CITY AND COUNTY OF SAN FRANCISCO
RETIREE HEALTH CARE TRUST FUND BOARD

RETIREE HEALTH CARE TRUST FUND
BOARD CALENDAR SHEET
Board Meeting of November 27, 2017

TO: Retiree Health Care Trust Fund Board

THROUGH: Caryn Bortnick
SFERS Deputy Executive Director

From: William Coaker
SFERS Chief Investment Officer

DATE: November 27, 2017

Agenda Item

Approve Recommended Asset Allocation and Implementation Plan

Background

During the Board's October 2, 2017 Special Meeting, Meketa Investment Group, Investment Consultant, presented the Board with six proposed asset allocation policy options with varying levels of expected returns and associated risks. Based on the Board's feedback, and subsequent discussions with SFERS staff, Meketa prepared the attached Asset Allocation Recommendation and Implementation Plan. SFERS staff concurs with this recommendation.

Bill Coaker, SFERS' CIO and staff from Meketa Investment Group will be available to answer questions.

Recommendation

Approve the Recommended Asset Allocation and Implementation Plan.

Attachments

Staff Memorandum; Asset Allocation Recommendation and Implementation Plan from Meketa Investment Group, Investment Consultant.

415-487-7055 1145 Market Street • 7th Floor • San Francisco CA 94103 FAX 415-487-7023

San Francisco Retiree Health Care Trust Fund

Asset Allocation Recommendation and Implementation Plan

November 27, 2017

M E K E T A   I N V E S T M E N T   G R O U P
5796 ARMADA DRIVE   SUITE 110   CARLSBAD   CA   92008
760 795 3450   fax 760 795 3445   www.meketagroup.com

Background

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- Over the course of several quarters in late 2013 and throughout 2014, the Board reviewed several ways to invest the San Francisco Retiree Health Care Trust Fund (RHCTF) assets. These options included investing alongside SFERS, investing with one of the CalPERS CERBT portfolios, or devising a standalone asset allocation.
- In 2015, the Board chose to leverage the SFERS custody and investment relationships as much as possible, but implement its own asset allocation. The decision was to utilize the passive strategies that SFERS was invested in, but not to invest alongside their active strategies. This limited RHCTF to the three passive asset classes in which the funds could be invested alongside SFERS: domestic equity (37% target allocation), international developed equity (37%), and investment grade bonds (26%).
- As of September 30, 2017, the RHCTF had $196 million, invested fairly close to the asset allocation targets. The Community College's Trust sub-account had an additional $13 million.
- Meketa Investment Group, in our 2014 asset allocation reviews, recommended that the RHCTF consider investing in additional asset classes, outside the SFERS portfolio, once assets reached a "critical mass". With assets having grown to nearly $200 million, and expected to grow meaningfully over the next several years due to contributions, Meketa recommended at the August Board meeting that the Board consider additional asset classes to further diversify the RHCTF, and presented a first round of asset allocation discussion.
- On Oct 2, 2017, a special meeting was held with Board and Staff to discuss potential asset allocation policy options. Meketa presented six policy options, each with varying levels of expected returns and associated risks. This document reflects Meketa's Asset Allocation recommendation and proposed policy target ranges, based on feedback from the Oct 2 meeting as well as subsequent discussions with Staff.

Background (continued)

- We also include a transition implementation plan to outline timing of the portfolio restructure. The goal is to move towards these allocations in several phases. **Phase I** will aim to gain exposure to two new asset classes: Emerging Market Equity and Emerging Market Debt. **Phase II** will continue to expand on the RHCTF's opportunity set by gaining exposure to additional strategies in the fixed income space: Bank Loans/High Yield and Treasury Inflation-Protected Securities (TIPS). Meketa will be presenting Manager Recommendations at the next scheduled Board meeting held in February.

Asset Allocation Recommendation

Recommended Asset Allocation Policy with Target Ranges[1]

	Current Policy (%)	Recommended Policy (%)	Proposed Policy Range (%)
Equities	**74**	**77**	**67-87**
US Equity	37	41	36-46
Developed Market Equity (non-US)	37	20	15-25
Emerging Market Equity	0	16	12-20
Credit	**0**	**9**	**5-15**
Bank Loans/High Yield	0	6	0-9
Emerging Market Bonds (local)	0	2	0-4
Emerging Market Bonds (major)	0	2	0-4
Rate Sensitive	**26**	**14**	**10-20**
TIPS	0	5	0-7
Investment Grade Bonds	26	9	4-14
Expected Return (20 years)	*6.9*	***7.75***	
Standard Deviation	*13.8*	*15.7*	
Sharpe Ratio	*0.30*	***0.32***	

- This represents Policy C from the October Board meeting.
- Expected return increases from 6.9% over 20 years, to 7.75%.
- The Sharpe ratio, a measure for calculating risk-adjusted returns, improves from 0.30% to 0.32%.

