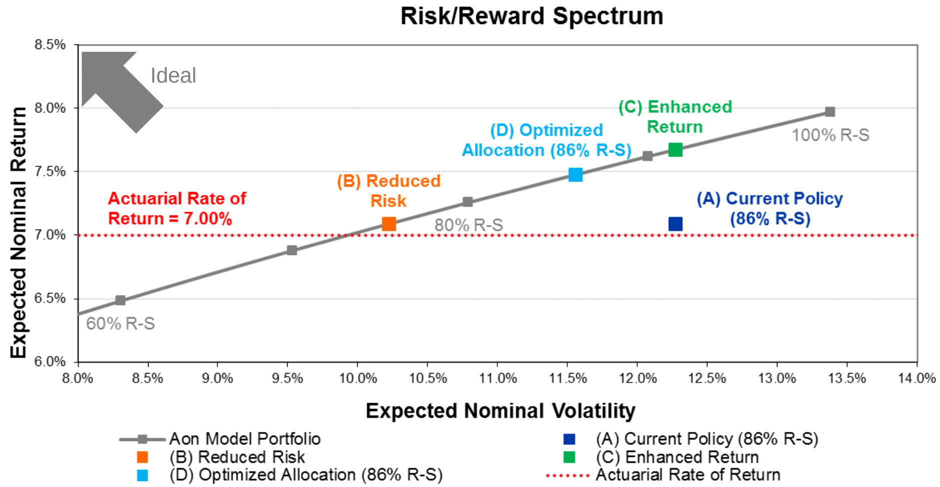
Liquidity

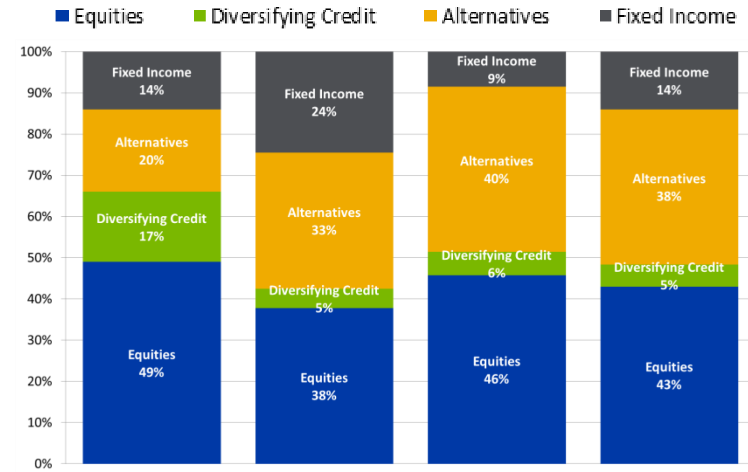
- Minimal liquidity concerns due to level of illiquid assets, actuarial contribution policy (using 15 year amortization), and cash outflows
- Potential to increase illiquid assets

[1] Current State Asset-Liability Profile based June 30, 2018 actuarial valuation report
[2] Expected returns based on AHIC's Q4 2018 30 year Capital Market Assumptions assuming the asset allocations illustrated above. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See pages 92-99 for the Capital Market Assumptions.
[3] Diversification does not ensure a profit nor does it protect against loss of principal. Diversification among investment options and asset classes may help to reduce overall volatility.

Preliminary Modeling: Portfolio Analysis

Optimization of Expected Return/Risk





Key Takeaways:

- Expected return from current investment policy is above the 7.00% actuarial assumed rate of return
- Current investment policy may be enhanced with additional diversification[7]

Asset Class	(A) Current Policy (86% R-S)[1]	(B) Reduced Risk[2]	(C) Enhanced Return[3]	(D) Optimized Allocation (86% R-S)[4]
30 Year Expected Return[5]	**7.09%**	**7.09%**	**7.67%**	**7.48%**
30 Year Expected Risk[5]	12.27%	10.22%	12.27%	11.56%
30 Year Sharpe Ratio[5]	0.3415	0.4099	0.3891	0.3960
Increase in 30 Year Expected Return (%)	**0.00%**	**0.00%**	**0.58%**	**0.39%**
Increase in 30 Year Expected Return ($)[6]	**$0**	**$0**	**$27,466,135**	**$18,239,234**

[1,2,3,4] See page 82 for portfolio builds

[5] Expected returns based on AHIC's Q4 2018 30 year Capital Market Assumptions assuming the asset allocations illustrated above. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See pages 92-99 for the Capital Market Assumptions.

[6] Increased dollars determined by market value of assets as of June 30, 2018 ($4,699.9 million)

Percentages in table may not sum to 100% due to rounding

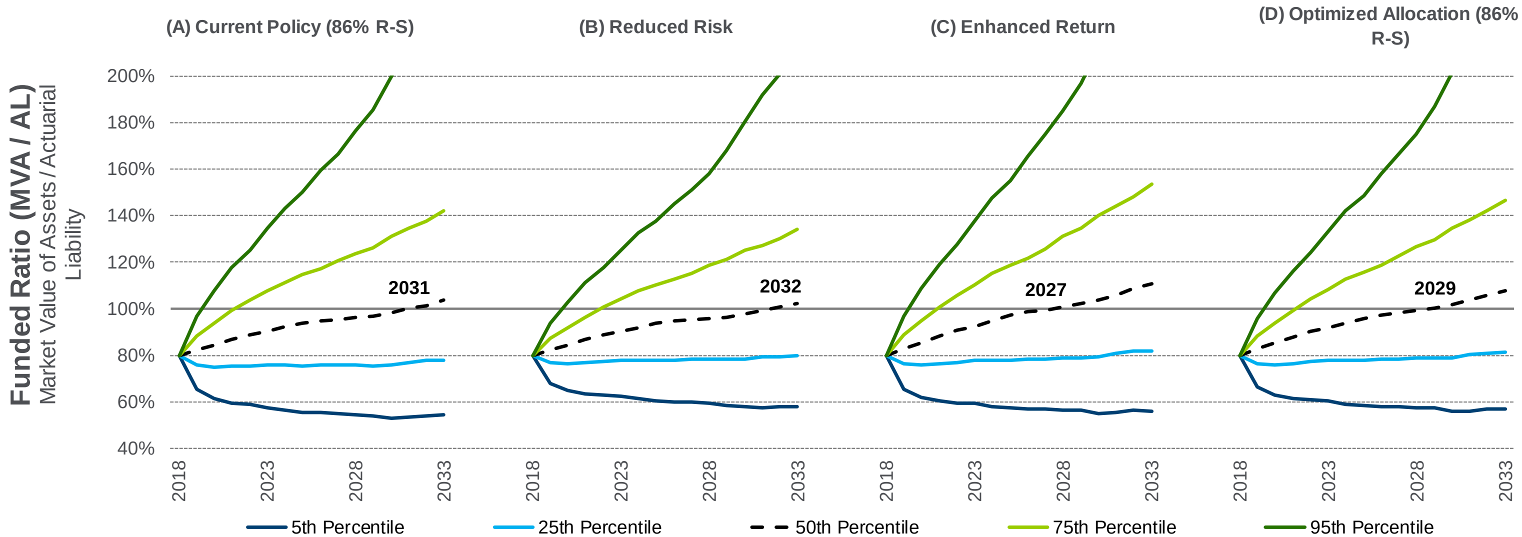
[7] Diversification does not ensure a profit nor does it protect against loss of principal. Diversification among investment options and asset classes may help to reduce overall volatility.

Preliminary Modeling: Projected Funded Ratios*

Fresno County Employees' Retirement Association

Funded Ratio Volatility Observation

Alternative portfolio designs may lead to reduction in time to full funding of 2-4 years, while improving downside funded ratios by 2-4%



Strategy	(A) Current Policy (86% R-S)			(B) Reduced Risk			(C) Enhanced Return			(D) Optimized Allocation (86% R-S)		
Year	2023	2028	2033	2023	2028	2033	2023	2028	2033	2023	2028	2033
5th Percentile	58%	54%	54%	62%	59%	58%	59%	56%	56%	60%	57%	57%
25th Percentile	76%	76%	78%	78%	78%	80%	78%	79%	82%	78%	79%	81%
50th Percentile	91%	96%	104%	90%	96%	102%	92%	101%	111%	92%	99%	108%
75th Percentile	108%	124%	142%	104%	119%	134%	110%	131%	154%	108%	127%	146%
95th Percentile	135%	177%	>200%	125%	158%	>200%	138%	185%	>200%	133%	175%	>200%
Probability > 100%	36%	47%	53%	33%	46%	53%	40%	51%	59%	37%	49%	57%

*Source for Current Policy is FCERA's investment policy statement. Actuarially-determined contributions were calculated based on estimates of the normal cost and an amortization of the unfunded actuarial accrued liability. The amortization assumed a new, layered 15-year base in each projection year. Amortizations were based on a level percent approach. The assets used in the contribution calculations reflect the smoothed, actuarial value of assets noted in the latest actuarial valuation report. Contributions made to the plan were assumed to be equal to the actuarially-determined contributions. Illustrative charts based on preliminary projections of market scenarios and combined plan circumstances. Not a guarantee of future results. Based on 5,000 simulation trials. Present values measured at 7.00%.

Summary and Conclusions

Fresno County Employees' Retirement Association

Portfolio Analysis

- Current investment policy may be enhanced with additional diversification*
- Options include: targeting higher returns for the same level of risk, or targeting lower levels of risk for similar expected return
- FCERA should consider its desired balance between funding and investment returns in order to determine the ideal investment portfolio

Asset-Liability Projection Analysis

- Longer time horizons tend to increase risk tolerance
- The funded ratio is projected to trend toward full funding over the course of the projection period
- Optimistic (or pessimistic) asset performance could lead to better (or worse) outcomes than the central expectation

Liquidity Primer

- Minimal liquidity concerns
- Potential to increase illiquid assets

* Diversification does not ensure a profit nor does it protect against loss of principal. Diversification among investment options and asset classes may help to reduce overall volatility.

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Active Management

AHIC's Current Investment Views

Market Transition Is Advancing

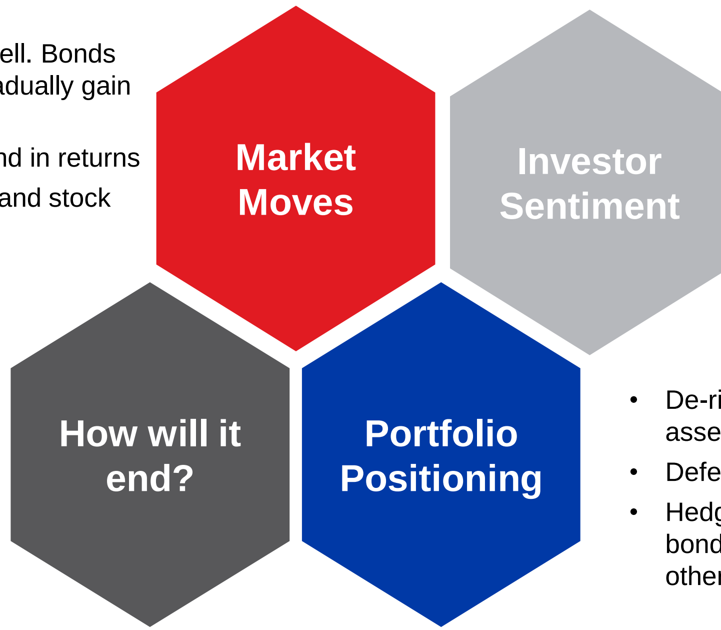
- ***Our view is that we are well advanced in a transition phase in global markets from a period where risky assets have outperformed bonds, to one where bonds will start outperforming on a more sustained basis***
- ***As we advance along this market path, views can change quickly***

Market Moves

- Risky assets perform less well. Bonds can also struggle but will gradually gain the upper hand
- More volatility, flattening trend in returns
- Market leadership at sector and stock level more changeable
- Drawdowns can be heavy

Investor Sentiment

- Markets nervous about end of cycle triggers
- Periods of optimism followed by pessimism become common



How will it end?

- Transition phase is likely to see more corrections
- Timing will depend on data flow and how quickly liquidity tightens
- Tightening financial conditions, trade conflicts or an unpredictable event could be the trigger

Portfolio Positioning

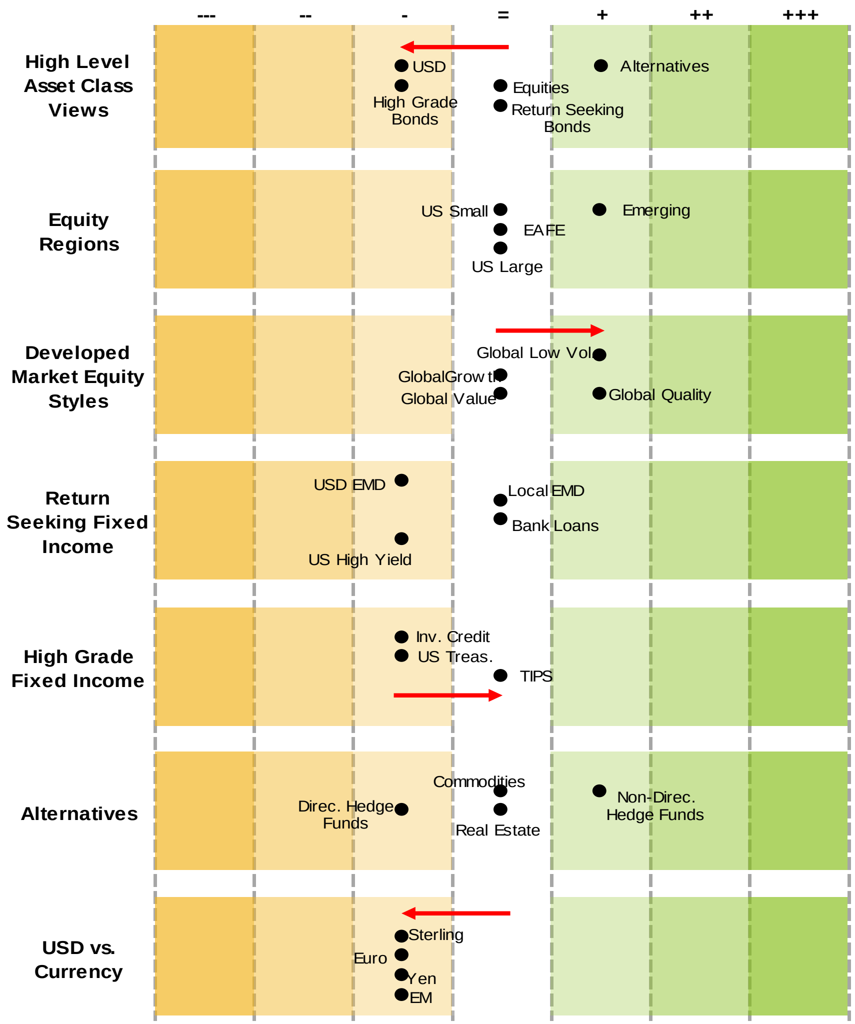
- De-risk where practical to more attractive assets
- Defense becomes more important
- Hedges for risk assets – long duration bonds, non-directional hedge funds, other hedges for equities and credit

* The opinions referenced are subject to change due to changes in the market or economic conditions and may not necessarily come to pass. Information contained herein is for informational purposes only.

AHIC's Medium-Term Views: 1 to 3 Year Time Horizon

Expresses our desired over/under weights relative to a diversified long-term strategic benchmark.

January 2019 Medium-Term Views (1/16/2019)



Changes and Actions

- Look to be reining back equity positions
- Alternatives offer some reasonable choices
- Constrain equity beta close to benchmark

- EM equity is still preferred
- We do not have a preference between US and non-US markets
- We still like valuations, but recognize that economic and market conditions are making it trickier to translate into performance

- We have introduced a small preference for low volatility equities
- Preference for quality orientated factors

- We maintain a negative stance on high yield bonds
- Neutral stance on bank loans
- Local EMD offers some benefit from a clawback of oversold EM currencies

- Credit spreads could easily move higher still
- Break-even inflation has improved TIPS relative valuations to nominal bonds

- Non-directional low correlation strategies, for example global macro and some CTA strategies, should be preferred for risk mitigation
- Rising interest rates pose some risk to real estate
- Rates are not quite high enough yet to be a major problem

- We think that the US$ rebound that we saw over 2018 may now be over
- EM currencies should recoup some recently lost ground

Spectrum of AHIC Model Portfolios
From Efficiency to Opportunity

- **Potential portfolio approaches range from simple and fee efficient, to sophisticated and opportunistic.**

	Efficiency	Portfolio 1	Portfolio 2	Opportunity	World Market Portfolio (WMP)
Equity	***60.0%***	***55.0%***	***55.0%***	***50.0%***	***40.4%***
Global Public Equity	60.0	50.0	35.0	25.0	36.0
Private Equity	--	5.0	10.0	15.0	3.7
Equity Insurance Risk Premium (EIRP)	--	--	5.0	5.0	--
Equity L/S HFs	--	--	5.0	5.0	0.8
Liquid Alternatives (Buy-List)	***--***	***10.0%***	***10.0%***	***10.0%***	***1.8***
Conservative	--	--	--	--	--
Aggressive	--	10.0	10.0	10.0	--
Return-Seeking Fixed Income	***8.0%***	***5.0%***	***5.0%***	***5.0%***	***5.5***
Multi-Asset Credit	8.0	5.0	2.5	--	5.5
Private Debt	--	--	2.5	5.0	--
Real Assets	***12.0%***	***10.0%***	***10.0%***	***15.0%***	***11.8***
Real Estate (core)	12.0	7.5	5.0	5.0	9.6
Real Estate (non-core)	--	2.5	2.5	5.0	
REITs	--	--	--	--	1.7
Commodities	--	--	--	--	0.1
Infrastructure/Farmland/Timberland	--	--	2.5	5.0	0.3
Opportunity	***n/a***	***0-10%***	***0-10%***	***0-10%***	***--***
Total Risk-Reducing	***20.0%***	***20.0%***	***20.0%***	***20.0%***	***40.5%***
Interm. Govt Bonds	10.0	5.0	5.0	5.0	20.3
Interm. Credit Bonds	10.0	15.0	15.0	15.0	20.3
Total Assets	***100%***	***100%***	***100%***	***100%***	***100%***

Manager Selection

AHIC's Global Investment Manager Research Capability

More than 150 dedicated research professionals covering traditional, emerging, and alternative strategies, including operational due diligence[1]

Liquid Investment Manager Research

Equities

- Global
- Regional
- Style
- Size

Fixed Income

- Government
- IG Credit
- Emerging Market Debt
- Absolute Return
- LDI
- Cash

Liquid Alternatives

- Direct Hedge Funds
- Fund of Hedge Funds
- Currency
- Commodities

Private Asset Manager Research

The Townsend Group[2]

Real Assets, Real Estate, Private Equity, Infrastructure

- Advisory Solutions
- Portfolio Management
- Investment Strategy & Underwriting

Cross asset class research on emerging, minority, and responsible investing managers and strategies

Operational Due Diligence

Offshore Analytical Support	Innovation Center Team	Support Staff

[1] Total combined research staff as of 9/30/2018. Offshore, Innovation, and Support staff provide additional support. Some team members have cross team responsibilities or reporting lines outside the manager research function, includes AHIC and its global Aon affiliates.

