

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

Edward F. Walsh, Jr., President Katharine Petrucione, Vice President Pauline A. Marx, Board Member Clare Murphy, Board Member David C. Salem, Board Member Jay Huish, Administrator

### RETIREE HEALTH CARE TRUST FUND BOARD CALENDAR SHEET Board Meeting of August 7, 2017

TO: Retiree Health Care Trust Fund Board

THROUGH: Caryn Bortnick SFERS Deputy Executive Director

FROM: Meketa Investment Group

DATE: August 7, 2017

#### Agenda Item

Q2 2017 Investment Report

#### Background

Each quarter, the RHCTF Board's consultant, Meketa Investment Group, provides the Board with a review of the Fund's performance for the prior quarter. Meketa's review of the Fund's performance for the second quarter is attached. Larry Witt, Meketa Investment Group, will provide and update and answer any questions.

#### Recommendation

This is a discussion item only.

#### **Attachments**

Investment Report from Meketa Investment Group, Investment Consultant

August 7, 2017



**Confidentiality:** This evaluation is prepared by Meketa Investment Group, Inc. for the exclusive use of the San Francisco Retiree Health Care Trust Fund. This evaluation is not to be used for any other purpose or by any parties other than it's Board Members, their employees, agents, attorneys, and/or consultants. No other parties are authorized to review or utilize the information contained herein without expressed written consent.

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1. Corporate Update

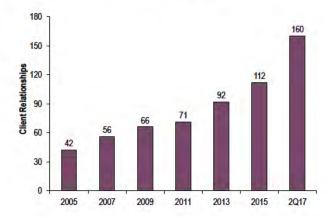
- 2. Executive Summary
- 3. Second Quarter of 2017 Performance Report
  - San Francisco Retiree Health Care Trust Fund
  - San Francisco Community College District Health Care Trust Fund
- 4. Capitol Market Assumptions

Agenda

Meketa Investment Group Corporate Update

Corporate Update

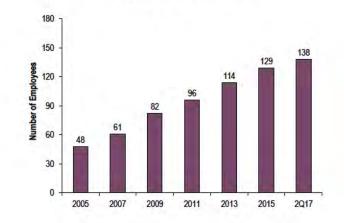
- Staff of 138, including 91 investment professionals and 28 CFA Charterholders .
- 160 clients, with over 270 funds throughout the United States ٠
- Significant investment in staff and resources .
- Offices in Boston, Chicago, Miami, Portland (OR), San Diego, and London ٠
- We advise on over \$500 billion in client assets
  - Over \$70 billion in assets committed to alternative investments
    - Private Equity Infrastructure
    - Real Estate
- Hedge Funds
- Natural Resources
- Commodities



#### **Client Growth**

## Meketa Investment Group is proud to work for over 5 million American families everyday.

Page 4



**Employee Growth** 

EquitiesPassiveEnhanced IndexLarge CapMidcapSmall Cap	International Equities	Private Equity-Buyouts-Venture Capital-Private Debt-Special Situations-Secondaries-Fund of Funds	Real Assets-Public REITs-Core Real Estate-Value Added Real Estate-Opportunistic Real Estate-Infrastructure-Timber-Natural Resources-Commodities	Fixed Income - Short-Term - Core - Core Plus - TIPS - High Yield - Bank Loans - Distressed - Global - Emerging Markets	Hedge Funds-Long/Short Equity-Event Driven-Relative Value-Relative Value-Fixed Income Arbitrage-Multi Strategy-Multi Strategy-Market Neutral-Global Macro-Fund of Funds-Portable Alpha
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Executive Summary As of June 30, 2017

Executive Summary

### San Francisco Retiree Health Care Trust Fund

- The market value of the San Francisco Retiree Health Care Trust Fund increased from \$153.1 million to \$172.7 million during the quarter due to net cash inflows of \$11.8 million and positive performance. The Fund returned 3.8% during the quarter.
- The quarter-to-date performance was driven by domestic and international equity, which returned 3.1% and 6.2%, respectively. Fixed income returned 1.5%.
- As of quarter end, the San Francisco Retiree Health Care Trust Fund's cash position was 1%. We anticipate there were always be a nominal cash position due to contributions.

### San Francisco Community College District Retiree Health Care Trust Fund

- The market value of the San Francisco Community College District Retiree Health Care Trust Fund increased from \$12.5 million to \$13.0 million during the quarter due to net cash inflows of \$331 and positive performance. The Fund returned 3.8% during the quarter.
- The quarter-to-date performance was driven by domestic and international equity, which returned 3.1% and 6.2%, respectively. Fixed income returned 1.5%.