[1] Expected return and standard deviation are based upon Meketa Investment Group's 2017 Annual Asset Study. Meketa's expected return calculation is a 20-year geometric calculation. Throughout this document, returns for periods longer than one year are annualized.

Recommended Asset Allocation Policy

- Based on conversations with the Board at the October meeting, and subsequent discussions with Staff regarding the appropriate risk tolerance and return for the Plan, we have selected Option C from the October meeting as the recommended policy. The expected return of the portfolio increases to 7.75%. As expected, the risk level (as defined by standard deviation) increases as the expected return increases. However, the Sharpe Ratio, a measure to calculate return per unit of risk, improves.
- The recommended policy expands on existing asset class structure to include new allocations to TIPS, high yield bond/bank loans, emerging market debt, and emerging market equity in order to further diversify the RHCTF.
- US Equity exposure marginally increases from 37% to 41% of the total portfolio.
- Developed Market Equity is reduced (37% to 20%) to allow for an allocation to Emerging Market Equity.
- Investment Grade Bonds is reduced by roughly 2/3rd of its current weight to redeploy assets into additional debt instruments; namely bank loans/high yield loans, emerging market debt and TIPS.
- The portfolio moves from a 100% passive structure to include active managers in areas of the market where there is an advantage to considering active investment.

Transition Implementation Timeline

Implementation Timeline

(%)	Current Targets (%)	New Policy Targets (%)	Phase I Cash Flows: March 2018 (mil$)	Phase I Cash Flows: April 2018 (mil$)	Phase I Cash Flows: May 2018 (mil$)	Q2 2018 estimated (%)	Q2 Completion	Manager Source/Use
Equity	**74**	**77**				**73**		
U.S. Equity	37	41				37	NO	
Developed Market Equity (non-U.S.)	37	20	-14	-14	-12	20	YES	
Emerging Market Equity	0	16	10	10	12	16	YES	Active Manager: TBA
Credit	**0**	**10**				**4**		
HY/ Bank Loans	0	6				0	NO	Opportunistic Credit Manager: TBA
Emerging Market Bonds	0	4	4	4	0	4	YES	EMD Manager: TBA
Rate Sensitive	**26**	**14**				**26**		
TIPS	0	5				0	NO	Passive Investment: TIPS
Investment Grade Bond	26	9				26	NO	

- Phase I would add exposure to Emerging Market Equity and Emerging Market Debt, using Developed Market Equity as a source of funds. This would be done in several tranches.
- Add Emerging Market Equity in three tranches, with cash flows ranging in size between $10-$12M, to be completed and fully funded by second quarter 2018. We expect to bring a manager search document and discussion to the February 2018 meeting.
- Add Emerging Market Debt in two tranches of $4M each, to be completed and fully funded by second quarter 2018. We expect to bring a manager search document and discussion to the February 2018 meeting.

Implementation Timeline (continued)

(%)	Q2 2018 Estimate (%)	New Policy Targets (%)	Phase II Cash Flows June 2018 (mil$)	July 2018 (mil$)	Q3 2018 (%)	Q3 Completion	Manager Source/Use
Equity	**73**	**77**			**77**		
U.S. Equity	37	41	6	2	41	**YES**	
Developed Market Equity (non-U.S.)	20	20			20	**YES**	
Emerging Market Equity	16	16			16	**YES**	Active Manager: TBA
Credit	**4**	**10**			**10**		
HY/ Bank Loans	0	6	6	6	6	**YES**	Opportunistic Credit Manager: TBA
Emerging Market Bonds	4	4			4	**YES**	Opportunistic Credit Manager: TBA
Rate Sensitive	**26**	**14**			**14**		
TIPS	0	5	5	5	5	**YES**	Passive Investment: TIPS
Investment Grade Bond	26	9	-17	-17	9	**YES**	

- Phase II would begin to add exposure to credit sensitive and rate sensitive strategies within Fixed Income, using Investment Grade Bonds as a source of cash.
- The new 6% allocation to High Yield/ Bank Loans would be completed in two, $6M tranches, before the end of third quarter. This would be done through an actively managed fund. We expect to bring a manager search document to the February 2018 meeting.
- The new 5% allocation to TIPS would be completed in two $5M tranches before the end of third quarter. This would be done through a new passively managed TIPS mandate, as we don't recommend active management in this space due to the limited number of issues in the marketplace, and the reduced possibilities to add alpha.