[2] As of 9/30/2018 all Aon's real estate and private equity teams align from a collaboration and leadership perspective under The Townsend Group. Legacy AHIC colleagues that report to The Townsend Group maintain a supervisory relationship to AHIC through Aon's global CIO as they are part of AHIC's registered investment advisor.

Real Estate/Real Asset Expertise
The Townsend Group

Strong track record

- 30+ years of quantitative and qualitative performance data[1]
- 3,500+ active client positions[1]

Respected capital partner

- Record of securing deals from third-party managers
- Aggregated capital invested to potentially drive lower fees
- Flexibility to partner on joint ventures and co-investments

Rigorous manager selection

- 2,000+ real asset managers tracked
- 350+ partner meetings per year

Source: The Townsend Group, an Aon Company
[1]As of June 30, 2017

Manager Selection / Search Sample Roadmap

Sample Investment Thesis

Excess Return
- Outperform policy benchmark by 1% annualized
- Utilize various types of investment strategies with uncorrelated returns

Diversification
- Focus on downside diversification*
- Low equity beta (<0.3)

Fees
- Create a portfolio that will deliver excess returns at a reasonable fee

Liquidity
- Ability to liquidate 5% of the portfolio quarterly and 25% annually

Vehicle Fit
- Investment vehicles appropriate for a $150-250 million portfolio

Investment Horizon
- ~40% of the portfolio has a dollar-weighted investment horizon of less than five years

Portfolio Structure Comparisons
- Current Approach
- Low Cost / High Liquidity
- Suitable Ideas

Sample Timeline[1]
- **January**: Define objectives and review current managers
- **February**: Discuss gap analysis and potential top-down changes to the investment structure
- **March**: Present short-list of managers
- **April**: Present final manager structure

* Diversification does not ensure a profit nor does it protect against loss of principal. Diversification among investment options and asset classes may help to reduce overall volatility.

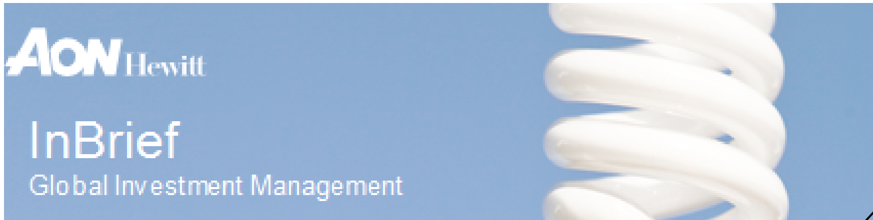
For illustrative purposes only.

[1] Timeline and number of meetings will be tailored to client needs.

Manager Monitoring

Empower Results®

Manager Research: Sample InBrief Manager Review



Manager ABC | **Strategy XYZ**

Review Date	Overall Rating	Previous Rating
October 2014	Buy	No Change

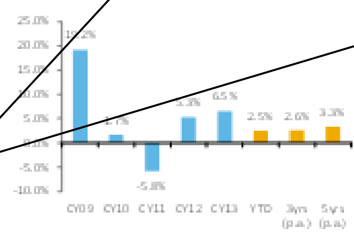
Overall Rating

The manager employs a fundamental, bottom-up investment approach and seeks to invest in companies with long-term earnings and cash flow growth prospects that are selling at attractive prices. The Fund is managed by an experienced portfolio manager, which is supported by well-resourced, high-quality industry research analysts. Analysts construct detailed financial models and conduct extensive company management visits across the value chain.

Component Ratings

Overall Rating	BUY		
	Rating	Previous Rating	Quantitative Review
Business	4	No Change	✓
Staff	4	No Change	✓
Process	3	No Change	✓
Risk	3	No Change	✓
ODD	Pass	No Change	-
Performance	3	No Change	✓
T&C	3	No Change	✓

Relative Performance to Sep 30, 2014



Composite performance (USD) is gross of fees relative to MSCI World-ND. CY = calendar year. Source: eVestment

Firm Summary

Head Office Location	London, UK	Parent Name	100% employee owned
Firm AUM	$100.0 billion	Investment Staff	100
Equity AUM	$100.0 billion	Equity Staff	100

Strategy Characteristics

Team Location	London, UK	Team Head	Joe Smith
Strategy Inception	January 200	Strategy Size	$10.0 billion
Number of Holdings	200 - 400	Annual Turnover	15 - 25%
Benchmark	MSCI World Index		
Performance Objective	2% p.a. outperformance over a full market cycle		
Risk Tolerance Target	3-8% p.a. tracking error range		

Note: AUM and Staff data as of September 30, 2014.

Component Ratings

Overall Rating	BUY		
	Rating	Previous Rating	Quantitative Review
Business	4	*No Change*	✓
Staff	4	*No Change*	✓
Process	3	*No Change*	✓
Risk	3	*No Change*	✓
ODD	Pass	*No Change*	-
Performance	3	*No Change*	✓
T&C	3	*No Change*	✓

Key to symbols

The below provides a description of the outcome from our quantitative review.

Rating

✓	**Pass**: This component in isolation meets our criteria for acceptability
!	**Concern**: This component in isolation does not meet our criteria for acceptability, or the lack of data on this component means that we are not able to judge whether it meets our criteria for acceptability
-	**Not assessed**: Lack of data means that we are not able to assess this component, however we do not consider this in isolation to be a concern

* Screenshots for illustrative purposes only.

Manager Research: Detailed InForm Assessment

- Useful monitoring information on managers' progress across a range of factors

Quantitative Review

Business (✓)	Value	Current Quarter
Employee Ownership	14.0%	!
Last Change of Ownership	September 2001	✓
Institutional Client Base (Product)	97.7%	✓
Firm Net Asset Flow	-$934.5 million	!
Firm Gross Asset Flow	-12.5%	✓
Product Gross Asset Flow	-0.9%	✓
Product Importance to Firm	18.7%	✓
Asset class Importance to Firm	88.3%	✓

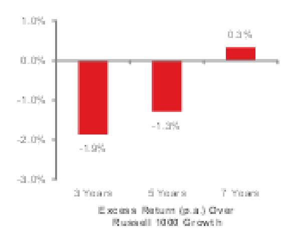
Investment Staff (✓)	Value	Current Quarter
Team Size	Portfolio Manager(s): 2 Analyst(s): 5 Trader(s): 3	!
Staff Turnover	Portfolio Manager(s): 50.0% Analyst(s): 20.0% Trader(s): 0.0%	!
Experience	Portfolio Manager(s): 24 years Analyst(s): 17 years Trader(s): 25 years	✓

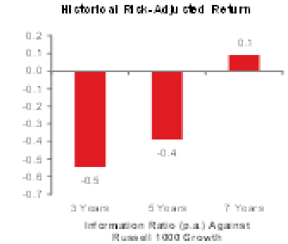
Investment Process (!)	Value	Current Quarter
Active Risk / Tracking Error	3.4%	!
Investment Process Consistency	21.1	!
Style Consistency - Market Capitalization	$52.9 billion	✓
Style Consistency - Value (Price-to-Book)	3.6	!
Cash Allocation	---	-

Risk Management (✓)	Value	Current Quarter
Maximum Drawdown	5.4%	!
Downside Capture Volatility	5.1%	✓

Quantitative Review [continued]

Performance Analysis (✓)	Value	Current Quarter
Excess Return	0.3%	✓
Risk Adjusted Return	0.1	✓
Consistency of Outperformance vs Benchmark	70.0%	✓
Consistency of Outperformance vs Peers	52.5%	!





Source: eVestment

Terms & Conditions (!)	Value	Current Quarter
Management Fee	64 bps	!

*Operations**	
Is the firm affiliated with a Broker/Dealer?	No
GIPS (Global Investment Performance Standards) Compliant?	Yes
Errors & Omissions Insurance?	Yes
Fiduciary Liability Insurance?	Yes

Note: The quantitative review is based on data as of September 30, 2014 (obtained on November 05, 2014 from eVestment) unless stated differently. Product data completion is 95.5% and peer group average data completion is 50.8%. Changes in manager or peer group data completion may impact the outcome for the quantitative review. *The output to the questions above is self-reported by the manager and obtained through eVestment and is provided for informational purposes only.

* Screenshots for illustrative purposes only.

Operational Due Diligence: Overview

Our Operational Due Diligence (ODD) process is a multi-faceted review of:

- ✓ Written responses from the manager to questionnaires or individual questions
- ✓ Review of supporting documentation provided by manager
- ✓ Interviews with manager personnel, whether in person or via teleconference
- ✓ Interviews with manager's key service providers, whether in person or via teleconference; and
- ✓ Demonstrations of select operational processes

Team of specialists responsible for ODD:

- ODD team of 21 based in London, New York, Chicago, Denver and Bangalore*
- Experienced, senior professionals
- Core ODD team supported by data gathering and processing team

Global Operational Due Diligence Key Responsibilities:

- All new managers and/or products reviewed by dedicated core ODD team
- ODD team has authority to veto investments based on operational risk concerns via ODD "Fail" rating
- On-going operational monitoring program under development

* Includes 5 India ODD team members.

Operational Due Diligence Scope

Core Topics	Areas of Review	
Corporate and Organizational Structure	▪ Corporate Structure – control, decision making, and oversight ▪ Organizational Structure – segregation of duties and staffing adequacy/competency	▪ Key person exposure and succession planning ▪ Employee Retention and Turnover ▪ Background checks
Trade/Transaction Execution	▪ Broker/counterparty selection ▪ Pre-trade compliance	▪ Trade controls ▪ Allocations
Middle/Back Office and Valuation	▪ Trade confirmation ▪ Reconciliation ▪ Cash controls	▪ Collateral administration ▪ Valuation ▪ Book of record and shadow accounting
Investment and Counterparty Risk Oversight	▪ Investment Risk Program – oversight and control ▪ Counterparty Risk – oversight and control	▪ Leverage Use – oversight and control
Compliance and Audit/Testing	▪ Compliance program – Adequacy and staffing ▪ Policies and procedures ▪ Conflicts of interest ▪ Operational Risk – Oversight of non-investment risks	▪ Regulation – Registration history and regulatory or legal proceedings ▪ Controls testing program – Range and implementation
Technology and BC/DR	▪ Technology Infrastructure – Hardware and application ▪ Technology and Physical Security ▪ Change Management – New installs and upgrades	▪ Disaster Recovery – Technology capabilities ▪ Business Continuity – Employee training
Key Service Providers	▪ Selection and Monitoring processes and procedures	▪ Administrator, Audit, Legal, IT, Custodian, Compliance Consultant, Valuation Agents
Fund Structure and Administration (if applicable)	▪ Accounting and administration ▪ Governance and oversight ▪ Audit and tax	▪ Reporting ▪ Cash controls ▪ Custody of assets

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Portfolio Design: AHIC's Initial Thoughts

FCERA Investment Program: AHIC's Initial Thoughts/Considerations

Below we provide considerations for FCERA's investment structure

Consideration / Thoughts	Rationale / Benefit
Diversify away from "traditional" equity risk	Equity risk is the dominant "risk factor" in FCERA's portfolio. It is expected that equity returns will moderate going forward. This is an opportune time to allocate to alternative investments and/or consider "non-traditional" equity exposure (e.g., factor investing and equity insurance risk premium).
Take advantage of the ability to allocate to less liquid assets	Our liquidity analysis (contained in this presentation) indicates that FCERA may have room to allocate to less liquid investments.
Allocate more to passive investments within the equity portfolio	Reduce the risk budget within equities; seek excess return in other areas of the market (e.g., alternatives) where the chance for success is greater.
Create an Opportunity Allocation	Not all good investment ideas fit neatly into FCERA's existing asset allocation framework; having a dedicated allocation for interesting investment opportunities addresses this problem.
Evaluate current Real Assets structure	Leverage Townsend resources to bring "best thinking" implementation to FCERA's portfolio.

In Closing

Why AHIC

Strategy. Implementation. Ongoing Governance.

Why AHIC

- **Experienced, Tenured Consulting Team**
- **Deep Experience with Public Plans**
- **Depth and Breadth of Research Resources**
- **Integrated Asset-Liability Tools & Expertise**
- **Advice and Execution**

Q & A

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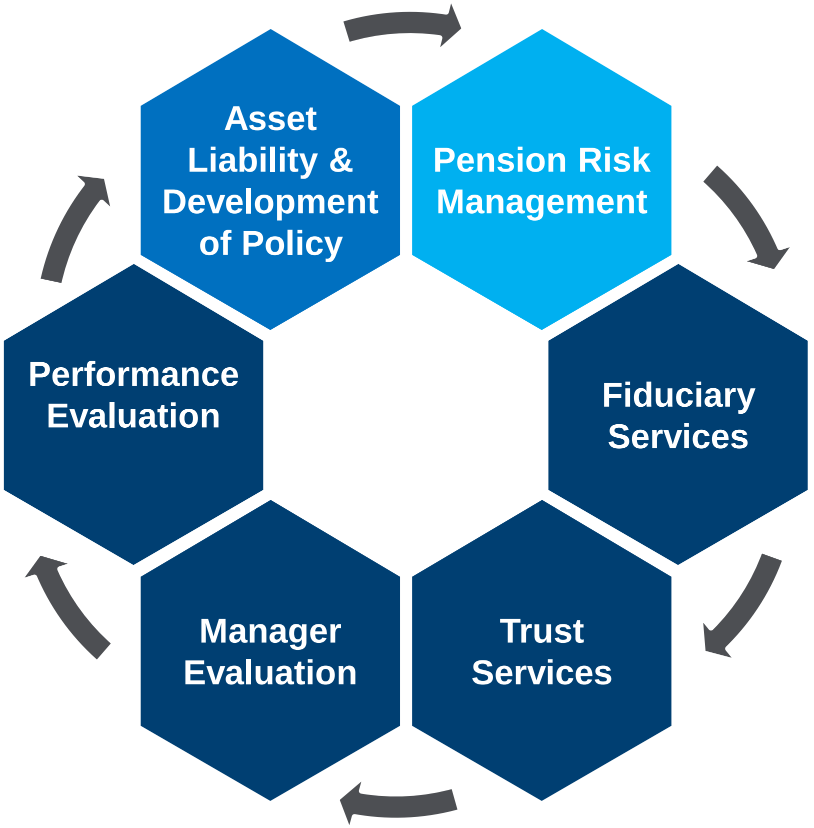
Appendix

- Risk Management

Risk Management Services Overview



Risk Management

Services

- Portfolio construction and structure
- Risk budgeting, risk factor decomposition, and rebalancing analysis
- Appropriate benchmarks to use
- Custom analytical tools/models

Experience

- Over 70 risk budgeting analyses performed in 2018

Risk Management
Spectrum of Investment Risks

- **Assets Do Not Support Liabilities**
  - **Liabilities Do Not Behave as Expected**
  - **Assets Do Not Behave as Expected**
    - **External Risks**
      - Markets (Fail to achieve expected returns)
        - Returns
        - Volatility
        - Correlation of Assets
        - Correlation with Liabilities
      - Legislated Actions
      - Inherent Risk
        - Capital Risk
        - Credit Risk
        - Inflation Risk
        - Interest Rate Risk
        - Liquidity Risk
        - Market Risk
    - **Internal Risks**
      - **Strategic Risks**
        - Active Management
        - Style Over/Under Weights
        - Market Cap Over/Under Weights
        - Sector Over/Under Weights
        - Additional Asset Types
        - Benchmark Misfit
        - Index Selection
      - **Poor Governance**
        - Integrity and Ethical Values
        - Competence
        - Board of Directors
        - Organizational Structure
        - Assignment of Authority and Responsibility
      - **Implementation Risks**
        - **Tactical**
          - Portfolio Drift
          - Under Performance
        - **Operational**
          - External Managers
          - Custodial Banks
          - Internal Operations
            - Internal Asset Management
            - Cash Management
            - Operating Systems

Source: Public Pension Systems: Statements of Key Investment Risks and Common Practices to Address Those Risks (Endorsed by APPFA, NASRA, NCTR, and GFOA)

Risk Management
Observations and Philosophy

Our Observations About Risk

- Risk comes in many forms, although we tend to focus on "traditional" investment risk metrics
  - Risks stemming from governance-related issues are equally important (yet typically less discussed)
- No risk model can predict the future and even the best risk measures have limitations
  - Awareness of these limitations can help investors avoid common pitfalls
- Private asset classes can defy quantitative risk management—that in itself is part of their risk
- Asset allocation will drive the vast majority of risk for most investors
  - Diversification can reduce but not eliminate equity risk concentration*
- Misfit (style) risk is often over-managed in traditional asset classes
  - Accept misfit risk if a byproduct of high-conviction active portfolios
- Pure active risk is a minor contributor to overall risk of most programs
  - Most significant concerns are short-term unexpected events, long-term disappointment, cost drag and headline risk

Our Philosophy: Help enable clients to get compensated for, or minimize, risks in their investment program

* Diversification does not ensure a profit nor does it protect against loss of principal. Diversification among investment options and asset classes may help to reduce overall volatility.

Risk Management: Key Risks for Public Pension Plans

Types of Risk	Time Horizon	Risk Management Tools and Controls
Return Shortfall ▪ Assets do not grow with liabilities ▪ Investment Return & Contribution less than Liability Growth	Long Term (10+ years)	▪ Funding Policy ▪ Plan Design ▪ Investment Policy (Dynamic?) ▪ Assumptions & Methods
Liquidity ▪ Cannot liquidate assets efficiently to meet needs ▪ Lost control of asset allocation	Short to Medium Term (<5 years)	▪ Funding Policy ▪ Benefit Accruals ▪ Use of Illiquid Investments ▪ Scenario Analysis ▪ Monitoring
Investment ▪ Asset Allocation (Policy) ▪ Investment Structure ▪ Manager Selection ▪ Rebalancing ▪ Scenario (or Path Risk) ▪ Factor	Short to Medium Term (<5 years)	▪ Investment Policy Statement – Static/Dynamic – Asset Allocation – Rebalancing – Manager Guidelines – Monitoring/Roles & Responsibilities ▪ Risk Budgeting Tools ▪ Monitoring / Dashboards ▪ Medium Term Views ▪ Regression and Scenario Analysis
Others (e.g., Operational)	Ongoing	▪ Operational and Specialty Due Diligence

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Appendix

- Fiduciary Services Capabilities

Overview of Fiduciary Services Practice

Solution

- AHIC's Fiduciary Service ("FS") practice provides reviews designed to identify, prevent or mitigate fiduciary risk – may be comprehensive or limited in nature.
- Plan Fiduciaries are judged by the prudence of their process; so, FS helps boards and committee's to assess, document, and enhance the policies and practices and help ensure they align.
- A significant focus of Fiduciary Services is an organization's governance, meaning how fiduciaries exercise their authority; including the decision-making framework, and how decisions and processes are documented, implemented and monitored.
- Fiduciary Services routinely compares an organization's practices to industry common and best practices.
- 6 major services :
  - Fiduciary Reviews
  - Governance Diagnostic
  - Fiduciary and/or Governance Training
  - Policy Development
  - Strategic Planning
  - Self-assessments

Our Success

- AHIC has a dedicated team in the Fiduciary Services practice that provides services beyond traditional investment consulting. It's a differentiator for AHIC.
- Have successfully conducted fiduciary reviews across dozens of organizations.