# Second Quarter of 2017 Performance Report

# Total Fund Market Value

Market Value	US Equity (\$)	International Equity (\$)	Fixed Income (\$)	Cash (\$)	Total (\$)
San Francisco Retiree Health Care Trust Fund	63,096,578	63,084,400	44,260,715	2,216,546	172,658,239
San Francisco Community College District Retiree Health Care Trust Fund	4,799,322	4,798,395	3,366,608	2,100	12,966,425
Total	67,895,900	67,882,795	47,627,322	2,218,646	185,624,664

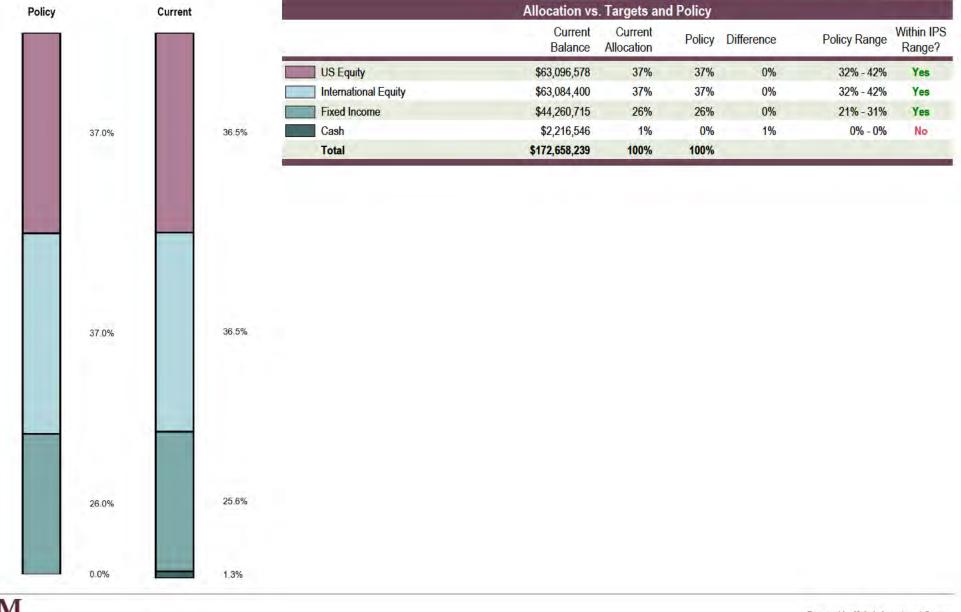
% Allocation by Asset Class	US Equity (%)	International Equity (%)	Fixed Income (%)	Cash (%)	Total (%)
San Francisco Retiree Health Care Trust Fund	37	37	26	1	100
San Francisco Community College District Retiree Health Care Trust Fund	37	37	26	0	100
Total	37	37	26	1	100

	San Francisco lealth Care Trust Fund		ommunity College District alth Care Trust Fund
International Equity, 37%	Fixed Income, 26% Cash, 1%	International Equity, 37%	Fixed Income, 26% Cash, 0%
	US Equity, 37%		US Equity, 37%

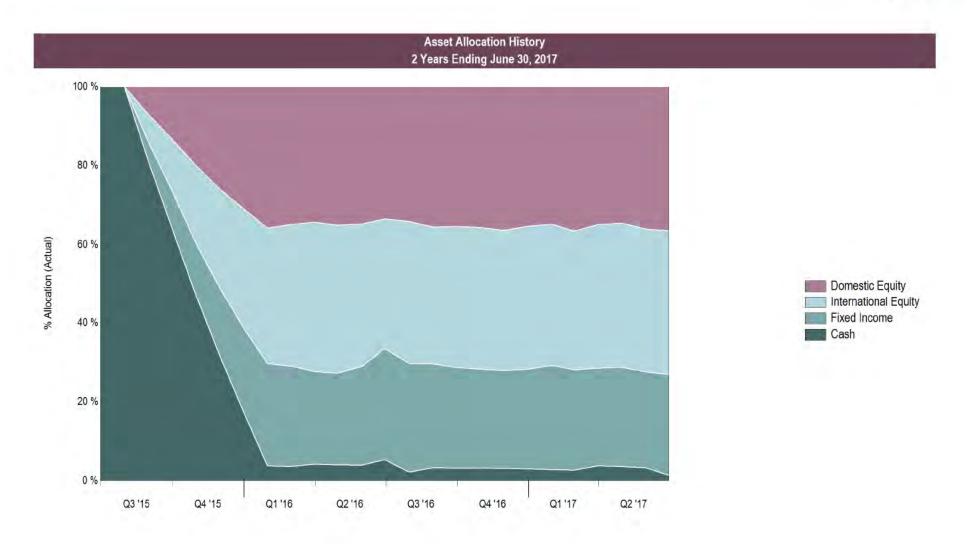
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San Francisco Retiree Health Care Trust Fund As of June 30, 2017