Appendices

Notes and Disclaimers

1. The returns shown in the Policy Options and Risk Analysis sections rely on estimates of expected return, standard deviation, and correlation developed by Meketa Investment Group. To the extent that actual return patterns to the asset classes differ from our expectations, the results in the table will be incorrect. However, our inputs represent our best unbiased estimates of these simple parameters.

2. The returns shown in the Policy Options and Risk Analysis sections use a lognormal distribution, which may or may not be an accurate representation of each asset classes' future return distribution. To the extent that it is not accurate in whole or in part, the probabilities listed in the table will be incorrect. As an example, if some asset classes' actual distributions are even more right-skewed than the lognormal distribution (i.e., more frequent low returns and less frequent high returns), then the probability of the portfolio hitting a given annual return will be lower than that stated in the table.

3. The standard deviation bars in the chart in the Risk Analysis section do not indicate the likelihood of a 1, 2, or 3 standard deviation event-they simply indicate the return we expect if such an event occurs. Since the likelihood of such an event is the same across allocations regardless of the underlying distribution, a relative comparison across policy choices remains valid.

Asset Allocation Policy Options[1]

	Current Policy (%)	7.0% Alternative (%)	Policy A (%)	Policy B (%)	Policy C (%)	Policy D (%)	Policy D w/o PE (%)
Equities	**74**	**56**	**59**	**68**	**77**	**77**	**72**
US Equity	37	32	34	37	41	37	24
Developed Market Equity (non-US)	37	14	12	17	20	19	24
Private Equity	0	0	0	0	0	5	0
Emerging Market Equity	0	10	13	14	16	16	24
Credit	**0**	**18**	**21**	**15**	**9**	**8**	**18**
Bank Loans	0	6	7	5	3	3	7
High Yield Bonds	0	6	8	5	3	3	7
Emerging Market Bonds (local)	0	3	3	3	2	1	2
Emerging Market Bonds (major)	0	3	3	3	2	1	2
Rate Sensitive	**26**	**26**	**20**	**17**	**14**	**10**	**10**
TIPS	0	8	8	7	5	3	5
Investment Grade Bonds	26	18	12	10	9	7	5
Real Assets	**0**	**0**	**0**	**0**	**0**	**5**	**0**
Core Private Real Estate	0	0	0	0	0	5	0
Other	0	0	0	0	0	0	0
Expected Return (20 years)	*6.9*	*7.0*	*7.25*	*7.5*	*7.75*	*8.0*	*8.0*
Standard Deviation	*13.8*	*12.4*	*13.3*	*14.5*	*15.7*	*16.1*	*16.2*
Sharp Ratio	*0.30*	*0.34*	*0.34*	*0.34*	*0.32*	*0.32*	*0.32*

[1] Expected return and standard deviation are based upon Meketa Investment Group's 2017 Annual Asset Study. Meketa's expected return calculation is a 20-year geometric calculation. Throughout this document, returns for periods longer than one year are annualized.

Scenario Return Inputs

Asset Class	Benchmark Used
Investment Grade Bonds	Barclays Aggregate
TIPS	Barclays U.S. TIPS
Intermediate-term Government Bonds	Ibbotson U.S. Intermediate Government
Long-term Government Bonds	Barclays Long Term Treasury
EM Bonds	JPM GBI-EM Global Diversified
Bank Loans	CSFB Leveraged Loan
High Yield Bonds	Barclays High Yield
Core Real Estate	NCREIF Property
Value-Added RE	NCREIF Townsend Value Added
Opportunistic RE	NCREIF Townsend Opportunistic
REITs	NAREIT Equity
Infrastructure (private)	S&P Global Infrastructure
Natural Resources (private)	S&P Global Natural Resources
Timber	NCREIF Timberland
Commodities	Summer Haven Commodity
U.S. Equity	Russell 3000
Public Foreign Equity (Developed)	MSCI EAFE
Public Foreign Equity (Emerging)	MSCI Emerging Markets
Private Equity	Venture Economics Private Equity Composite
Long-short Equity	HFRI Equity Hedge
Global Macro	HFRI Macro
Hedge Funds	HFRI Fund of Funds Composite

Stress Test Return Assumptions[1]