Benefits of Fiduciary Service

- Findings and recommendations are based upon informed, independent, objective judgment of recognized industry professionals
- The breadth and depth of the scope of service for a project is dictated by the client
- Tangible and intangible benefits often include: cost savings, adoption of "good governance" practices, enhanced stakeholder confidence, risk mitigation, knowledge of common and best practices*

Ideal Client Characteristics

- Proactive plans, that understand the benefits and seek to implement "good governance"
- Plans under attack
- Plans that want to know the common and best practice
- Documentation update
- Recent board or staff changes
- Buyers: Oversight entities; public and private DB and/or DC plans, investment trusts, endowments, and foundations

*"Good Governance Adds Value", a study published by Rotman International Journal of Pension Management, found that better governed pension funds outperformed poorly governed funds by 2.4% per annum during the 4-year period ending 12/2003.

Symptoms and Opportunities Indicating the Need for Fiduciary Services

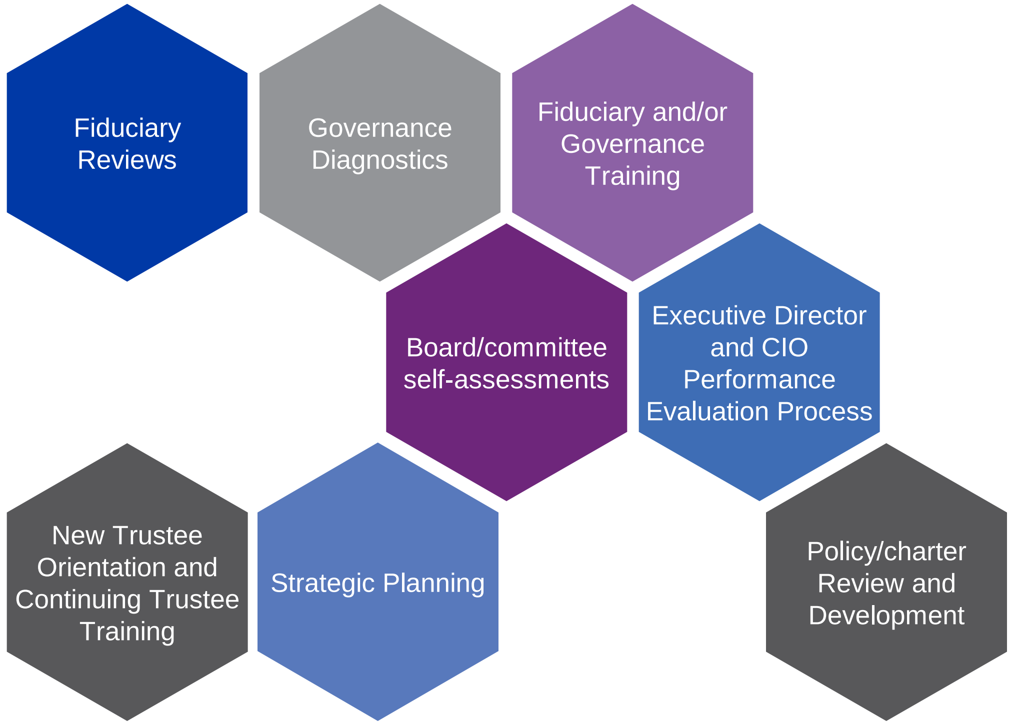
From time-to-time, our traditional investment consulting clients may benefit from receiving services provided by the Fiduciary Services Practice. The following are “symptoms” that may indicate the possible need for clients to engage in governance work and “opportunities” that may address the symptoms.

Symptoms

- Uncertainty or no understanding of fiduciary responsibility
- Putting social and political agendas before the interest of participants
- Overly involved or disengaged board and need to determine if board is functioning effectively and efficiently
- Ethical or conflict of interest issues
- Documentation is lacking, outdated, or does not align with practice
- Absence of internal controls; Lack of compliance reporting processes
- Confusion as to who has the authority to do something or confusion regarding duties
- Organizational changes – new members, new key staff, change in responsibilities
- Need to review investment program and/or benefits administration
- Lack of confidence
- Desire of the Board/Committee or Staff to know how they compare to common and best practice
- Absence of mission statements, core values, goals, objectives, strategies, action plans, performance measurements, and progress reports
- Need to evaluate the job performance of the ED or CIO
- Delays in decision-making

Symptoms and Opportunities Indicating the Need for Fiduciary Services

Opportunities



Fiduciary Review Scope of Work – Typical Broad Task Areas

- Governance
  - Legal Structure
  - Clarity of Framework
  - Level of Independence
  - Authority Retained & Delegated
  - Transparency & Accountability
- Organizational Structure
- Staffing - Size, Roles, and Compensation
- Investments
  - Investment Policy
  - Asset Allocation
  - Documentation of Decisions
  - Due Diligence
  - Performance
  - Benchmarks
  - Fees and Costs
  - Compliance
- Review of Policies
- Risk Management
- Internal Controls
- Relationship with Service Providers
  - Trust and Custody Services
  - Investment Consultants
  - Actuary
  - Legal Services (Internal and External)
- Brokerage and Trading Practices
- Adequacy of Trustee and Management Staff Training

Potential Benefits of a Fiduciary Review

- Understand how the organization's practices compares to peers.
- Find a potential problem before it becomes an issue or major problem
- Identification of developing trends and technologies that may help improve operations
- Identifying and installing "Best Practices"
- Educate and empower the board and staff
- Mitigate Risk – investment risk and fiduciary risk
- Reduce fees and expenses
- Enhance returns
- Enhancing the knowledge/comfort levels of beneficiaries and participants, stakeholders, trustees, staff and oversight bodies.

Appendix

- Selected Aon Buy-Rated Strategy Results

- **Prepared For:** Fresno County Employees' Retirement Association
- **Delivery Date:** February 20, 2019

Gross of Fees Buy-Rated Strategy Results (as of 6/30/2018)
Model Performance

Strategy	1 Year Excess Return	3 Years Excess Return	5 Years Excess Return	10 Years Excess Return	Since Inception Excess Return	Since Inception Months
Total U.S. Equity Large Cap	0.78%	0.35%	0.39%	-0.36%	0.40%	1/1/2001
Russel 1000 Index						
Total U.S. Equity Mid Cap	2.09%	0.76%	0.80%	N/A	0.17%	1/1/2010
Russell MidCap Index						
Total U.S. Equity Small Cap	-0.05%	-0.18%	-0.33%	0.25%	0.62%	1/1/2002
Russell 2000 Index						
International Equity	-0.01%	0.94%	1.38%	2.23%	1.18%	1/1/2001
MSCI ACW ex-U.S. Index (Net)						
Emerging Equity Markets	-1.60%	0.68%	0.42%	1.73%	1.69%	4/1/2007
MSCI EM Index (Net)						
Global Equity	1.31%	1.98%	2.06%	2.15%	3.01%	7/1/2002
MSCI ACWI Index (Net)						

Source: Aon, fund managers, eVestment
Data: USD (net)
See following slides for benchmark descriptions

Hypothetical Composite Performance Disclosure: The returns presented for the buy-list results represent model performance for Aon's buy-rated investment strategies for the asset class(es) as shown. These investment strategies are managed by external investment advisers and not Aon. The investment strategies included in the model performance are subject to change without notice due to the changing nature of Aon's manager research. Model performance is purely hypothetical, cannot be invested in, and is shown only for illustrative purposes; returns do not reflect the performance of an actual account. Model performance has inherent limitations. The model performance does not reflect the impact of material economic and market factors that would be experienced if actual client assets were being managed. While model performance may have performed better than the associated benchmark for some or all of the time periods shown, the future performance may not be as favorable relative to the benchmark in the future. Please refer to the Appendix disclosures for additional details.

Gross of Fees Buy-Rated Strategy Results (as of 6/30/2018) Model Performance

Strategy	1 Year Excess Return	3 Years Excess Return	5 Years Excess Return	10 Years Excess Return	Since Inception Excess Return	Since Inception Months
Global Aggregate	0.1%	0.4%	0.0%	0.4%	0.3%	1/1/2001
Blmbg. Barc. Global Aggregate Index						
US Fixed Income	0.7%	0.9%	0.8%	N/A	1.6%	1/1/2008
Blmbg. Barc. US Agg Index						
US Core	0.4%	0.5%	0.6%	0.8%	0.7%	1/1/2008
Blmbg. Barc. US Agg Index						
US Core Plus	0.9%	1.1%	1.1%	1.9%	1.6%	1/1/2008
Blmbg. Barc. US Agg Index						
US Long Credit	0.4%	0.4%	0.6%	N/A	0.7%	9/1/2010
Blended Benchmark						
US Long Gov/Credit	0.2%	0.4%	0.4%	N/A	0.7%	9/1/2010
Blmbg. Barc. Long Govt/Credit Index						
US High Yield	0.0%	-0.3%	0.0%	N/A	0.1%	1/1/2011
Blended Benchmark						

Source: Aon, fund managers, eVestment
Data: USD (net)
See following slides for benchmark descriptions

Hypothetical Composite Performance Disclosure: The returns presented for the buy-list results represent model performance for Aon's buy-rated investment strategies for the asset class(es) as shown. These investment strategies are managed by external investment advisers and not Aon. The investment strategies included in the model performance are subject to change without notice due to the changing nature of Aon's manager research. Model performance is purely hypothetical, cannot be invested in, and is shown only for illustrative purposes; returns do not reflect the performance of an actual account. Model performance has inherent limitations. The model performance does not reflect the impact of material economic and market factors that would be experienced if actual client assets were being managed. While model performance may have performed better than the associated benchmark for some or all of the time periods shown, the future performance may not be as favorable relative to the benchmark in the future. Please refer to the Appendix disclosures for additional details.

Appendix: Gross of Fees Buy-Rated Returns Composite Disclosures

The model returns presented herein for the Buy-list results represent hypothetical, model performance for AHIC's buy-rated investment strategies across asset classes, which has been derived from the application of a model. These models do not represent the returns of an actual client account, they are intended to be illustrative and they cannot be invested in by any person. AHIC's buy-rated investment strategies are managed by third-party investment advisers ("managers") and not AHIC. Further, the investment strategies included in the model performance are subject to change without notice. Model performance has inherent limitations. Model performance is not necessarily indicative of future results, and there can be no assurance that AHIC will achieve comparable results or that such model returns will be realized. Please see below for additional details on the methodology used in the development of this model portfolio performance.

The model performance does not reflect the impact of material economic and market factors that would be experienced if actual client assets were being managed. Any change to the assumptions, however minor, will alter the outcome. While model performance may have performed better than the associated benchmark identified in the presentation for some or all of the time periods shown, the future performance may not be as favorable relative to the benchmark in the future. Further, the model portfolio does not reflect the impact of market volatility compared to the volatility of the index which is materially different from that of the model portfolio. The gross model performance results portrayed may or may not reflect the reinvestment of dividends and other earnings from the underlying third-party managers' strategies. The performance information of the underlying third-party managers' strategies used in the model portfolio is obtained either through a third party service provider, eVestment, which does not have a standard reporting requirement from managers on whether the performance reflect the reinvestment of dividends and other earnings, or directly from the investment manager.

The model performance is presented on a "gross" basis and does not take into account any AHIC advisory fees, taxes, brokerage commissions, custodial fees, or other expenses that may be borne by a client, which will reduce returns and in the aggregate are expected to be substantial. Any actual return experienced will be reduced by the advisory fees and other expenses you may incur as a client. Actual underlying third party manager's fees may vary and schedules of such fees are available upon request.

Your actual returns will be reduced by your advisory fees and other expenses you may incur as a client. AHIC's advisory fees are described in Part 2A of AHIC's Form ADV. As an example of the impact of advisory fees compounded over time, a portfolio worth an initial value of $10 million, invested over a five-year period and returns 8% per year and charged a 0.45% annual advisory fee would be worth $14,693,281 before advisory fees and $14,370,454 after the deduction of advisory fees.

Appendix: Gross of Fees Buy-Rated Returns Composite Disclosures

Investors should note that the terms and assumptions used in preparing the model returns may not be consistent with the terms, investment strategy or investment objectives of the investors; therefore, the model performance should not be construed as a performance expectation for any actual account. A client's account would not be structured to include all the buy-rated investment strategies included in the asset class or sub-asset class model performance. The model portfolio does not represent a strategy or advisory services currently or previously offered by AHIC. An actual account will vary significantly from the model performance as the account is customized based on a client's investment objective; therefore, the actual composition and performance of the account will differ from those of the model portfolio due to the client's risk budget, experienced market conditions, manager selection, and asset allocation decisions. There can be no assurance that an investment mix or any model performance shown will lead to the expected results shown or perform in any predictable manner. Aon Hewitt, AHIC, or AHIM do not guarantee any minimum level of investment performance or the success of any portfolio or investment strategy. All investment involves risk and investment recommendations will not always be profitable, and a loss of principal may occur.

Buy-Rated model performance is calculated as follows:

- Buy-rated strategy track records are aggregated by asset class and/or sub asset class (e.g., equity, fixed income, liquid alternatives, or real estate)
- The returns of the buy-rated investment strategies are equal-weighted to calculate the model performance for each monthly period
- The individual monthly returns are compounded to result in annualized returns reflecting changes in unit value, the strategies' trading costs, and reinvestment of all distributions. Results do not take into account sales, redemption, distribution or optional charges or income taxes payable by any investor, which will reduce returns
- Model performance results are shown as the excess return versus the respective benchmarks for the time period under consideration
- The inception date for each individual model performance is the earliest date of the buy-rated strategy(ies) included in that model performance (e.g., International Equity)
- The inception date for each "total" model performance is the earliest common date of the sub asset class model performance included in that model performance (e.g., Total Small Cap, which includes Small Cap Growth, Small Cap Core, and Small Cap Value) over the longest common time period
- When a strategy is no longer buy-rated, it is removed from its respective model performance on a go-forward basis but not retroactively; returns of strategies removed from the model performance remain in the model performance for the period in which they were buy-rated
- New buy-rated investment strategies are added to the model performance in the month following it being buy-rated; returns of investment strategies that are added to the buy-list are not backfilled
- There may be additional sub-adviser's fund management fees and expenses associated with investing in buy-rated strategies not taken into account in the model performance; investors should refer to the relevant disclosure information and/or offering documents for detailed information before investing

Gross of Fees Buy-Rated Returns Composite Disclosures (continued)

Benchmark performance is:

- The relevant index for that asset class or sub asset class and is a standard market index; or
- A custom benchmark, representing the benchmarks of the underlying investment strategies, equally weighted
- The individual monthly benchmark returns are compounded to result in the corresponding annualized benchmark returns
- Unmanaged index returns assume reinvestment of any and all distributions. Performance of the benchmark(s) is not an exact representation of any particular investment, as you cannot invest directly in an index or custom benchmark. All returns for investment adviser strategies and benchmarks are compiled from sources believed to be reliable and current, but accuracy cannot be guaranteed.

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Gross of Fees Composites Benchmark Index Definitions

- **Russell 1000 Index** - A capitalization-weighted index of the 1,000 largest publicly traded U.S. stocks by capitalization.
- **Russell MidCap Stock Index** - A capitalization-weighted index of the 800 smallest stocks in the Russell 1000 Index. This index is a broad measure of mid-capitalization stocks.
- **Russell 2000 Index** - A capitalization-weighted index of the smallest 2,000 stocks in the Russell 3000 Index. The index excludes the largest- and smallest-capitalization issues in the domestic stock market.
- **MSCI All Country World Index** - A capitalization-weighted index of stocks representing 46 stock markets in Europe, Australia, the Far East, the Middle East, Latin America and North America.
- **MSCI All Country World ex-U.S. Index** - A capitalization-weighted index consisting of 23 developed and 21 emerging countries, but excluding the U.S.
- **MSCI Emerging Markets Index** - A capitalization-weighted index of stocks representing 22 emerging country markets.
- **Bloomberg Barclays Aggregate Bond Index** - A market value-weighted index consisting of government bonds, SEC-registered corporate bonds and mortgage-related and asset-backed securities with at least one year to maturity and an outstanding par value of $250 million or greater. This index is a broad measure of the performance of the investment grade U.S. fixed income market.
- **Bloomberg Barclays Capital Global Aggregate** - Provides a broad-based measure of the global investment-grade fixed income markets. The three major components of this index are the U.S. Aggregate, the Pan-European Aggregate, and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds, Canadian government, agency and corporate securities, and USD investment grade 144A securities.
- **Barclays Capital Long Gov't/Credit Index** - The Barclays Capital U.S. Government/ Credit Bond Index measures performance of U.S. dollar denominated U.S. treasuries, government-related, and investment grade U.S. corporate securities that have a remaining maturity of greater than or equal to 1 year. In addition, the securities have $250 million or more of outstanding face value, and must be fixed rate and non-convertible.
- **Blended Benchmark -** An equal weighted benchmark consisting of the high-yield benchmarks of the strategies included in the composite.