## **Total Fund**



# Total Fund



# Total Fund

	Asset Class Performance	e Summary							
	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Return (%)	Since
Total Fund	172,658,239	100.0	3.8	9.0	13.3		-	8.4	Sep-15
CPI - Medical Care			0.0	1.0	2.7	2.9	2.7	3.4	Sep-15
Domestic Equity	63,096,578	36.5	3.1	9.3	17.9		-	14.3	Sep-15
S&P 500			3.1	9.3	17.9	9.6	14.6	14.3	Sep-15
International Equity	63,084,400	36.5	6.2	14.0	20.5	-	-	7.7	Sep-15
MSCIEAFE			6.1	13.8	20.3	1.1	8.7	7.5	Sep-15
Fixed Income	44,260,715	25.6	1.5	2.4	-0.3		-	2.8	Sep-15
BBgBarc US Aggregate TR			1.4	2.3	-0.3	2.5	2.2	2.7	Sep-15
Cash	2,216,545	1.3	0.3	0.7	1.0	-	0-	0.9	Sep-15
91 Day T-Bills			0.2	0.4	0.5	0.2	0.2	0.4	Sep-15

# Total Fund

	Trailing	Performan	ice							
	Market Value (\$)	% of Portfolio	3 Mo Net Cash Flows (\$)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Return (%)	Since
otal Fund	172,658,239	100.0	11,790,777	3.8	9.0	13.3	-	14	8.4	Sep-1
CPI - Medical Care				0.0	1.0	2.7	2.9	2.7	3.4	Sep-1
Domestic Equity	63,096,578	36.5	7,200,654	3.1	9.3	17.9		-	14.3	Sep-1
S&P 500				3.1	9.3	17.9	9.6	14.6	14.3	Sep-1
Northern Trust S&P 500 Index	63,096,578	36.5	7,200,654	3.1	9.3	17.9	-	-	14.3	Sep-1
S&P 500				3.1	9.3	17.9	9.6	14.6	14.3	Sep-1
International Equity	63,084,400	36.5	2,692,797	6.2	14.0	20.5	-	-	7.7	Sep-1
MSCIEAFE				6.1	13.8	20.3	1.1	8.7	7.5	Sep-1
Northern Trust EAFE Index	63,084,400	36.5	2,692,797	6.2	14.0	20.5	-	-	7.7	Sep-1
MSCIEAFE				6.1	13.8	20.3	1.1	8.7	7.5	Sep-1
Fixed Income	44,260,715	25.6	5,513,653	1.5	2.4	-0.3			2.8	Sep-1
BBgBarc US Aggregate TR				1.4	2.3	-0.3	2.5	2.2	2.7	Sep-1
BlackRock U.S. Debt Index	44,260,715	25.6	5,513,653	1.5	2.4	-0.3			2.8	Sep-1
BBgBarc US Aggregate TR				1.4	2.3	-0.3	2.5	2.2	2.7	Sep-1
Cash	2,216,545	1.3	-3,616,327	0.3	0.7	1.0		-	0.9	Sep-1
91 Day T-Bills				0.2	0.4	0.5	0.2	0.2	0.4	Sep-1

# Northern Trust S&P 500 Index

Acco	unt Information
Account Name	Northern Trust S&P 500 Index
Account Structure	Commingled Fund
Investment Style	Passive
Inception Date	9/01/15
Account Type	US Equity
Benchmark	S&P 500
Universe	

Portfolio Performance Summary								
	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Northern Trust S&P 500 Index	3.1	9.3	179		1.4	-	14.3	Sep-15
S&P 500	3.1	9.3	17.9	9.6	14.6	7.2	14.3	Sep-15

Top 10 Holdings	
APPLE	3.6%
MICROSOFT	2.6%
AMAZON.COM	1.8%
FACEBOOK CLASS A	1.7%
JOHNSON & JOHNSON	1.7%
EXXON MOBIL	1.6%
JP MORGAN CHASE & CO.	1.6%
BERKSHIRE HATHAWAY 'B'	1.5%
ALPHABET 'A'	1.3%
ALPHABET 'C'	1.3%
Total	18.8%