	Rates Rise 100 bp (%)	Rates Rise 200 bp (%)	Rates Rise 300 bp (%)	BBB Spreads widen by 50 bp (%)	BBB Spreads widen by 300 bp (%)	USD Gains 10% (%)	USD Gains 20% (%)	Equities Decline 10% (%)	Equities Decline 25% (%)	Equities Decline 40% (%)
Public Domestic Equity	10.3	9.0	6.9	6.0	-42.0	3.5	7.0	-10.0	-25.0	-40.0
Public Foreign Equity (Developed)	10.3	9.0	6.9	5.5	-33.0	-7.0	-14.0	-10.5	-26.3	-42.0
Public Foreign Equity (Emerging)	10.3	9.0	6.9	5.0	-39.0	-7.0	-14.0	-11.0	-27.5	-44.0
Long-Short Hedge Funds	6.4	7.0	6.0	6.5	-21.0	2.1	4.2	-6.0	-15.0	-24.0
Private Equity	5.2	4.5	3.5	6.0	-42.0	3.5	7.0	-8.0	-20.0	-32.0
Core Real Estate	8.7	9.6	8.7	9.5	-12.0	4.0	8.0	-5.0	-12.5	-20.0
REITs	7.9	8.0	6.0	0.5	-36.0	1.0	2.0	-9.5	-23.8	-38.0
Non-Core Real Estate	7.1	10.4	9.3	11.5	-24.0	4.0	8.0	-7.0	-17.5	-28.0
Infrastructure (private)	4.3	2.6	2.9	3.5	-24.0	3.0	6.0	-5.0	-12.5	-20.0
Natural Resources (private)	8.6	12.2	13.5	2.0	-16.5	-3.1	-6.2	-5.0	-12.5	-20.0
Natural Resources (public)	11.4	16.2	18.0	4.0	-33.0	-6.2	-12.3	-9.5	-23.8	-38.0
Commodities	8.7	4.6	-0.6	-0.5	-21.0	-15.0	-30.0	-7.0	-17.5	-28.0
Short-Term Bonds	-6.4	-12.2	-17.9	8.0	6.0	7.0	14.0	1.0	2.5	4.0
Long-Term Government Bonds	-15.3	-33.6	-52.0	12.0	15.0	10.0	20.0	5.0	12.5	20.0
TIPS	-7.0	-15.8	-24.6	8.5	12.0	8.0	16.0	1.0	2.5	4.0
Investment Grade Bonds	-3.4	-8.6	-13.9	-0.4	-4.6	8.0	16.0	2.0	5.0	8.0
Investment Grade Corporate Bonds	-4.3	-11.4	-18.5	-1.4	-18.5	8.0	16.0	-1.5	-3.8	-6.0
Foreign Developed Bonds	-5.1	-11.8	-18.5	0.0	-3.5	-6.3	-12.6	-2.0	-5.0	-8.0
Emerging Market Bonds (external)	-2.0	-7.9	-13.9	-2.7	-25.9	5.0	10.0	-2.0	-5.0	-8.0
Emerging Market Bonds (local)	-0.8	-6.6	-12.3	1.4	-8.0	-6.3	-12.6	-3.0	-7.5	-12.0
High Yield Bonds	1.5	-2.6	-6.7	-4.9	-35.9	4.5	9.0	-6.0	-15.0	-24.0
Bank Loans	5.0	6.0	7.5	2.5	-30.0	4.5	9.0	-6.0	-15.0	-24.0
Hedge Funds	5.8	6.2	3.6	3.5	-18.0	5.0	10.0	-5.0	-12.5	-20.0
TAA	7.8	5.7	3.1	6.5	-22.2	3.2	6.4	-7.0	-17.5	-28.0
Risk Parity	6.1	2.1	-2.5	5.6	-12.0	1.6	3.3	-2.0	-5.0	-8.0

1 Assumptions are based on performance for each asset class during historical periods that resembled these situations.

Overview of Annual Asset Study Methodology

- In order to construct an optimal portfolio from a risk-return standpoint, conventional financial wisdom dictates that one develop return, volatility, and correlation expectations over the relevant investing horizon.
- Given the uncertainty surrounding financial and economic forecasts, expectations development is challenging, and any of several methodological approaches may meaningfully contribute to this complex task.
- Meketa Investment Group's process relies on both quantitative and qualitative methodologies.
- First, we employ a large set of quantitative models to arrive at a set of baseline expected ten-year annualized returns for major asset classes.
- These models attempt to forecast a gross "beta" return for each public market asset class; that is, we specifically do not model "alpha," nor do we apply an estimate for management fees or other operational expenses[1].
- Our models are fundamentally based (based on some theoretically defined return relationship with current observable factors).
- Some of these models are more predictive than others. For this reason, we next overlay a qualitative analysis, which takes the form of a data-driven deliberation among the research team and our Investment Policy Committee.
- Return assumptions for hard-to-predict asset classes as well as those with limited data will be influenced more heavily by our qualitative analysis.
- As a result of this process, we form our ten-year annualized return expectations, which serve as the primary foundation of our longer-term, twenty-year expectations.