Net of Fees Buy-Rated Strategy Results (as of 6/30/2018)
Model Performance

Liquid Alternatives Summary (Net)

Strategy	1 Year Excess Return	3 Years Excess Return	5 Years Excess Return	10 Years Excess Return	Since Inception Excess Return	Since Inception Months
Single Hedge Funds	0.1%	-0.6%	0.7%	1.2%	0.8%	10/31/2005
Single HF Composite Benchmark						
Equity Hedge Buy List	-2.5%	-2.0%	0.3%	0.8%	1.2%	10/31/2005
Equity Hedge Composite Benchmark						
Event Driven (Total) Buy List	0.5%	-1.1%	1.2%	0.5%	-1.4%	4/30/2007
Event Driven Composite Benchmark						
Global Macro Buy List	3.1%	1.0%	2.1%	3.0%	2.5%	4/30/2006
Macro Composite Benchmark						
Relative Value (Total) Buy List	0.1%	0.0%	0.5%	N/A	0.9%	4/30/2011
Relative Value Composite Benchmark						
Multi-Strategy (Total) Buy List	-0.6%	-0.7%	-1.3%	-0.3%	-0.6%	1/31/2008
Multi-Strat Composite Benchmark						

Source: Aon Hewitt, fund managers, Hedge Fund Research, Inc. (www.hedgefundresearch.com)
Data: USD (net)
Note: Single hedge funds Includes Equity Hedge, Relative Value, Credit, Macro, Multi-Strat, and Activist buy rated strategies

Hypothetical Composite Performance Disclosure: The returns presented for the buy-list results represent model performance for Aon's buy-rated investment strategies for selected hedge fund strategy types. These investment strategies are managed by external investment advisers and not Aon. The investment strategies included in the model performance are subject to change without notice due to the changing nature of Aon's manager research. Model performance is purely hypothetical, cannot be invested in, and is shown only for illustrative purposes; returns do not reflect the performance of an actual account. Model performance has inherent limitations. The model performance does not reflect the impact of material economic and market factors that would be experienced if actual client assets were being managed. While model performance may have performed better than the associated benchmark for some or all of the time periods shown, the future performance may not be as favorable relative to the benchmark in the future. The returns used in the composite calculation are net of investment management fees as calculated by the underlying managers, either sourced from HFR Database, eVestment, or the manager directly. AHIC's model performance does not consider any Aon Hewitt Investment Consulting ("AHIC") advisory fees or other expenses incurred by a client. Actual returns will be reduced by the sub-advisors' investment management fees, your AHIC advisory fee and other expenses you may incur as a client. AHIC's advisory fees are described in Form ADV Part 2A. Please refer to the Appendix disclosures for additional details.

Appendix: Net of Fees Buy-Rated Returns Composite Disclosures Model Performance

The returns presented for the buy-list results represent model performance for Aon's buy-rated investment strategies across different hedge fund categories. These investment strategies are managed by external investment advisers and not Aon. The investment strategies included in the model performance are subject to change without notice due to the changing nature of Aon's manager research. Model performance is purely hypothetical, cannot be invested in, and is shown only for illustrative purposes; returns do not reflect the performance of an actual account. Model performance has inherent limitations. The model performance does not reflect the impact of material economic and market factors that would be experienced if actual client assets were being managed. While model performance may have performed better than the associated benchmark for some or all of the time periods shown, the future performance may not be as favorable relative to the benchmark in the future. Further, the model portfolio may not reflect the impact of market volatility compared to the volatility of the index which is materially different from that of the model portfolio. Model performance is not necessarily indicative of future results, and there can be no assurance that AHIC will achieve comparable results or that such model returns will be realized. Please see below for additional details on the methodology used in the development of this model portfolio performance.

Model performance returns presented are net of each respective sub-advisors' investment management fees, either actual fees or a model fee as determined and applied by each manager, and trading expenses and include the reinvestment of dividends and interest. The model performance does not consider any Aon Hewitt Investment Consulting ("AHIC") advisory fees or other expenses incurred by a client. Returns do not reflect the deduction of AHIC's investment advisory fees, as the proposal presumes an annual retainer fee, and not an asset based fee. Actual returns will be reduced by the sub-advisors' investment management fees, your AHIC advisory fee and other expenses you may incur as a client. AHIC's advisory fees are described in Form ADV Part 2A. More information regarding the buy-rated model performance is included below.

As an example of the impact of sub-advisors' investment management fees compounded over time, a portfolio worth an initial value of $10 million, invested over a five year period and returns 8% per year and charged a 0.70% annual investment management fee would be worth $14,693,281 before advisory fees and $14,186,165.43 after the deduction of investment management fees.

The model performance should not be construed as a performance expectation for any actual account. A client's account would not be structured to include all the buy-rated strategies included in the asset class or sub-asset class model performance presented. An actual account will vary significantly from the model performance as the account is customized based on a client's investment objective; therefore the actual composition and performance of the account will differ from those of the model portfolio due to the client's risk budget, experienced market conditions, manager selection, and asset allocation decisions. There can be no assurance that an investment mix or client account will lead to the model portfolio results shown or perform in any predictable manner. AHIC does not guarantee any minimum level of investment performance or the success of any portfolio or investment strategy. All investment involves risk and investment recommendations will not always be profitable, and a loss of principal may occur.

Appendix: Net of Fees Buy-Rated Returns Composite Disclosures

Buy rated strategy composites are calculated as follows:

- Buy-rated strategy track records are aggregated by asset class and/or sub asset class (e.g., equity, fixed income, hedged funds)
- The returns of the buy-rated investment strategies are equal-weighted to calculate the model performance for each monthly period.
- The individual monthly returns are compounded to result in annualized returns reflecting changes in unit value, the strategies' trading costs, and reinvestment of all distributions. Results do not take into account sales, redemption, distribution or optional charges or income taxes payable by any investor that would have reduced returns.
- Model performance results are shown as the excess return versus the respective benchmarks for the time period under consideration.
- When a strategy is no longer buy-rated, it is removed from its respective model performance on a go forward basis but not retroactively; returns of strategies no longer buy-rated are removed from the model performance going forward but remain in the model performance for the period in which they were buy-rated.
- Newly buy-rated strategies are added to the model performance in the month following it being buy-rated; or at quarter-end if only quarterly returns are available. Returns of strategies that are added to the buy-list are not backfilled.
- The investment adviser's fund management fees and expenses may be associated with investing in buy-rated strategies; investors should refer to the relevant disclosure information and/or offering documents for detailed information before investing.
- The returns used in the composite calculation are net of fees as calculated by each individual manager; net of fee results used in the buy list composite calculation are sourced from eVestment, Hedge Fund Research, NCREIF, or the manager directly. Aon does not apply a fee assumption for the manager. The model performance does not consider any Aon Hewitt Investment Consulting ("AHIC") advisory fees or other expenses incurred by a client.

Benchmark performance is:

- The relevant index for that asset class or sub asset class and is a standard market index; or
- A custom benchmark, representing the benchmarks of the underlying investment strategies, equally weighted
- The individual monthly benchmark returns are compounded to result in the corresponding annualized benchmark returns
- Unmanaged index returns assume reinvestment of any and all distributions. Performance of the benchmark(s) is not an exact representation of any particular investment, as you cannot invest directly in an index or custom benchmark. All returns for investment adviser strategies and benchmarks are compiled from sources believed to be reliable and current, but accuracy cannot be guaranteed.

Net of Fee Composites Benchmark Index Definitions

- **Single HF Composite Benchmark - HFRI Fund Weighted Composite Index.** The HFRI Fund Weighted Composite Index is a global, equal-weighted index of over 2,000 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. The HFRI Fund Weighted Composite Index does not include Funds of Hedge Funds.
- **Equity Hedge Composite Benchmark –** A weighted average of the underlying managers benchmarks which are either HFRI Equity Hedge (Total) Index, HFRI EH: Equity Market Neutral Index, or HFRI Emerging Markets (Total) Index.
- **Event Driven Composite Benchmark -** A weighted average of the underlying managers benchmarks which are either HFRI ED: Activist Index, HFRI ED: Distressed/Restructuring Index, or HFRI Event-Driven (Total) Index
- **Macro Composite Benchmark -** A weighted average of the underlying managers benchmarks which are either HFRI Macro: Discretionary Thematic Index or HFRI Macro: Systematic Diversified Index.
- **Relative Value Composite Benchmark -** A weighted average of the underlying managers benchmarks which are either 50% HFRI RV: Fixed Income-Corporate Index 50% HFRI ED: Credit Arbitrage Index, HFRI Relative Value (Total) Index, or HFRI RV: Fixed Income-Asset Backed
- **Multi-Strat Composite Benchmark -** A weighted average of the underlying managers benchmarks which are either SG (Newedge) Multi Alternative Risk Premia Index or Dow Jones Credit Suisse Multi-Strategy Index.
- **HFRI Equity Hedge (Total) Index** – Equity Hedge: Investment Managers who maintain positions both long and short in primarily equity and equity derivative securities. A wide variety of investment processes can be employed to arrive at an investment decision, including both quantitative and fundamental techniques; strategies can be broadly diversified or narrowly focused on specific sectors and can range broadly in terms of levels of net exposure, leverage employed, holding period, concentrations of market capitalizations and valuation ranges of typical portfolios. EH managers would typically maintain at least 50% exposure to, and may in some cases be entirely invested in, equities, both long and short.
- **HFRI EH: Equity Market Neutral Index** – Equity Market Neutral strategies employ sophisticated quantitative techniques of analyzing price data to ascertain information about future price movement and relationships between securities, select securities for purchase and sale. These can include both Factor-based and Statistical Arbitrage/Trading strategies. Factor-based investment strategies include strategies in which the investment thesis is predicated on the systematic analysis of common relationships between securities. In many but not all cases, portfolios are constructed to be neutral to one or multiple variables, such as broader equity markets in dollar or beta terms, and leverage is frequently employed to enhance the return profile of the positions identified. Statistical Arbitrage/Trading strategies consist of strategies in which the investment thesis is predicated on exploiting pricing anomalies which may occur as a function of expected mean reversion inherent in security prices; high frequency techniques may be employed and trading strategies may also be employed on the basis on technical analysis or opportunistically to exploit new information the investment manager believes has not been fully, completely or accurately discounted into current security prices. Equity Market Neutral Strategies typically maintain characteristic net equity market exposure no greater than 10% long or short.

Net of Fee Composites Benchmark Index Definitions

- **HFRI Emerging Markets (Total) Index** – Emerging Markets funds invest, primarily long, in securities of companies or the sovereign debt of developing or 'emerging' countries. Emerging Markets regions include Africa, Asia ex-Japan, Latin America, the Middle East and Russia/Eastern Europe. Emerging Markets - Global funds will shift their weightings among these regions according to market conditions and manager perspectives.
- **HFRI ED: Activist Index** – Activist strategies may obtain or attempt to obtain representation of the company's board of directors in an effort to impact the firm's policies or strategic direction and in some cases may advocate activities such as division or asset sales, partial or complete corporate divestiture, dividend or share buybacks, and changes in management. Strategies employ an investment process primarily focused on opportunities in equity and equity related instruments of companies which are currently or prospectively engaged in a corporate transaction, security issuance/repurchase, asset sales, division spin-off or other catalyst oriented situation. These involve both announced transactions as well as situations which pre-, post-date or situations in which no formal announcement is expected to occur. Activist strategies are distinguished from other Event Driven strategies in that, over a given market cycle, Activist strategies would expect to have greater than 50% of the portfolio in activist positions, as described.
- **HFRI ED: Distressed/Restructuring Index** – Distressed/Restructuring strategies which employ an investment process focused on corporate fixed income instruments, primarily on corporate credit instruments of companies trading at significant discounts to their value at issuance or obliged (par value) at maturity as a result of either formal bankruptcy proceeding or financial market perception of near term proceedings. Managers are typically actively involved with the management of these companies, frequently involved on creditors' committees in negotiating the exchange of securities for alternative obligations, either swaps of debt, equity or hybrid securities. Managers employ fundamental credit processes focused on valuation and asset coverage of securities of distressed firms; in most cases portfolio exposures are concentrated in instruments which are publicly traded, in some cases actively and in others under reduced liquidity but in general for which a reasonable public market exists. In contrast to Special Situations, Distressed Strategies employ primarily debt (greater than 60%) but also may maintain related equity exposure.
- **HFRI Event-Driven (Total) Index – Event-Driven:** Investment Managers who maintain positions in companies currently or prospectively involved in corporate transactions of a wide variety including but not limited to mergers, restructurings, financial distress, tender offers, shareholder buybacks, debt exchanges, security issuance or other capital structure adjustments. Security types can range from most senior in the capital structure to most junior or subordinated, and frequently involve additional derivative securities. Event Driven exposure includes a combination of sensitivities to equity markets, credit markets and idiosyncratic, company specific developments. Investment theses are typically predicated on fundamental characteristics (as opposed to quantitative), with the realization of the thesis predicated on a specific development exogenous to the existing capital structure.
- **HFRI Macro: Discretionary Thematic Index** – Discretionary Thematic strategies are primarily reliant on the evaluation of market data, relationships and influences, as interpreted by an individual or group of individuals who make decisions on portfolio positions; strategies employ an investment process most heavily influenced by top down analysis of macroeconomic variables. Investment Managers may trade actively in developed and emerging markets, focusing on both absolute and relative levels on equity markets, interest rates/fixed income markets, currency and commodity markets; frequently employing spread trades to isolate a differential between instrument identified by the Investment Manager to be inconsistent with expected value. Portfolio positions typically are predicated on the evolution of investment themes the Manager expect to materialize over a relevant time frame, which in many cases contain contrarian or volatility focused components.

Net of Fee Composites Benchmark Index Definitions

- **HFRI Macro: Systematic Diversified Index** – Systematic: Diversified strategies have investment processes typically as function of mathematical, algorithmic and technical models, with little or no influence of individuals over the portfolio positioning. Strategies which employ an investment process designed to identify opportunities in markets exhibiting trending or momentum characteristics across individual instruments or asset classes. Strategies typically employ quantitative process which focus on statistically robust or technical patterns in the return series of the asset, and typically focus on highly liquid instruments and maintain shorter holding periods than either discretionary or mean reverting strategies. Although some strategies seek to employ counter trend models, strategies benefit most from an environment characterized by persistent, discernible trending behavior. Systematic: Diversified strategies typically would expect to have no greater than 35% of portfolio in either dedicated currency or commodity exposures over a given market cycle.
- **HFRI RV: Fixed Income-Corporate Index** – Fixed Income: Corporate includes strategies in which the investment thesis is predicated on realization of a spread between related instruments in which one or multiple components of the spread is a corporate fixed income instrument. Strategies employ an investment process designed to isolate attractive opportunities between a variety of fixed income instruments, typically realizing an attractive spread between multiple corporate bonds or between a corporate and risk free government bond. Fixed Income: Corporate strategies differ from Event Driven: Credit Arbitrage in that the former more typically involve more general market hedges which may vary in the degree to which they limit fixed income market exposure, while the later typically involve arbitrage positions with little or no net credit market exposure, but are predicated on specific, anticipated idiosyncratic developments.
- **HFRI ED: Credit Arbitrage Index** – Credit Arbitrage strategies employ an investment process designed to isolate attractive opportunities in corporate fixed income securities; these include both senior and subordinated claims as well as bank debt and other outstanding obligations, structuring positions with little or no broad credit market exposure. These may also contain a limited exposure to government, sovereign, equity, convertible or other obligations but the focus of the strategy is primarily on fixed corporate obligations and other securities are held as component of positions within these structures. Managers typically employ fundamental credit analysis to evaluate the likelihood of an improvement in the issuer's creditworthiness, in most cases securities trade in liquid markets and managers are only infrequently or indirectly involved with company management. Fixed Income - Corporate strategies differ from Event Driven: Credit Arbitrage in that the former more typically involve more general market hedges which may vary in the degree to which they limit fixed income market exposure, while the latter typically involve arbitrage positions with little or no net credit market exposure, but are predicated on specific, anticipated idiosyncratic developments.
- **HFRI Relative Value (Total) Index** – Investment Managers who maintain positions in which the investment thesis is predicated on realization of a valuation discrepancy in the relationship between multiple securities. Managers employ a variety of fundamental and quantitative techniques to establish investment theses, and security types range broadly across equity, fixed income, derivative or other security types. Fixed income strategies are typically quantitatively driven to measure the existing relationship between instruments and, in some cases, identify attractive positions in which the risk adjusted spread between these instruments represents an attractive opportunity for the investment manager. RV position may be involved in corporate transactions also, but as opposed to ED exposures, the investment thesis is predicated on realization of a pricing discrepancy between related securities, as opposed to the outcome of the corporate transaction.

Net of Fee Composites Benchmark Index Definitions

- **HFRI RV: Fixed Income-Asset Backed Index** – Fixed Income: Asset Backed includes strategies in which the investment thesis is predicated on realization of a spread between related instruments in which one or multiple components of the spread is a fixed income instrument backed physical collateral or other financial obligations (loans, credit cards) other than those of a specific corporation. Strategies employ an investment process designed to isolate attractive opportunities between a variety of fixed income instruments specifically securitized by collateral commitments which frequently include loans, pools and portfolios of loans, receivables, real estate, machinery or other tangible financial commitments. Investment thesis may be predicated on an attractive spread given the nature and quality of the collateral, the liquidity characteristics of the underlying instruments and on issuance and trends in collateralized fixed income instruments, broadly speaking. In many cases, investment managers hedge, limit or offset interest rate exposure in the interest of isolating the risk of the position to strictly the yield disparity of the instrument relative to the lower risk instruments.
- **Dow Jones Credit Suisse Hedge Fund Index** - an asset-weighted hedge fund index and includes open and closed funds. The index is an asset-weighted hedge fund index that provides a rules-based measure of an investable portfolio.
- **SG (Newedge) Multi Alternative Risk Premia Index-** represents risk premia managers who employ investment programs diversified across multiple asset classes while utilizing multiple risk premia factors. These managers trade multiple asset classes such as equities, fixed income, currencies, and in many cases commodities, and aim to capture discrete risk premia, including value, carry, and momentum. Single asset class and risk premia programs are excluded. It is equally weighted, non-investable index of funds.

Appendix

- Investment Views January 2019
  - Last Updated 01/29/2019 (data as of 12/31/2018 unless otherwise indicated)

The opinions referenced are sourced from Aon as of the date of publication and are subject to change due to changes in the market or economic conditions and may not necessarily come to pass. Information contained herein is for informational purposes only and should not be considered investment advice. **Past performance is not a guarantee of future results.**

High Level Medium-Term Views

We see markets currently taking us more definitively towards a fully risk-off regime. Equities will outperform bonds for certain periods of time but less and less convincingly.

Interest Rates

Global yields have come off their highs for 2018 in response to some softer economic data, a turn in risk preferences, and some ambiguity about the future path of interest rate hikes. Q4's volatility also pulled yields lower. Yields are close to our views, leaving us about neutral on duration. Near term yields could rise but the upward move is unlikely to be sustained. Expected returns from bonds are improving as we advance through the current market transition phase.

Credit

Credit spreads have moved higher in investment grade and high yield. Spreads, while marginally better value, still are not offering good compensation for the risks being taken in credit markets. The yield pick up over treasuries is fragile. In our view, overweight credit positions need reining back significantly. Credit weakness is normally a leading indicator to a deterioration in overall market conditions.

Equities

Equity markets are volatile and have suffered a decline which given our outlook has not been entirely unexpected. Strong earnings in early 2018 were largely discounted, future expectations have been revised lower, while higher bond yields are a check and trade/politics are also pushing volatility up. EM equities have reasonable fundamentals and we believe that, combined with cheap valuations, these will be realized in higher returns over the medium-term. We continue to believe in incremental equity de-risking constraining equity beta close to the benchmark. The implementation of this will be important and will depend on other assets available in portfolios.

Alternatives

The message on alternatives is that good manager and strategy selection leaves some opportunities alive, notwithstanding growing overcrowding in this space. With equities finding it hard going, non-directional approaches should be preferred (including option hedging strategies). Real estate is exposed to rising rates and late cycle risk suggests defensive real estate is now better.

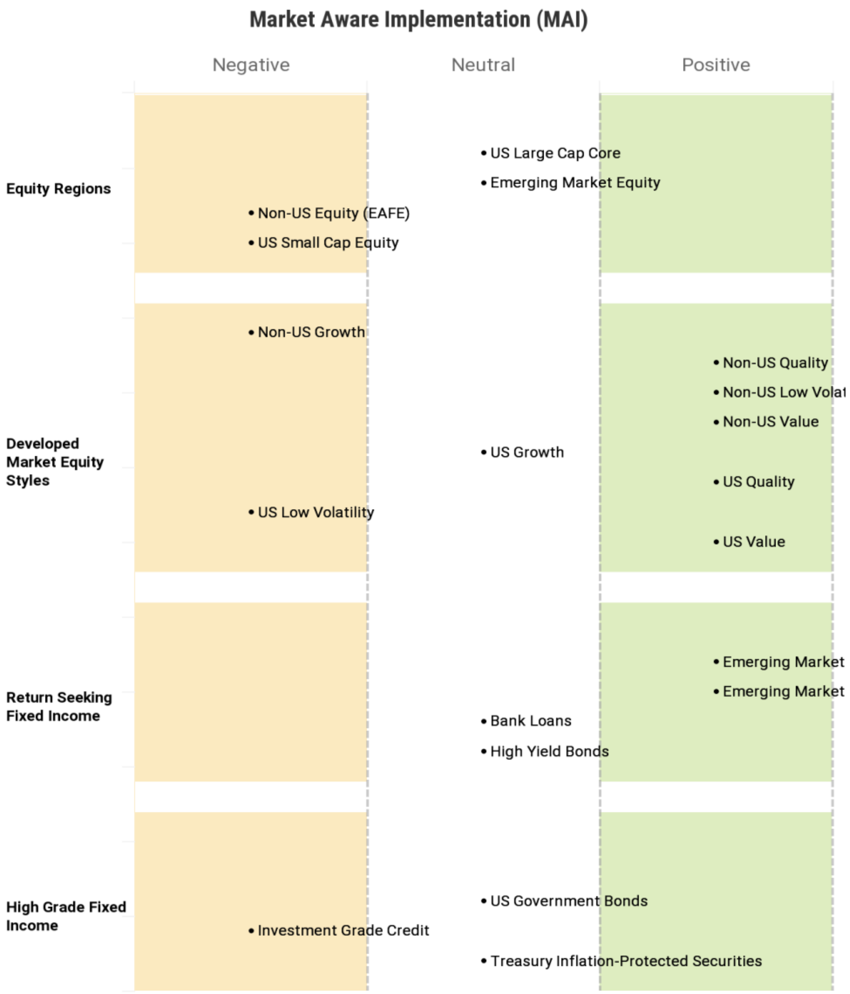
Currency

The changed outlook for US policy interest rates from the US Federal Reserve sees us with a revised view on earlier weakness emerging in the US dollar. We believe that over the medium-term EM currencies should recoup some of the ground lost during 2018.

Market Aware Implementation (MAI): Less Than 1 Year Horizon

Market aware implementation should be used to accelerate or decelerate towards desired market tilts. They have a shorter time horizon versus Medium-Term Views. They are not for appropriate for every client.

01/29/2019 MAI



Changes and Actions

Near-term our views on Non-U.S Developed Market equities are negative.

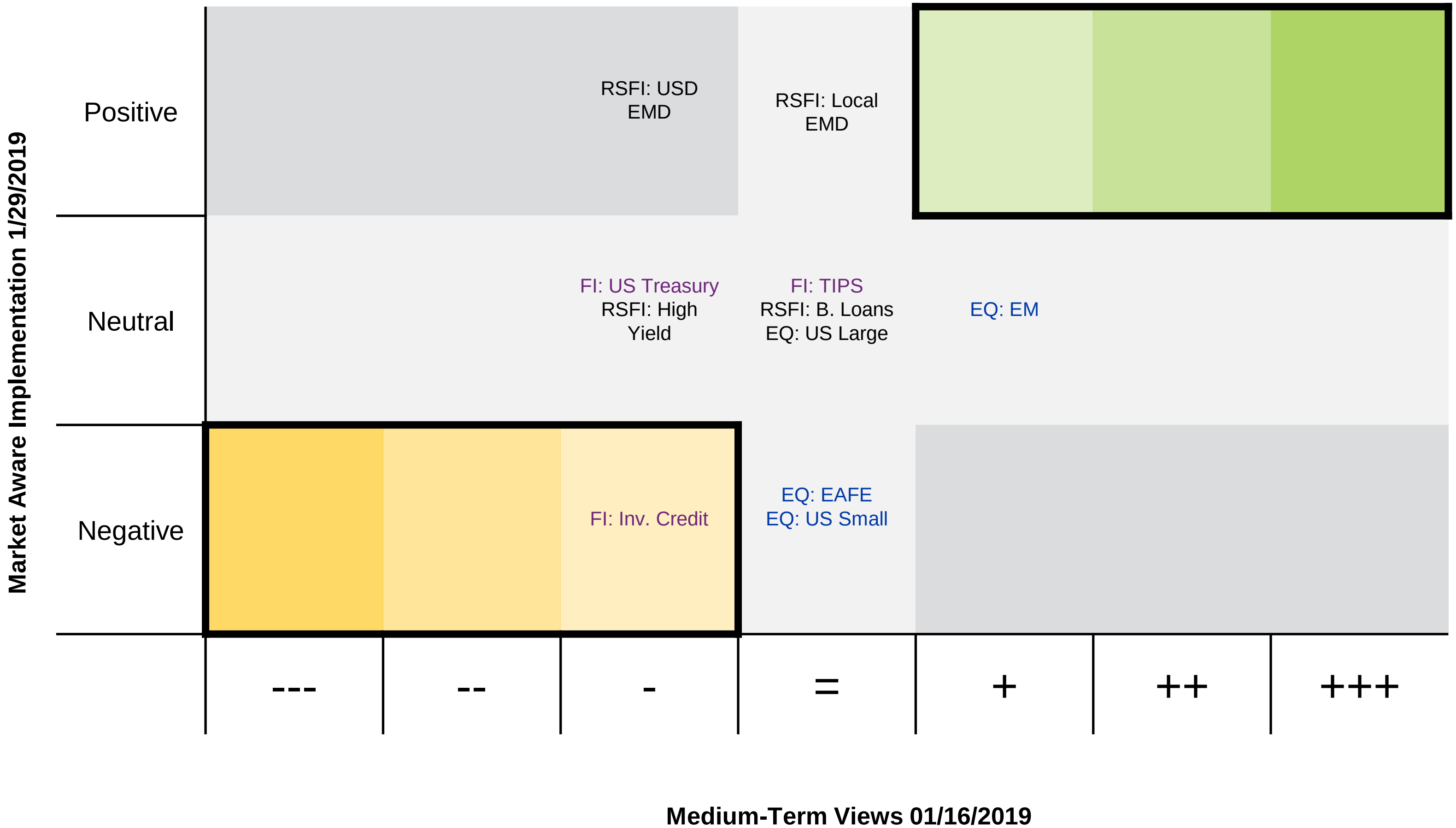
Near-term there is a more defensive tone to our positioning outside of the US.

Neutral on floating rate and high yield bonds. Local EMD and USD EMD remain positive. High yield bonds have been upgraded from negative to neutral, owing to improved yield levels near-term.

Reward per unit of risk is now attractive at the front-end of the curve after a sizable move higher in rates, however rates at the long-end are likely to rise faster than what's currently priced into the forward curve .

MTV vs. MAI

Below is a graphical representation of MTVs against MAI where views exist over both time horizons. This calls out our **highest conviction views**.



Key: FI – Fixed Income, EQ – Equity, RSFI – Return Seeking Fixed Income

Medium Term Views represents AHIC's outlooks on capital markets and economies over the next several years. These views are constructed based on our framework of analyzing fundamental, valuation and near-term drivers of capital markets.

Appendix:
Investment View Framework

Investment View		
Fundamental	**Valuation**	**Market Awareness**
Analyze the core economic and underlying drivers of an asset class. For example: ▪ Economic Growth ▪ Earnings Growth ▪ Default Risk	Establish if the asset class is cheap or expensive given our fundamental outlook. For Example: ▪ P/E Ratio ▪ Credit Spreads ▪ Yield Levels	Establish if near-term drivers for the asset class are positive or negative. For Example: ▪ Technical Indicators ▪ Sentiment Surveys ▪ Futures/Options Positioning

Appendix:
Medium-Term Views (MTV) vs. Market Aware Implementation (MAI)

	Medium-Term Views	Market Aware Implementation
Investment Time Horizon	1 to 3 years	Less than 1 year
Coverage	Most Assets Classes	Liquid Asset Classes
Governance Structure	Typical Client	Fast Moving / Enhanced Governance
Update Schedule	Monthly	Weekly

- Market Aware Implementation is not applicable in all client circumstances.
- Market Aware Implementation is not a substitute for Medium-Term Views. They are complementary.

Appendix:
Using Medium-Term and Market Aware Implementation Together

The table below is an example of how MTVs and Market Aware Implementation can work together.

Stand alone MTV action / MTV +STV action		Medium-Term View: Negative	Medium-Term View: Neutral	Medium-Term View: Positive
Market Aware Implementation	Positive	Underweight / Delay Implementation or Reduce Underweight	Neutral / Move Overweight	Overweight / Extend Overweight
	Neutral	Underweight	Neutral	Overweight
	Negative	Underweight / Extend Underweight	Neutral / Move Underweight	Overweight / Delay Implementation or Reduce Overweight

Appendix:
Index Definitions

MSCI All Country World Index - A capitalization-weighted index of stocks representing approximately 46 developed and emerging countries, including the U.S. and Canadian markets.

MSCI Emerging Markets Index - A capitalization-weighted index of stocks representing 22 emerging country markets.

MSCI US - A market capitalization-weighted index that is designed to measure the equity market performance of stocks in the USA.

JPM EMBI Global Diversified – Comprised of dollar-denominated Brady bonds, traded loans and Eurobonds issued by emerging market sovereign and quasi-sovereign entities. The Diversified version limits the weights of the index countries by only including a specified portion of those countries' eligible current face amounts of debt outstanding, providing for a more even distribution of weights within the countries in the index.

JPM GBI-EM Global Diversified - Designed to provide a comprehensive measure of local currency denominated, fixed-rate, government debt issued in emerging markets.

BofA Merrill Lynch High Yield - A market capitalization-weighted index that tracks the performance of U.S. dollar-denominated, below investment grade corporate debt publicly issued in the U.S. domestic market.

Trade weighted US Dollar (Federal Reserve) - A weighted average of the foreign exchange value of the U.S. dollar against a broad index currencies that circulate widely outside the country of issue.

VIX Index – Tracks the market's expectation of 30-day volatility. It is constructed using the implied volatilities of a wide range of S&P 500 index options.

MSCI World Index - A free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets, representing 24 developed market country indices.

Russell 1000 Index - An Index that measures the performance of the largest 1,000 stocks contained in the Russell 3000 Index.

Russell 2000 Index - An Index that measures the performance of the smallest 2,000 stocks contained in the Russell 3000 Index.

MSCI EAFE Index - A capitalization-weighted index of stocks representing 22 developed countries in Europe, Australia, Asia, and the Far East.

HFRI Fund Weighted Composite Index – The HFRI Fund Weighted Composite Index is a global, equal-weighted index of over 2,000 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. The HFRI Fund Weighted Composite Index does not include Funds of Hedge Funds.

S&P/LTSA Leveraged Loans Index – The S&P/LSTA Leveraged Loan Index is the first index to track the investable senior loan market. This rules-based index consists of US loan facilities in the syndicated leveraged loan universe.

Bloomberg Barclays Corporate Bond Index - An unmanaged index considered representative of fixed-income obligations issued by U.S. corporates.

Bloomberg Barclays Credit Index - An unmanaged index considered representative of fixed-income obligations issued by U.S. corporate, specified foreign debentures, and secured notes.

ML MOVE Index - The Merrill lynch Option Volatility Estimate (MOVE) Index is a yield curve weighted index of the normalized implied volatility on 1-month Treasury options which are weighted on the 2, 5, 10, and 30 year contracts

ISM Purchasing Managers Index - The PMI® is a composite index based on the diffusion indexes of five of the indexes with equal weights: New Orders (seasonally adjusted), Production (seasonally adjusted), Employment (seasonally adjusted), Supplier Deliveries (seasonally adjusted), and Inventories. Diffusion indexes have the properties of leading indicators and are convenient summary measures showing the prevailing direction of change and the scope of change.

Appendix:
Index Definitions

HFRI Macro (Total) Index – Macro: Investment Managers which trade a broad range of strategies in which the investment process is predicated on movements in underlying economic variables and the impact these have on equity, fixed income, hard currency and commodity markets. Managers employ a variety of techniques, both discretionary and systematic analysis, combinations of top down and bottom up theses, quantitative and fundamental approaches and long and short term holding periods. Although some strategies employ RV techniques, Macro strategies are distinct from RV strategies in that the primary investment thesis is predicated on predicted or future movements in the underlying instruments, rather than realization of a valuation discrepancy between securities. In a similar way, while both Macro and equity hedge managers may hold equity securities, the overriding investment thesis is predicated on the impact movements in underlying macroeconomic variables may have on security prices, as opposes to EH, in which the fundamental characteristics on the company are the most significant are integral to investment thesis.

HFRI Macro: Systematic Diversified Index – Systematic: Diversified strategies have investment processes typically as function of mathematical, algorithmic and technical models, with little or no influence of individuals over the portfolio positioning. Strategies which employ an investment process designed to identify opportunities in markets exhibiting trending or momentum characteristics across individual instruments or asset classes. Strategies typically employ quantitative process which focus on statistically robust or technical patterns in the return series of the asset, and typically focus on highly liquid instruments and maintain shorter holding periods than either discretionary or mean reverting strategies. Although some strategies seek to employ counter trend models, strategies benefit most from an environment characterized by persistent, discernible trending behavior. Systematic: Diversified strategies typically would expect to have no greater than 35% of portfolio in either dedicated currency or commodity exposures over a given market cycle.

Citi Economic Surprise Indexes - The Citigroup Economic Surprise Indices are objective and quantitative measures of economic news. They are defined as weighted historical standard deviations of data surprises(actual releases vs Bloomberg survey median).

FTSE RAFI 3000 - The FTSE RAFI™ All World 3000 Index is a measure of the largest 3,000 companies, selected and weighted using fundamental factors; (sales, cash flow, dividends, book value), across both developed and emerging markets.

MSCI Value - The MSCI World Value Index captures large and mid cap securities exhibiting overall value style characteristics across 23 Developed Markets (DM) countries*. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield

MSCI Growth - The MSCI World Growth Index captures large and mid cap securities exhibiting overall growth style characteristics across 23 Developed Markets (DM) countries*. The growth investment style characteristics for index construction are defined using five variables: long-term forward EPS growth rate, short-term forward EPS growth rate, current internal growth rate and long-term historical EPS growth trend and long-term historical sales per share growth trend.

MSCI Minimum Volatility - The MSCI World Minimum Volatility (USD) Index aims to reflect the performance characteristics of a minimum variance strategy applied to the MSCI large and mid cap equity universe across 23 Developed Markets countries*. The index is calculated by optimizing the MSCI World Index, its parent index, for the lowest absolute risk (within a given set of constraints). Historically, the index has shown lower beta and volatility characteristics relative to the MSCI World Index.

MSCI Quality - The MSCI World Quality Index is based on MSCI World, its parent index, which includes large and mid cap stocks across 23 Developed Market (DM) countries*. The index aims to capture the performance of quality growth stocks by identifying stocks with high quality scores based on three main fundamental variables: high return on equity (ROE), stable year-over-year earnings growth and low financial leverage. The MSCI Quality Indexes complement existing MSCI Factor Indexes and can provide an effective diversification role in a portfolio of factor strategies.

S&P 500 - The Standard & Poor's **500**, often abbreviated as the **S&P 500**, or just the **S&P**, is an American stock market index based on the market capitalizations of **500** large companies having common stock listed on the NYSE or NASDAQ. The **S&P 500**index components and their weightings are determined by **S&P** Dow Jones Indices.

S&P 500 Buyback Index - The S&P 500® Buyback Index is designed to measure the performance of the top 100 stocks with the highest buyback ratios in the S&P 500.

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Appendix

- Public Fund Composite Disclaimer

AHIC Public Fund Composite Disclaimer

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Appendix

- Additional Asset-Liability Details

Preliminary Modeling: Portfolio Analysis

Detailed Portfolio Construction

Asset Class	(A) Current Policy (86% R-S)	(B) Reduced Risk	(C) Enhanced Return	(D) Optimized Allocation (86% R-S)
U.S. Equity	25%	0%	0%	0%
Non-U.S. Equity	24%	0%	0%	0%
Global Equity	0%	33%	40%	38%
Private Equity	6%	9%	11%	11%
Equity Insurance Risk Premium	0%	5%	6%	5%
Hedge Funds	6%	14%	17%	16%
Return-Seeking Credit	9%	0%	0%	0%
Multi Asset Credit	0%	2%	3%	3%
Private Credit	8%	2%	3%	3%
Real Estate	5%	7%	9%	8%
Infrastructure	3%	2%	3%	3%
TIPS	3%	0%	0%	0%
Developed Int'l Debt	4%	0%	0%	0%
Core Bonds	7%	0%	0%	0%
Interm. Duration Gov't Bonds	0%	6%	2%	4%
Interm. Duration Credit	0%	18%	6%	11%
30 Year Expected Return[1]	**7.09%**	**7.09%**	**7.67%**	**7.48%**
30 Year Expected Risk[1]	12.27%	10.22%	12.27%	11.56%
30 Year Sharpe Ratio[1]	0.3415	0.4099	0.3891	0.3960
Increase in 30 Year Expected Return (%)	**0.00%**	**0.00%**	**0.58%**	**0.39%**
Increase in 30 Year Expected Return ($)[2]	**$0**	**$0**	**$27,466,135**	**$18,239,234**

[1] Expected returns based on AHIC's Q4 2018 30 year Capital Market Assumptions assuming the asset allocations illustrated above. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See pages 92-99 for the Capital Market Assumptions.
[2] Increased dollars determined by market value of assets as of June 30, 2018 ($4,699.9 million)
Percentages in table may not sum to 100% due to rounding

Customized Solutions: Not One Size Fits All

Current State

- Plan's current financial situation: funded ratios, annual cost, liability growth rate
- Current risk exposures: sensitivity to capital market events, liquidity profile
- Hurdle rate analysis: i.e., how much do assets need to growth to keep pace with the liability growth?