[1] Our expectations are net of fees where passive management is not available (e.g., private markets and hedge funds).

Overview of Annual Asset Study Methodology (continued)

- We form our twenty-year annualized return expectations by systematically considering historical returns on an asset class by asset class level. Specifically, we construct a weighted average of our ten-year expectations and average historical returns in each asset class.
- The weights are determined by a qualitative assessment of the value of the historical data. Generally, if we have little confidence that the historical average return is representative of what an investor can expect[1], we will weight our ten-year forecast more heavily. Therefore, the weight on our ten-year forecasts ranges from 0.5 to 0.9.
- We develop our twenty-year volatility and correlation expectations differently. We rely primarily on historical averages, with an emphasis given to the experience of the trailing ten years.
- Qualitative adjustments, when applied, usually serve to increase the correlations and volatility over and above the historical estimates (e.g., using the higher correlations usually observed during a volatile market).
- We also make adjustments to the volatility based on the historical skewness of each asset class (e.g., increasing the volatility for an asset class that has been negatively skewed).
- In the case of private markets and other illiquid asset classes where historical volatility and correlations have been artificially dampened, we seek public market equivalents on which to base our estimates before applying any qualitative adjustments.
- These volatility and correlation expectations are then combined with our twenty-year return expectations to assist us in subsequent asset allocation work, including mean-variance optimization and scenario analyses.

[1] For example, we have less confidence in historical data that do not capture many possible market scenarios or that are overly polluted by survivorship bias.

Meketa Investment Group 2017 Annual Asset Study
Twenty-Year Annualized Return and Volatility Expectations for Major Asset Classes

Asset Class	Annualized Average Return (%)	Annualized Compounded Return (%)	Annualized Standard Deviation (%)
Fixed Income			
Cash Equivalents	2.8	2.8	1.0
Investment Grade Bonds	3.6	3.5	4.0
Long-term Government Bonds	4.6	3.8	12.5
TIPS	3.8	3.5	7.5
High Yield Bonds	6.8	6.0	12.5
Bank Loans	6.0	5.5	10.0
Foreign Bonds (unhedged)	2.8	2.4	9.0
Emerging Market Bonds (major; unhedged)	6.2	5.5	12.0
Emerging Market Bonds (local; unhedged)	7.0	5.9	14.5
Equities			
Public U.S. Equity	9.1	7.5	18.0
Public Developed Market Equity	9.3	7.3	20.0
Public Emerging Market Equity	13.2	9.8	26.0
Private Equity	12.1	9.2	24.0
Long-Short Hedge Funds	5.2	4.6	11.0
Real Assets			
REITs	10.7	6.5	29.0
Core Private Real Estate	6.5	5.7	12.5
Value Added Real Estate	9.0	7.2	19.0
Opportunistic Real Estate	12.0	8.9	25.0
Natural Resources (Private)	11.1	8.4	23.0
Commodities	6.4	4.5	19.5
Infrastructure (Core)	8.1	6.8	16.0
Infrastructure (Non-Core)	11.4	8.8	23.0
Other			
Hedge Funds	5.8	5.3	9.5

Meketa Investment Group 2017 Annual Asset Study: Correlation Expectations

	Investment Grade Bonds	TIPS	High Yield Bonds	Bank Loans	Emerging Market Bonds (major)	US Equity	Developed Market Equity (non-US)	Emerging Market (Equity)
Investment Grade Bonds	1.00							
TIPS	0.80	1.00						
High Yield Bonds	0.20	0.30	1.00					
Bank Loans	0.00	0.20	0.80	1.00				
Emerging Market Bonds (major)	0.50	0.50	0.70	0.40	1.00			
US Equity	0.05	0.00	0.70	0.60	0.60	1.00		
Developed Market Equity (non-US)	0.05	0.15	0.70	0.60	0.60	0.90	1.00	
Emerging Market (Equity)	0.05	0.15	0.70	0.55	0.65	0.80	0.90	1.00