Portfolio Constraints & Efficient Frontier

- How should we build the return-seeking portfolio – diversified sources of return
- How should we build the risk-reducing portfolio – high quality financial securities designed to retain their value in times of market stress

Scenario Analysis

- Asset and liability modeling integrated in single platform
  - Integrates impact of key economic variables: inflation, interest rates, equity markets
- Real world implications of various market conditions shown
- Stochastic and deterministic modeling performed
- Liquidity risk from alternative assets analyzed

Key Takeaways

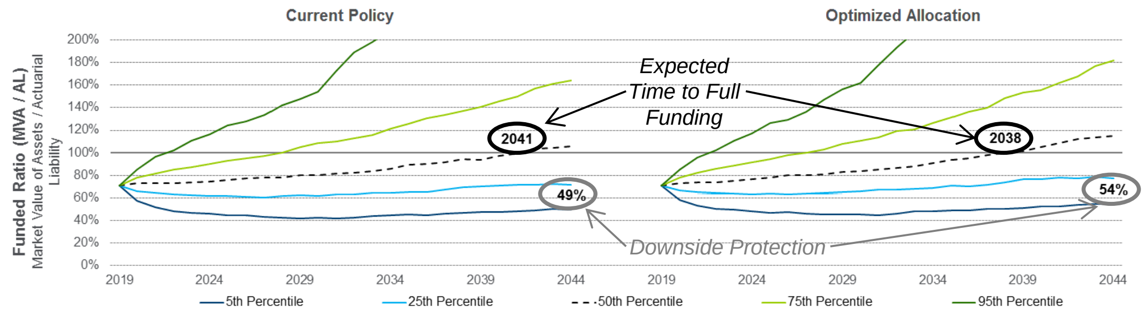
- Analysis of several potential portfolio solutions, from across the entire risk spectrum
- Solutions typically include portfolios which enhance expected return, and/or reduce expected risk
- Time horizon matters: longer time horizons generally incentivize higher risk portfolios
- Failing to achieve the actuarial return assumption will result in higher funding needed in future years

Public Sector Asset-Liability Management
Why the "Liability" Matters (Illustrative Example)

Reflect Your Goals

How does the investment strategy implicate organizational goals?

- Expected Time to Full Funding
- Downside Protection

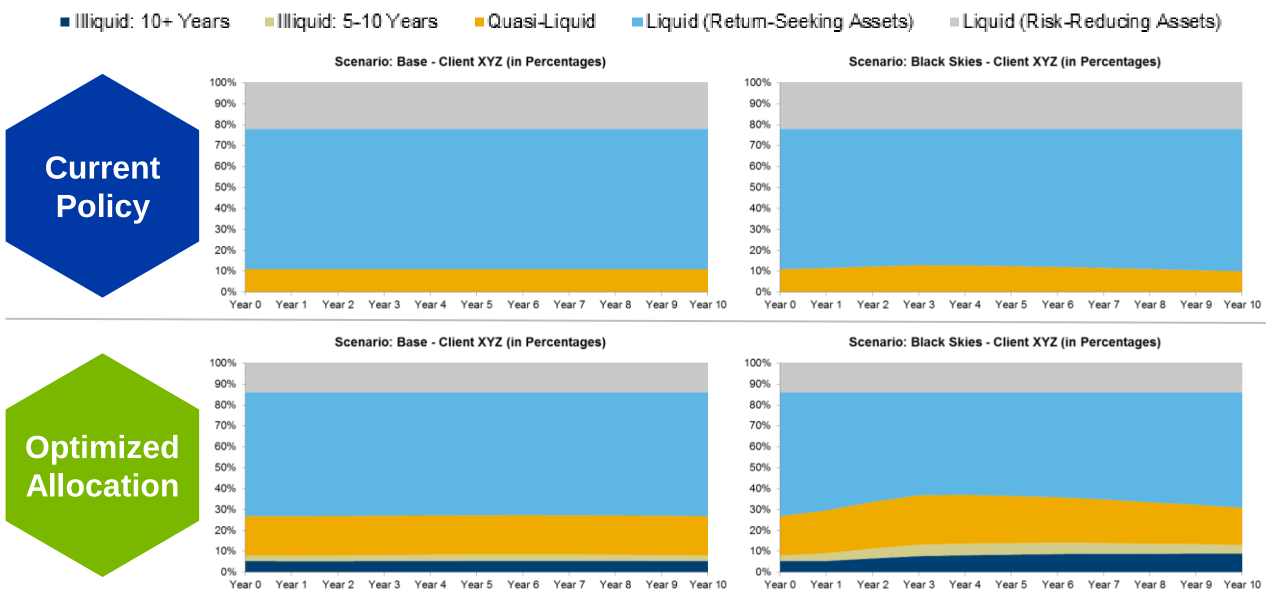


Key Takeaway: Optimized allocation improves time to full funding and downside risk protection

Manage Liquidity

How much illiquidity risk is tolerable?

How does the investment strategy intertwine with the contribution policy and level of benefit outflows to alter the projected liquidity profile?



Key Takeaway: Optimized allocation adds illiquidity but it is manageable over the period

Current State Asset-Liability Profile as of June 30, 2018[1]

Fresno County Employees' Retirement Association

Asset-Liability Snapshot as of 6/30/2018		
Metric ($, Millions)	**Value**	**Fund %**
Market Value of Assets	$4,699.9	79.7%
Actuarial Value of Assets	$4,803.0	81.5%
Liability Metrics		
Actuarial Liability (AL) - Funding	$5,893.9[1]	

Key Takeaways:

- Pension plan is 79.7% funded on a market value of assets basis as of June 30, 2018
- Asset allocation is 86% return-seeking assets with 14% risk-reducing/safety assets to withstand stressed markets
- Asset hurdle rate of 11.19%, via cash funding and investment returns, needed to maintain or improve actuarial funded status

Asset-Liability Growth Metrics			
Metric ($, Millions)	**Value**	**% Liability**	**% Assets**
AL Discount Cost	$412.6	7.00%	8.78%
AL Normal Cost	$113.2	1.92%	2.41%
Total Liability Hurdle Rate	**$525.8**	**8.92%**	**11.19%**
Expected Return on Assets	$333.2	5.65%	7.09%
Total Contributions	$278.2	4.72%	5.92%
Total Exp. Asset Growth	**$611.4**	**10.37%**	**13.01%**
Hurdle Rate Shortfall/(Surplus)	**-$85.6**	**-1.45%**	**-1.82%**
Est. Benefit Payments	$265.9	4.51%	5.66%

Target Asset Allocation as of 6/30/2018[3]		
Metric ($, Millions)	**Value**	**Alloc %**
Return-Seeking		
- U.S. Equity	$1,175.0	25%
- International Equity	$1,128.0	24%
- Private Equity	$282.0	6%
- Hedge Funds	$282.0	6%
- Return-Seeking Credit	$423.0	9%
- Private Credit	$376.0	8%
- Real Estate	$235.0	5%
- Infrastructure	$141.0	3%
- Total	$4,041.9	86%
Risk-Reducing		
- Inflation Linked Bonds	$141.0	3%
- Developed International Debt	$197.4	4%
- Core Bonds	$319.6	7%
- Total	$658.0	14%
Total	$4,699.9	100%

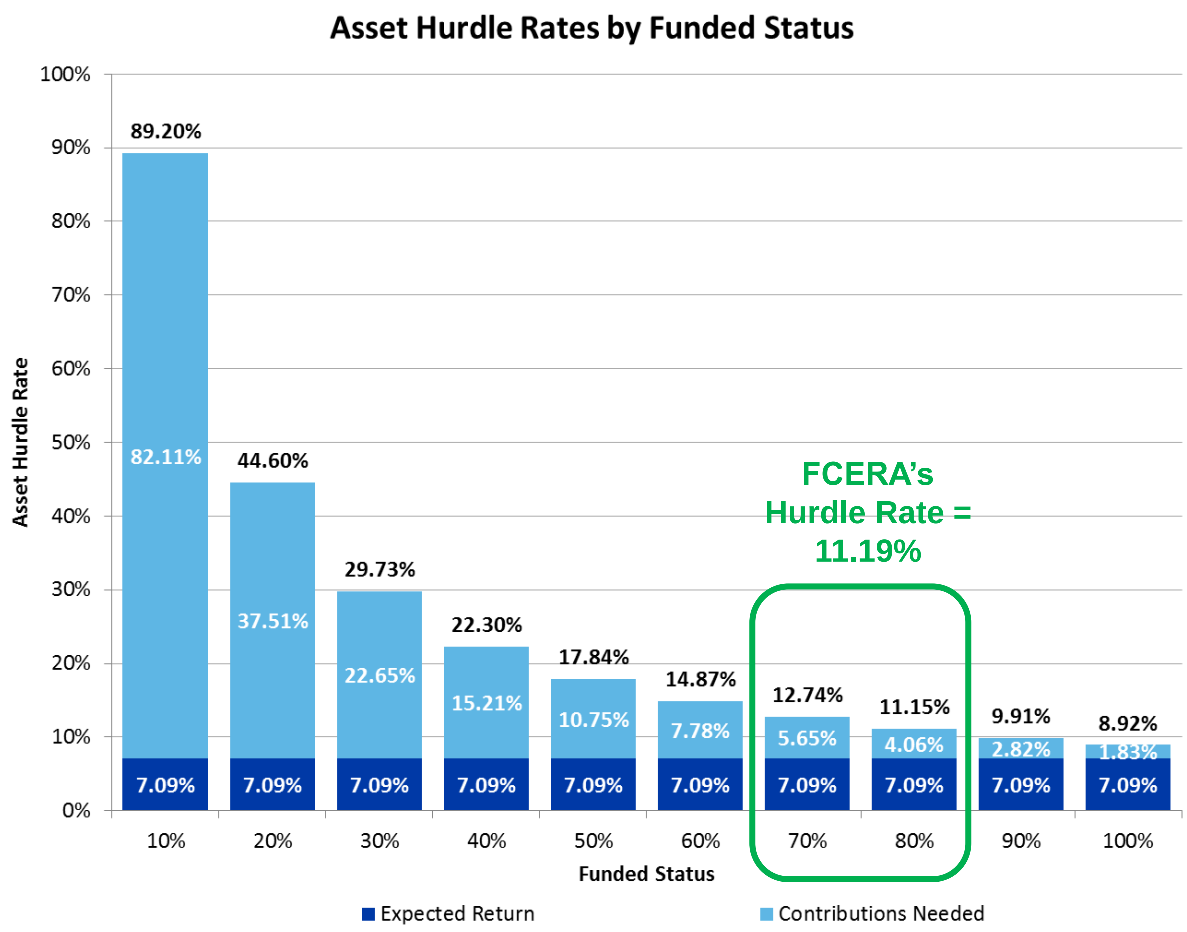
[1] Current State Asset-Liability Profile based June 30, 2018 actuarial valuation report

[2] Expected returns based on AHIC's Q4 2018 30 year Capital Market Assumptions assuming the asset allocations illustrated above. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See pages 92-99 for the Capital Market Assumptions.

[3] Target asset allocation taken from FCERA's investment policy statement and 2018 asset-liability study implementation material

Asset Hurdle Rate

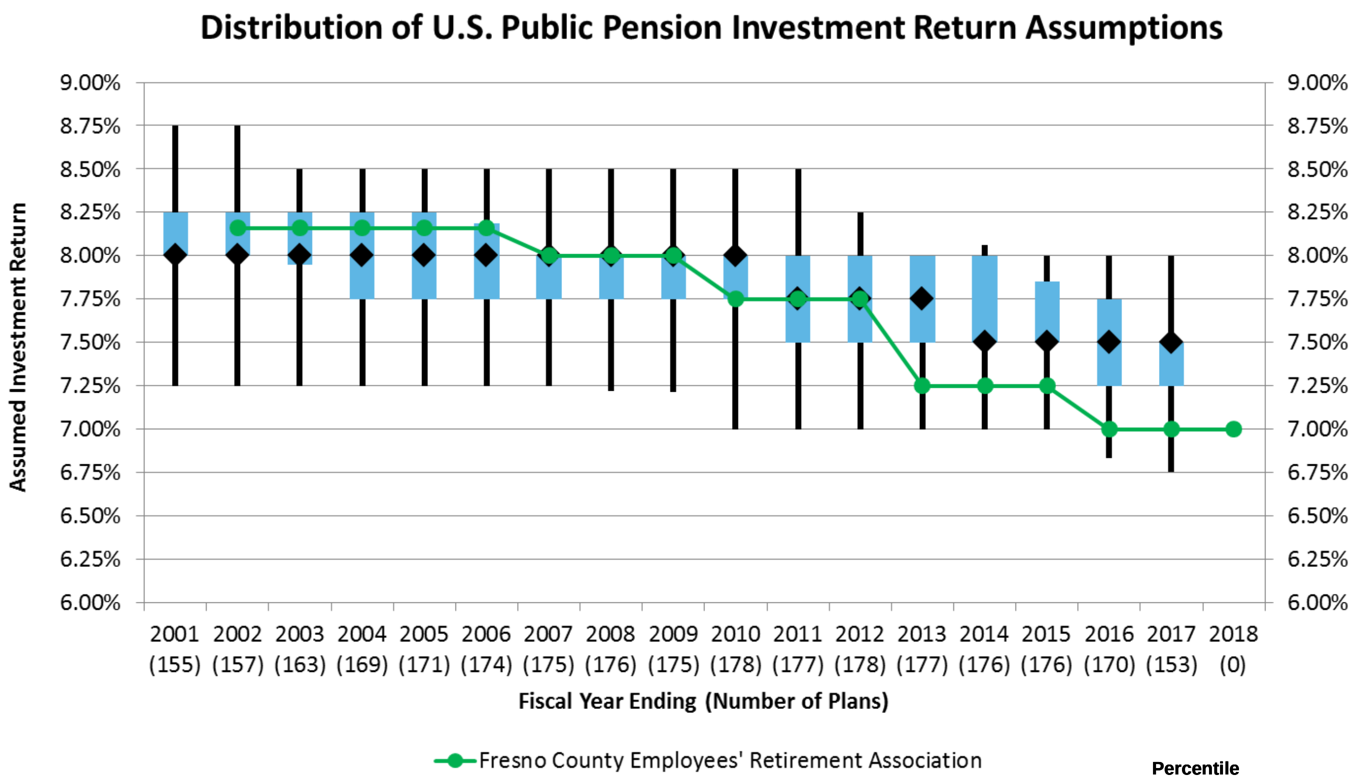
- **Asset Hurdle Rate** is the level of asset growth needed to keep pace with the growth of the Plan liabilities
  - Assets must grow at this rate or more in order to maintain or reduce the existing funding shortfall
- Assets can grow via:
  - Investment performance, and/or
  - Funding contributions
- Asset hurdle rates increase as funded ratio declines, as shown in the chart to the right

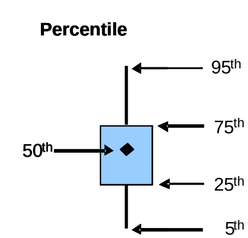


Hurdle rate based on expected returns based on AHIC's Q4 2018 30 year Capital Market Assumptions assuming the asset allocations illustrated above. All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees. Expected returns presented are models and do not represent the returns of an actual client account. Not a guarantee of future results. See pages 92-99 for the Capital Market Assumptions.

Actuarial Assumption Review

Fresno County Employees' Retirement Association versus Peers[1]





Key Takeaways:

- Median actuarial assumption for investment return has declined from 8.00% in 2001-2010 to 7.50% based on the latest survey data
- FCERA's assumption for FYE 2017 (7.00%) lied between the 5th and 25th percentile relative to its peers
- If FCERA exceeds (or falls short of) the actuarial return assumption, lower (or higher) funding will be needed in future years

Sources: FCERA actuarial valuation reports; Public Plans Data (publicplansdata.org) as of December 2018; Expected Returns are the assumptions made by the plans included in the data set.

[1] Peers defined as public funds published within publicplansdata.org as of December 2018; Number of plans per year are shown in parentheses

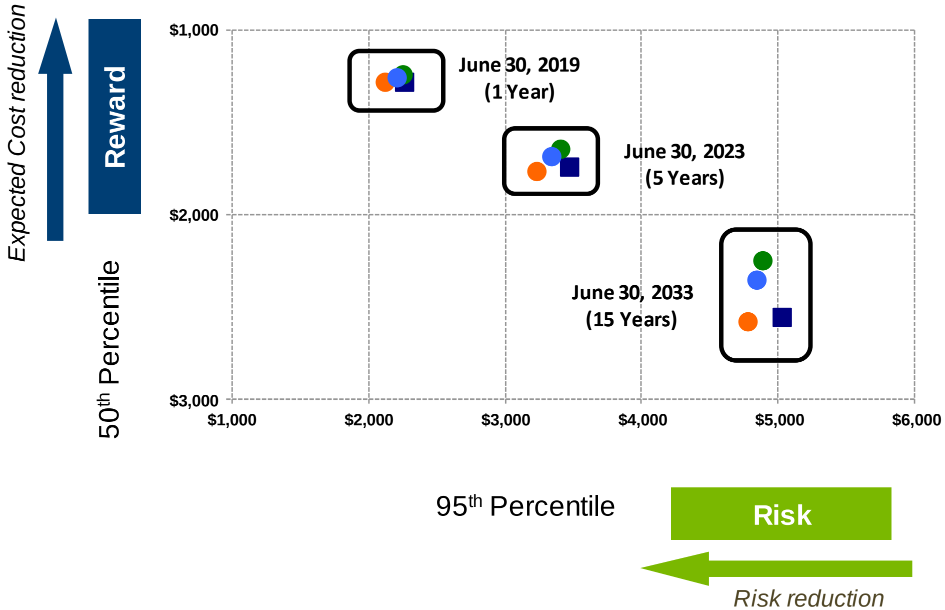
Preliminary Modeling: Economic Cost & Risk (1, 5, & 15 Year Horizons)*
Fresno County Employees' Retirement Association

Economic Cost Observations

- Economic cost defined as present value of contributions plus remaining liability shortfall/(surplus) at end of period
- The magnitude of the risk/reward trade-off changes over a longer-term projection

Economic Cost

Present Value of Contributions plus AL Funding Shortfall/(Surplus)* at 7.00%, $millions



Strategy ($Millions)	Economic Cost June 30, 2019 Cost	Risk
(A) Current Policy (86% R-S)	$1,285.3	$2,262.0
(B) Reduced Risk	$1,287.5	$2,123.6
(C) Enhanced Return	$1,244.6	$2,252.7
(D) Optimized Allocation (86% R-S)	$1,259.6	$2,207.9

Strategy ($Millions)	June 30, 2023 Cost	Risk
(A) Current Policy (86% R-S)	$1,740.5	$3,468.7
(B) Reduced Risk	$1,768.1	$3,232.7
(C) Enhanced Return	$1,643.2	$3,405.7
(D) Optimized Allocation (86% R-S)	$1,683.4	$3,346.1

Strategy ($Millions)	June 30, 2033 Cost	Risk
(A) Current Policy (86% R-S)	$2,555.9	$5,026.6
(B) Reduced Risk	$2,580.6	$4,780.8
(C) Enhanced Return	$2,252.2	$4,885.4
(D) Optimized Allocation (86% R-S)	$2,356.5	$4,845.8

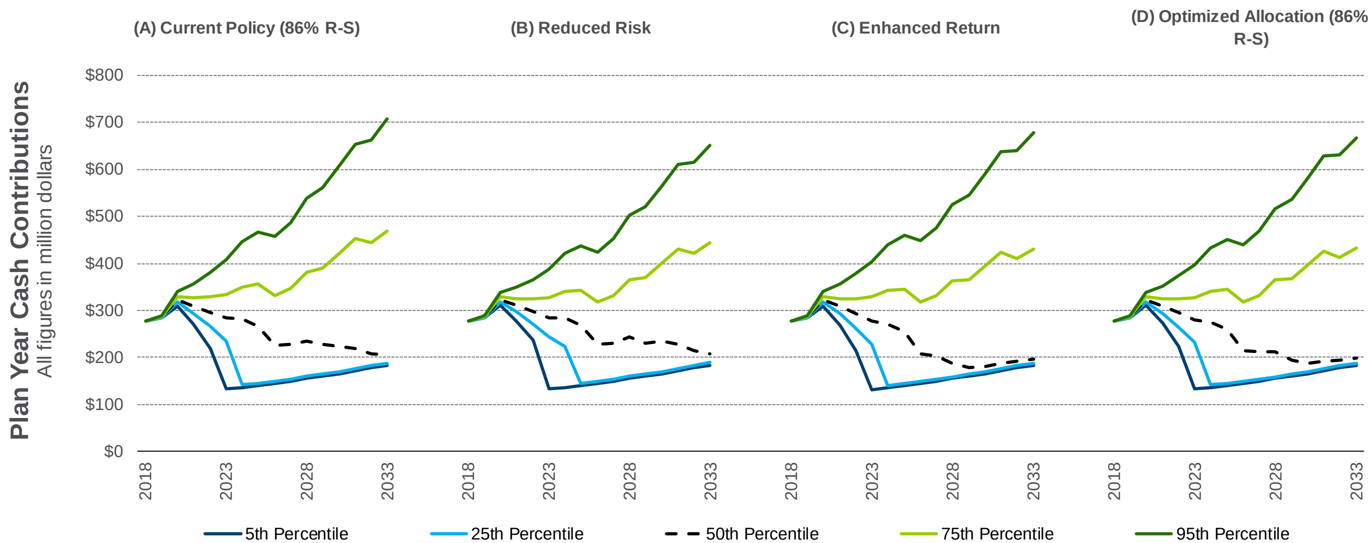
*Current Policy based on FCERA's Investment Policy Statement. Actuarially-determined contributions were calculated based on estimates of the normal cost and an amortization of the unfunded actuarial accrued liability. The amortization assumed a new, layered 15-year base in each projection year. Amortizations were based on a level percent approach. The assets used in the contribution calculations reflect the smoothed, actuarial value of assets noted in the latest actuarial valuation report. Contributions made to the plan were assumed to be equal to the actuarially-determined contributions. Economic Cost reflected a utility function whereby the calculation excluded 50% of surplus in excess of 120% of actuarial liability, and included twice the shortfall below 30% of actuarial liability, on a market value basis. Illustrative charts based on preliminary projections of market scenarios and combined plan circumstances. Not a guarantee of future results. Based on 5,000 simulation trials. Present values measured at 7.00%.

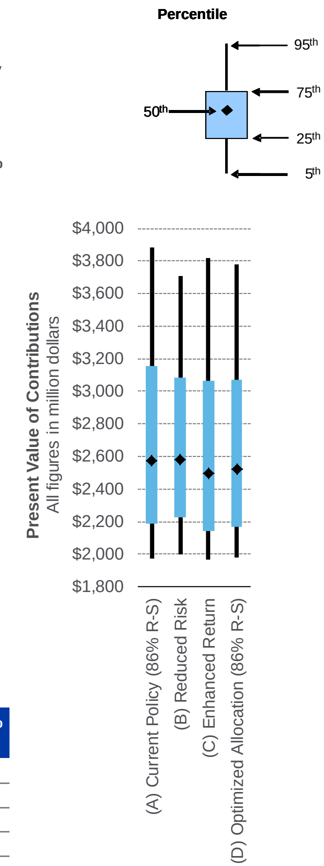
Preliminary Modeling: Gross Contribution Volatility*

Fresno County Employees' Retirement Association

Cash Contribution Observation

- Contributions increase with payroll and then decrease due to either 1) amortization bases becoming fully recognized and rolling out of the calculation; or 2) the Plan reaches full funding





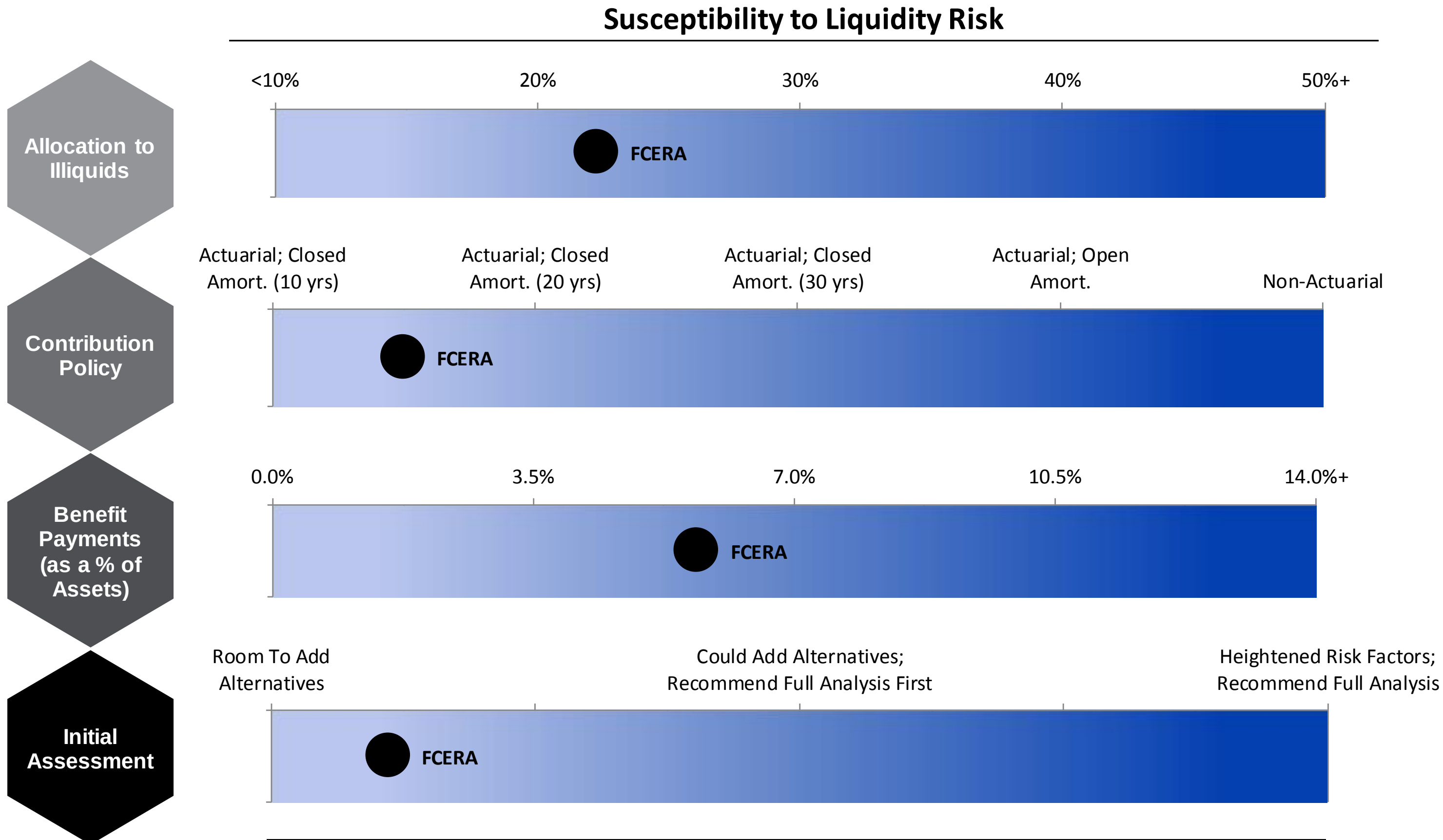
Strategy	(A) Current Policy (86% R-S)			(B) Reduced Risk			(C) Enhanced Return			(D) Optimized Allocation (86% R-S)		
Year	2023	2028	2033	2023	2028	2033	2023	2028	2033	2023	2028	2033
5th Percentile	$132	$155	$184	$133	$155	$184	$132	$155	$184	$132	$155	$184
25th Percentile	$234	$159	$189	$245	$160	$189	$227	$159	$188	$233	$159	$188
50th Percentile	$284	$235	$206	$285	$244	$207	$277	$188	$197	$280	$213	$198
75th Percentile	$333	$381	$468	$326	$365	$443	$328	$364	$430	$327	$365	$434
95th Percentile	$407	$538	$706	$387	$501	$650	$403	$526	$677	$397	$517	$667
Probability > $300M	42%	39%	41%	41%	38%	40%	39%	34%	39%	39%	36%	39%

*Current Policy based on FCERA's Investment Policy Statement. Actuarially-determined contributions were calculated based on estimates of the normal cost and an amortization of the unfunded actuarial accrued liability. The amortization assumed a new, layered 15-year base in each projection year. Amortizations were based on a level percent approach. The assets used in the contribution calculations reflect the smoothed, actuarial value of assets noted in the latest actuarial valuation report. Contributions made to the plan were assumed to be equal to the actuarially-determined contributions. Illustrative charts based on preliminary projections of market scenarios and combined plan circumstances. Not a guarantee of future results. Based on 5,000 simulation trials. Present values measured at 7.00%.

Liquidity Primer
Introduction

- Many public sector defined benefit plans can use alternative assets to improve the return potential and diversification of their portfolios
  - But it is critical to ensure that any illiquidity risk is tolerable
- The specific level of illiquid assets a public pension plan can hold is highly customized to its circumstances, including **asset allocation**, **contribution policy**, and **level of benefit payments**
  - We find that most large public pension plans are able to invest in a substantial amount of very illiquid alternative assets such as closed-end real estate and private equity, in addition to hedge funds and core real estate
- The specific allocation levels tolerable are highly dependent on the plan sponsor's contribution strategy
  - A plan sponsor that increases contributions in deep market downturns is able to hold more illiquid assets than a plan sponsor that contributes a stable amount across different market conditions
- The included analysis takes Fresno County Employees' Retirement Association's current asset-liability profile and plan circumstances to arrive at an initial assessment of its liquidity tolerance
  - A full liquidity analysis could be performed using our proprietary liquidity model to help investors considering alternative assets by conducting multi-year stress-testing projections to understand their liquidity profiles

Liquidity Primer: Baseline Analysis



Considerations

Higher illiquid allocations increase liquidity risks in adverse market conditions

How quickly contributions respond to funded ratio changes will impact liquidity in adverse market conditions

Higher levels of benefit payments increase the likelihood of liquidity risk

This represents an initial assessment that can be supplemented with a full liquidity analysis

Legend		
Minimal liquidity concerns; potential to increase illiquid assets	Could look to add illiquid assets but recommend doing a full liquidity study before moving forward	Elevated risk factors are present; we strongly recommend a full liquidity study

Note: Asset allocations are taken from slide 4 with hedge funds (6%), core real estate (2.5%), and infrastructure (3%) given half-weighting due to their quasi-liquid status with private equity (6%), private credit (8%), and non-core real estate (2.5%) being given full weighting.

Capital Market Assumption Methodology

- The Aon Asset Model and Economic Scenario Generator (ESG) creates 5,000 simulations of key economic variables and total returns.
- We believe the model is complete and consistent. All the major markets and asset classes are modeled within a consistent framework allowing for the interactions between them to be properly taken into account.
- It is arbitrage free and captures the fact that extreme market events do occur more frequently than would be predicted by simpler statistical models.
- The ESG models the full yield curve as this allows for accurate treatment of liabilities and realistic modeling of the future distribution of interest rates and inflation. This allows us to assess the sensitivities of assets and liabilities to changes in interest and inflation rates.
- The model is calibrated to Aon's globally-consistent Capital Market assumptions every quarter.
- Nominal and real government interest rates are projected using an extended two factor Black-Karasinki model and a 2 factor Vasicek model respectively. The models are mean reverting starting with current yield curves and reverting towards our long-term fair values over the very long-term.
- Credit spreads are modeled stochastically using a Markov based model to determine the probabilities of transition between various credit rating and default, and a stochastic parameter reflecting the level of risk aversion in the market.
- Return seeking assets (including equities) are modeled using an individual asset class model with its own returns and volatilities but no correlations to other asset classes, and exposure to 6 other economic models to gain the correct correlation structures between returns for each asset class.

AHIC Capital Market Assumptions
Explanation of Capital Market Assumptions—Q4 2018

The following capital market assumptions were developed by Aon's Global Asset Allocation Team and represent the long-term capital market outlook (i.e., 30 years) based on data at the end of the third quarter of 2018. The assumptions were developed using a building block approach, reflecting observable inflation and interest rate information available in the fixed income markets as well as Consensus Economics forecasts. Our long-term assumptions for other asset classes are based on historical results, current market characteristics, and our professional judgment.

Inflation – Expected Level (2.3%)

Based on Consensus Economics long-term estimates and our near-term economic outlook, we expect U.S. consumer price inflation to be approximately 2.3% during the next 30 years.

Real Returns for Asset Classes

Fixed Income

- **Cash (0.6%)** – Over the long run, we expect the real yield on cash and money market instruments to produce a real return of 0.6% in a moderate- to low-inflationary environment.
- **TIPS (1.2%)** – We expect intermediate duration Treasury Inflation-Protected Securities to produce a real return of about 1.2%.
- **Core Fixed Income (i.e., Market Duration) (1.4%)** – We expect intermediate duration Treasuries to produce a real return of about 0.7%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults and downgrades) to be 0.7%, resulting in a long-term real return of 1.4%.
- **Long Duration Bonds – Government and Credit (1.6%)** – We expect Treasuries with a duration comparable to the Long Government Credit Index to produce a real return of 1.0%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults and downgrades) to be 0.6%, resulting in an expected real return of 1.6%.

AHIC Capital Market Assumptions

Explanation of Capital Market Assumptions—Q4 2018

- **Long Duration Bonds – Credit (2.0%)** – We expect Treasuries with a duration comparable to the Long Credit Index to produce a real return of 1.0 %. We estimate the fair value credit spread (credit risk premium - expected losses from defaults and downgrades) to be 1.0%, resulting in an expected real return of 2.0%.
- **Long Duration Bonds – Government (1.0%)** – We expect Treasuries with a duration of ~12 years to produce a real return of 1.0% during the next 30 years.
- **High Yield Bonds (2.7%)** – We expect intermediate duration Treasuries to produce a real return of about 0.7%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults and downgrades) to be 2.0%, resulting in an expected real return of 2.7%.
- **Bank Loans (3.5%)** – We expect LIBOR to produce a real return of about 1.1%. We estimate the fair value credit spread (credit risk premium - expected losses from defaults) to be 2.0%, resulting in an expected real return of 3.5%.
- **Non-US Developed Bonds: 50% Hedged (0.8%) –** We forecast real returns for non-US developed market bonds to be 0.8% over a 30-year period after adjusting for a 50% currency hedge. We assume a blend of one-third investment grade corporate bonds and two-thirds government bonds. We also produce assumptions for 0% hedged and 100% hedged non-US developed bonds.
- **Emerging Market Bonds (Sovereign; USD) (2.8%) –** We forecast real returns for emerging market sovereign bonds denominated in USD to be 2.8% over a 30-year period.
- **Emerging Market Bonds (Corporate; USD) (2.6%)** – We forecast real returns for emerging market corporate bonds denominated in USD to be 2.6% over a 30-year period.
- **Emerging Market Bonds (Sovereign; Local) (4.0%)** – We forecast real returns for emerging market sovereign bond denominated in local currency to be 4.0% over a 30-year period.
- **Multi Asset Credit (MAC) (4.4%) –** We assume real returns from beta exposure to high yield, bank loans and emerging market debt to add 3.4% plus 1.0% from alpha (net of fees) over a 30-year period.

AHIC Capital Market Assumptions

Explanation of Capital Market Assumptions—Q4 2018

Equities

- **Large Cap U.S. Equity (4.1%)** – This assumption is based on our 30-year outlook for large cap U.S. company dividends and real earnings growth. Adjustments are made for valuations as needed.
- **Small Cap U.S. Equity (4.6%)** – Adding a 0.5% return premium for small cap U.S. equity over large cap U.S. equity results in an expected real return of 4.6%. This return premium is theoretically justified by the higher risk inherent in small cap U.S. equity versus large cap U.S. equity, and is also justified by historical data. In recent years, higher small cap valuations relative large cap equity has reduced the small cap premium.
- **Global Equity (Developed & Emerging Markets) (5.1%)** – We employ a building block process similar to the U.S. equity model using the developed and emerging markets that comprise the MSCI All-Country World Index. Our roll-up model produces an expected real return of 5.1% for global equity.
- **International (Non-U.S.) Equity, Developed Markets (5.1%)** – We employ a building block process similar to the U.S. equity model using the non-U.S. developed equity markets that comprise the MSCI EAFE Index.
- **Emerging Market Stocks (5.9%)** - We employ a building block process similar to the U.S. equity model using the non-U.S. emerging equity markets that comprise the MSCI Emerging Markets Index.
- **Equity Risk Insurance Premium Strategies- High Beta (3.9%) –** We expect nominal returns from insurance equity risk premium to average 3.5% plus 2.9% from cash & dividends over the next 30 years.

Alternative Asset Classes

- **Hedge Fund-of-Funds Universe (2.1%)** – The generic category “hedge funds” encompasses a wide range of strategies accessed through “fund-of-funds” vehicles. We also assume the ***median*** manager is selected and also allow for the additional costs associated with Fund-of-Funds management. A top-tier portfolio of funds (hedge fund-of-funds buy-list) could add an additional 1.1% in return at similar volatility based on alpha, lower fees and better risk management.

AHIC Capital Market Assumptions
Explanation of Capital Market Assumptions—Q4 2018

- **Hedge Fund-of-Funds Buy List (3.2%)** – The generic category of top-tier "hedge funds" encompasses a wide range of strategies accessed through "fund-of-funds" vehicles. We assume additional costs associated with Funds-of-Funds management. To use this category the funds must be buy rated or we advise on manager selection.
- **Broad Hedge Funds (3.5%)** – Represents a diversified portfolio of direct hedge fund investments. This investment will tend to be less diversified than a typical "fund-of-funds" strategy as there will be fewer underlying managers and will not include the extra layer of fees found in a Fund-of-Funds structure.
- **Broad Hedge Funds Buy List (4.8%)** – Represents a diversified portfolio of top-tier direct hedge fund investments. This investment will tend to be less diversified than a typical "fund-of-funds" strategy as there will be fewer underlying managers and will not include the extra layer of fees found in a Fund-of-Funds structure. To use this category the funds must be buy rated or we advise on manager selection.
- **Core Real Estate (3.0%)** – Our real return assumption for core real estate is based on a gross income of about 4.0%, management fees of roughly 1%, and future capital appreciation near the rate of inflation during the next 30 years. We assume a portfolio of equity real estate holdings that is diversified by property type and geographic region.
- **U.S. REITs (4.0%)** – Our real return assumption for U.S. REITs is based on income of 4.0% and future capital appreciation near the rate of inflation over the next 30 years. REITs are a sub-set of the U.S. small/mid cap equities.
- **Commodities (3.2%)** – Our commodity assumption is for a diversified portfolio of commodity futures contracts. Commodity futures returns are composed of three parts: spot price appreciation, collateral return, and roll return (positive or negative change implied by the shape of the future curve). We believe that spot prices will converge with CPI over the long run (i.e., 2.3%). Collateral is assumed to be LIBOR cash 1.1%. Also, we believe the roll effect will be near zero, resulting in a real return of approximately 3.2% for commodities.

AHIC Capital Market Assumptions

Explanation of Capital Market Assumptions—Q4 2018

- **Private Equity (6.3%)** – Our private equity assumption reflects a diversified fund of funds with exposure to buyouts, venture capital, distressed debt, and mezzanine debt.
- **Infrastructure (4.7%)** – Our infrastructure assumption is formulated using a cash flow based approach that projects cash flows (on a diversified portfolio of assets) over a 30 year period. Income and capital growth as well as gearing levels, debt costs and terms, relevant tax and management expenses are all taken into consideration. Our approach produces an expected real return of 4.7% for infrastructure.
- **Equity Risk Insurance Premium Strategies- Low Beta (4.0%) –** We assume nominal returns from cash of 2.9% + 3.5% from alpha**.**

Volatility / Correlation Assumptions

Assumed volatilities are formulated with reference to implied volatilities priced into option contracts of various terms, as well as with regard to historical volatility levels. For asset classes which are not marked to market (for example real estate), we “de-smooth” historical returns before calculating volatilities. Importantly, we consider expected volatility trends in the future – in recent years we assumed the re-emergence of an economic cycle and a loss of confidence in central bankers would lead to an increase in volatility. Correlation assumptions are generally similar to actual historical results; however, we do make adjustments to reflect our forward-looking views as well as current market fundamentals.

Capital Market Assumptions Q4 2018 (30 Years)

		30-yr	30-yr	30-yr	
	Equity	**Expected Real Return**[1]	**Expected Nominal Return**[1]	**Expected Volatility**	**Sharpe Ratio**
1	Large Cap U.S. Equity	4.1%	6.5%	17.5%	0.206
2	Small Cap U.S. Equity	4.6%	7.0%	23.5%	0.174
3	Global Equity	5.1%	7.5%	19.0%	0.242
4	International Developed Equity	5.1%	7.5%	20.0%	0.230
5	Emerging Markets Equity	5.9%	8.3%	27.5%	0.196
	Fixed Income				
6	Cash (Gov't)	0.6%	2.9%	2.0%	0.000
7	Cash (LIBOR)	1.1%	3.4%	2.0%	0.250
8	TIPS	1.2%	3.5%	4.5%	0.133
9	Core Fixed Income (Market Duration)	1.4%	3.7%	5.0%	0.160
10	Long Duration Bonds – Gov't / Credit	1.6%	3.9%	10.5%	0.095
11	Long Duration Bonds – Credit	2.0%	4.3%	12.0%	0.117
12	Long Duration Bonds – Gov't	1.0%	3.3%	10.0%	0.040
13	High Yield Bonds	2.7%	5.1%	12.5%	0.176
14	Bank Loans	3.5%	5.9%	7.5%	0.400
15	Non-US Developed Bonds (0% Hedged)	0.6%	2.9%	11.0%	0.000
16	Non-US Developed Bonds (50% Hedged)	0.8%	3.1%	6.5%	0.031
17	Non-US Developed Bonds (100% Hedged)	0.9%	3.2%	4.0%	0.075
18	Emerging Market Bonds (Sovereign USD)	2.8%	5.2%	14.0%	0.164
19	Emerging Market Bonds (Corporate USD)	2.6%	5.0%	11.0%	0.191
20	Emerging Market Bonds (Sovereign Local)	4.0%	6.4%	14.5%	0.241
	Alternative Investments				
21	Hedge Fund-of-Funds[2]	2.1%	4.4%	10.0%	0.150
22	Hedge Fund-of-Funds[2] (Buy List)	3.2%	5.6%	9.5%	0.284
23	Broad Hedge Funds[3]	3.5%	5.9%	10.0%	0.300
24	Broad Hedge Funds[3] (Buy List)	4.8%	7.2%	9.5%	0.453
25	Real Estate (Core)	3.0%	5.4%	11.5%	0.217
26	U.S. REITs	4.0%	6.4%	19.0%	0.184
27	Commodities	3.2%	5.6%	17.0%	0.159
28	Private Equity	6.3%	8.7%	24.5%	0.237
29	Infrastructure	4.7%	7.1%	15.0%	0.280
30	Multi Asset Credit	4.4%	6.8%	10.0%	0.390
31	ILS	3.0%	5.4%	7.5%	0.333
32	Equity Insurance Risk Premium - High Beta	4.0%	6.4%	5.5%	0.636
33	Equity Insurance Risk Premium - Low Beta	3.9%	6.3%	11.0%	0.309
34	Private Debt (Direct Lending)	5.1%	7.5%	17.0%	0.271
35	U.S. Inflation	0.0%	2.3%	1.5%	-0.400

1) All expected returns are geometric (long-term compounded; rounded to the nearest decimal) and net of investment fees

2) Fund of hedge funds

3) Diversified portfolio of Direct hedge fund investments

Capital Market Assumptions Q4 2018 (30 Years)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
1	Large Cap U.S. Equity	1.00	0.92	0.96	0.79	0.72	0.09	0.09	-0.05	0.03	-0.02	0.07	-0.13	0.61	0.39	-0.03	-0.03	0.01	0.43	0.41	0.46	0.67	0.54	0.66	0.54	0.39	0.66	0.32	0.69	0.38	0.56	0.02	0.91	0.51	0.33	0.06
2	Small Cap U.S. Equity		1.00	0.90	0.72	0.67	0.07	0.07	-0.05	0.02	-0.03	0.06	-0.12	0.57	0.36	-0.03	-0.03	0.00	0.39	0.37	0.40	0.62	0.50	0.61	0.49	0.36	0.61	0.28	0.65	0.35	0.51	0.02	0.84	0.47	0.30	0.05
3	Global Equity			1.00	0.91	0.84	0.08	0.07	-0.05	0.03	-0.02	0.07	-0.13	0.66	0.40	0.15	0.13	0.00	0.47	0.46	0.55	0.65	0.53	0.65	0.52	0.39	0.64	0.39	0.67	0.37	0.62	0.02	0.88	0.49	0.34	0.07
4	International Equity				1.00	0.75	0.04	0.04	-0.04	0.03	-0.02	0.07	-0.11	0.59	0.36	0.41	0.34	-0.02	0.43	0.44	0.59	0.56	0.45	0.56	0.45	0.35	0.53	0.44	0.57	0.32	0.58	0.01	0.73	0.39	0.31	0.08
5	Emerging Markets Equity					1.00	0.06	0.06	-0.04	0.03	-0.01	0.08	-0.11	0.66	0.36	0.18	0.16	0.01	0.48	0.47	0.52	0.49	0.40	0.48	0.39	0.32	0.49	0.32	0.53	0.29	0.60	0.02	0.66	0.37	0.31	0.07
6	Gov Cash						1.00	0.98	0.45	0.46	0.23	0.20	0.24	0.15	0.09	0.12	0.30	0.62	0.16	0.08	0.01	-0.02	-0.02	-0.02	-0.02	0.17	0.09	0.23	0.09	0.12	0.12	0.26	0.18	0.39	0.07	0.54
7	LIBOR Cash							1.00	0.45	0.46	0.23	0.20	0.24	0.15	0.10	0.12	0.29	0.61	0.17	0.08	0.01	-0.02	-0.02	-0.02	-0.02	0.16	0.09	0.22	0.09	0.11	0.12	0.27	0.17	0.38	0.08	0.53
8	TIPS								1.00	0.52	0.34	0.30	0.34	0.11	-0.06	0.07	0.13	0.22	0.15	0.04	-0.02	-0.11	-0.09	-0.11	-0.09	0.03	-0.02	0.18	-0.04	0.01	0.05	0.12	0.00	0.13	-0.05	0.41
9	Core Fixed Income (Market Duration)									1.00	0.86	0.86	0.78	0.31	0.13	0.20	0.35	0.60	0.46	0.19	0.12	0.02	0.01	0.02	0.01	0.07	0.03	0.09	0.03	0.05	0.27	0.12	0.07	0.17	0.11	0.15
10	Long Duration Bonds – Gov't / Credit										1.00	0.96	0.95	0.15	-0.02	0.19	0.32	0.53	0.35	0.10	0.07	-0.04	-0.03	-0.03	-0.03	0.01	-0.01	-0.01	-0.02	0.01	0.12	0.06	0.00	0.07	-0.01	-0.09
11	Long Duration Bonds – Credit											1.00	0.83	0.36	0.22	0.18	0.31	0.51	0.49	0.22	0.17	0.14	0.11	0.14	0.11	0.05	0.05	0.00	0.05	0.05	0.33	0.05	0.08	0.10	0.19	-0.08
12	Long Duration Bonds – Gov't												1.00	-0.11	-0.29	0.17	0.31	0.50	0.16	-0.05	-0.04	-0.24	-0.19	-0.23	-0.19	-0.03	-0.08	-0.03	-0.11	-0.04	-0.13	0.06	-0.09	0.02	-0.25	-0.09
13	High Yield Bonds													1.00	0.75	0.19	0.20	0.13	0.72	0.61	0.56	0.65	0.52	0.65	0.52	0.26	0.41	0.39	0.46	0.26	0.91	0.04	0.57	0.34	0.64	0.20
14	Bank Loans														1.00	0.09	0.10	0.09	0.47	0.54	0.42	0.70	0.56	0.69	0.56	0.17	0.26	0.16	0.29	0.17	0.80	0.03	0.36	0.21	0.84	0.11
15	Non-US Developed Bond (0% Hedged)															1.00	0.96	0.31	0.22	0.21	0.51	0.03	0.03	0.03	0.03	0.01	-0.02	0.43	0.00	0.02	0.27	0.03	-0.01	0.03	0.07	0.12
16	Non-US Developed Bond (50% Hedged)																1.00	0.57	0.27	0.22	0.46	0.02	0.02	0.02	0.02	0.03	-0.01	0.40	0.00	0.03	0.28	0.08	0.01	0.09	0.08	0.17
17	Non-US Developed Bond (100% Hedged)																	1.00	0.25	0.11	0.08	-0.01	-0.01	-0.01	-0.01	0.08	0.02	0.10	0.01	0.05	0.14	0.16	0.07	0.22	0.07	0.21
18	Hard Emerging Market Bonds																		1.00	0.69	0.62	0.52	0.42	0.52	0.41	0.18	0.28	0.24	0.30	0.18	0.76	0.05	0.40	0.26	0.40	0.09
19	Corporate Emerging Market Bonds																			1.00	0.60	0.58	0.46	0.57	0.46	0.16	0.27	0.27	0.28	0.16	0.73	0.02	0.38	0.22	0.46	0.09
20	Local Emerging Market Bonds																				1.00	0.48	0.38	0.47	0.38	0.10	0.28	0.46	0.19	0.12	0.72	0.01	0.41	0.22	0.35	0.01
21	Hedge Funds Universe																					1.00	0.73	0.99	0.72	0.25	0.44	0.27	0.46	0.25	0.70	0.00	0.61	0.31	0.59	0.04
22	Hedge Funds Buy List																						1.00	0.72	0.99	0.20	0.36	0.22	0.36	0.20	0.56	0.00	0.49	0.25	0.48	0.02
23	Broad Hedge Funds - without fees (Universe)																							1.00	0.72	0.25	0.44	0.27	0.45	0.25	0.69	0.00	0.60	0.31	0.59	0.04
24	Broad Hedge Funds - without fees (BuyList)																								1.00	0.20	0.35	0.22	0.36	0.20	0.56	0.00	0.49	0.25	0.47	0.02
25	Core Real Estate																									1.00	0.48	0.09	0.33	0.19	0.22	0.05	0.38	0.24	0.14	0.10
26	REITs																										1.00	0.20	0.47	0.27	0.37	0.02	0.61	0.35	0.22	0.06
27	Commodities																											1.00	0.11	0.08	0.37	0.06	0.31	0.23	0.13	0.40
28	Private Equity																												1.00	0.32	0.38	0.02	0.64	0.36	0.25	0.06
29	Infrastructure																													1.00	0.22	0.03	0.37	0.23	0.15	0.07
30	Multi-Asset Credit																														1.00	0.03	0.52	0.31	0.68	0.14
31	ILS																															1.00	0.05	0.10	0.02	0.14
32	EIRP - High Beta																																1.00	0.50	0.31	0.10
33	EIRP - Low Beta																																	1.00	0.18	0.21
34	Private Debt-Direct Lending																																		1.00	0.09
35	Inflation																																			1.00

Appendix

- Bios for Proposed Client Team

Proposed FCERA Team

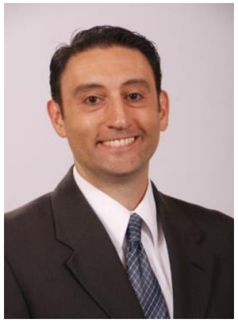
John J. Lee, *Partner*
FCERA Role*: Primary Consultant*

- Serves as lead investment consultant, and located in our Irvine California office. John is responsible for all aspects of investment consulting services, including investment manager analysis and monitoring, performance evaluation, asset allocation, investment manager searches, and investment policy development
- Previously a client team leader in Chicago and in California. John was research group leader in international equity, custody services, and defined contribution services. He was also a member of the firm's real estate research group
- Prior to joining the firm in 1994, John worked at Motorola and First Investors
- He holds an A.B. degree in Economics from the University of Chicago and an M.B.A. degree in Finance and Strategy from Kellogg School of Management at Northwestern University
- John has 25 years of investment consulting experience and 27 years in the investment industry experience

Shane Schurter, *Sr Consultant*
FCERA Role*: Primary Consultant*

- Serves as lead investment consultant, and located in our Chicago office. He is responsible for all aspects of investment consulting services, including investment manager analysis and monitoring, performance evaluation, asset allocation, investment manager searches, and investment policy development
- Previously served as a senior member of the firm's Investment Policy Services group. Shane was a leader in the firm's Global Investment Management team
- Prior to joining AHIC, Shane served as senior investment analyst with Rotary International where he monitored its investment program. He also worked for Central States Pension and Health & Welfare Funds and performed a wide range of financial/investment related duties
- B.S. degree in Finance from Illinois State University and an M.S. degree in finance from DePaul University. And was an adjunct professor at Chicago-based Illinois Institute of Technology
- 12 years investment consulting experience and 15 years of institutional investment experience

Proposed Team for FCERA



Phil Kivarkis, *Partner*
FCERA Role*: Asset Allocation and Asset-Liability Consultant*

- Aon's U.S. Director of Investment Policy Services. Phil is a industry-recognized expert and is one of a limited number of consultants in the nation that holds both the FSA and CFA designations
- Works with clients includes development of pension risk management solutions, asset allocation policy, implementation of liability-driven investment strategies, evaluation and development of funding strategies, identification of retirement plan design strategies, retirement plan benchmarking, and pension risk benchmarking
- Prior to joining the investment practice, Phil was a retirement actuary for Hewitt Associates. His work included annual pension and retirement welfare actuarial services, as well as financial strategy development related to retirement plan design and funding
- Phil is a Fellow of the Society of Actuaries. He holds the Chartered Financial Analyst designation and is a member of the CFA Institute. He graduated with highest distinction from the University of Illinois, and holds a BS degree in Actuarial Science.

Chae Hong, *Partner*
FCERA Role*: Real Assets Consultant*

- Senior real estate and real assets consultant in of Aon's Townsend Group, and located in our San Francisco office
- Leads client relationships that require his expertise which includes consulting and advising on institutional real estate and real assets, sourcing and performing due diligence on core, value added, and opportunistic real estate
- Prior to joining Aon in 2010, Chae held senior positions with notable firms such as Callan Associates, Cliffwater and RREEF
- He holds a B.A. and M.B.A. degree from the University of California, Los Angeles.
- More than 20 years of real estate industry experience

Proposed Team for FCERA

Steve Cummings, *Sr. Partner*
FCERA Role*: Strategist and AHIC Leadership*

- Head of North America Aon Hewitt Investment Consulting
- Co-leads our Global Investment Executive Function, the group responsible for setting the strategic direction of the global investment consulting practice and coordinating consulting efforts around the world
- An industry expert and frequently speaks before industry groups on a broad range of topics including soft dollars, public fund oversight, portfolio construction, and the evolution of the consulting industry
- Steve joined EnnisKnupp (the predecessor firm to Aon Hewitt Investment Consulting) in 1989 as a consultant and later rejoined in 2000 as the president and Chief Executive Officer. Prior to rejoining EnnisKnupp, he was the president of Marquette Associates from 1997–2000
- He holds a B.S. degree from the University of Texas and an M.B.A. degree from the University of Chicago. He is a CFA charterholder and is a member of the CFA Institute and Investment Analyst Society of Chicago (IASC)

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