Northern Tru	st S&P 500 Index-NL 0	Characteristics	
	Portfolio	Index	Portfolio
	Q2-17	Q2-17	Q1-17
Market Value			
Market Value (\$M)	63.1	-	54.2
Number Of Holdings	506	505	506
Characteristics			
Weighted Avg. Market Cap. (\$B)	154.7	154.7	151.4
Median Market Cap (\$B)	20.5	20.6	19.9
P/E Ratio	25.2	24.7	24.6
Yield	2.0	2.0	2.0
EPS Growth - 5 Yrs.	9.7	9.2	9.5
Price to Book	5.4	4.6	4.9
Beta (holdings; domestic)	1.0	1.0	1.0
Sector Distribution			
Energy	6.0	6.0	6.6
Materials	2.9	2.9	2.9
Industrials	10.2	10.2	10.0
Consumer Discretionary	12.2	12.3	12.3
Consumer Staples	9.1	9.0	9.3
Health Care	14.5	14.5	13.9
Financials	14.6	14.6	14.3
Information Technology	22.2	22.3	22.0
Telecommunication Services	2.1	2.1	2.4
Utilities	3.2	3.2	3.2
Real Estate	2.9	2.9	2.9

# Northern Trust EAFE Index

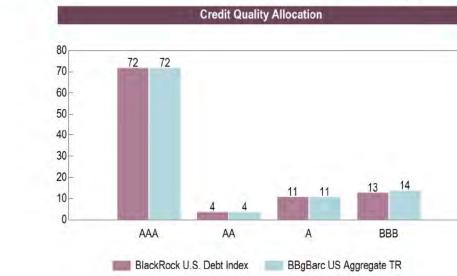
Accou	nt Information
Account Name	Northern Trust EAFE Index
Account Structure	Commingled Fund
Investment Style	Passive
Inception Date	9/01/15
Account Type	Non-US Stock All
Benchmark	MSCI EAFE
Universe	

Portfolio Performance Summary								
	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Northern Trust EAFE Index	6.2	14.0	20 5	1	-	-	7.7	Sep-15
MSCI EAFE	6.1	13.8	20.3	1.1	8.7	1.0	7.5	Sep-15

Performance Summary Report								
As of 6/30/2017								
Region	Number Of Assets	% of Total	% of Bench	% Diff				
North America ex U.S.	0	0%	0%	0%				
United States	0	0%	0%	0%				
Europe Ex U.K.	427	46%	46%	0%				
United Kingdom	167	18%	18%	0%				
Pacific Basin Ex Japan	111	12%	12%	0%				
Japan	223	24%	24%	0%				
Emerging Markets	0	0%	0%	0%				
Other	9	0%	1%	-1%				
Total	937	100%	100%	0%				

Northern	Frust EAFE Index Cha	racteristics	
	Portfolio	Index	Portfolio
	Q2-17	Q2-17	Q1-17
Market Value			
Market Value (\$M)	63.1	-	56.7
Number Of Holdings	937	927	971
Characteristics			
Weighted Avg. Market Cap. (\$B)	56.2	55.8	53.3
Median Market Cap (\$B)	9.9	10.2	9.1
P/E Ratio	22.6	21.0	22.6
Yield	3.0	3.0	3.0
EPS Growth - 5 Yrs.	4.5	4.3	4.0
Price to Book	3.0	2.5	3.0
Beta (holdings; domestic)	1.0	1.1	1.0
Sector Distribution			
Energy	4.7	4.8	5.0
Materials	7.2	6.9	7.6
Industrials	14.6	14.6	14.4
Consumer Discretionary	12.1	12.1	12.3
Consumer Staples	11.5	11.5	11.4
Health Care	10.9	11.0	10.8
Financials	21.5	21.6	21.3
Information Technology	6.0	6.1	5.7
Telecommunication Services	4.3	4.3	4.4
Utilities	3.4	3.4	3.4
Real Estate	3.6	3.7	3.6

# BlackRock U.S. Debt Index

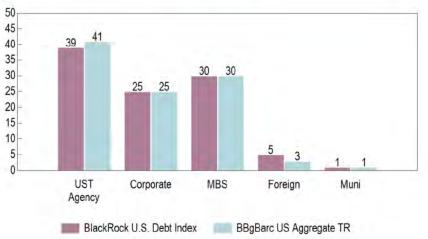


Account Information						
Account Name	BlackRock U.S. Debt Index					
Account Structure	Commingled Fund					
Investment Style	Passive					
Inception Date	9/01/15					
Account Type	US Fixed Income					
Benchmark	BBgBarc US Aggregate TR					
Universe						

Portfolio Performance Summary								
	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
BlackRock U.S. Debt Index	1.5	2.4	-03		( ÷	-	2.8	Sep-15
BBgBarc US Aggregate TR	1.4	2.3	-0.3	2.5	2.2	4.5	2.7	Sep-15

BlackRock U.S. Debt Index-Non Lending Characteristics vs. BBgBarc US Aggregate TR							
	Portfolio	Index	Portfolio				
	Q2-17	Q2-17	Q1-17				
Fixed Income Characteristics							
Yield to Maturity	2.6	2.5	2.6				
Average Duration	5.8	6.0	5.7				
Average Quality	AA	AA	A				



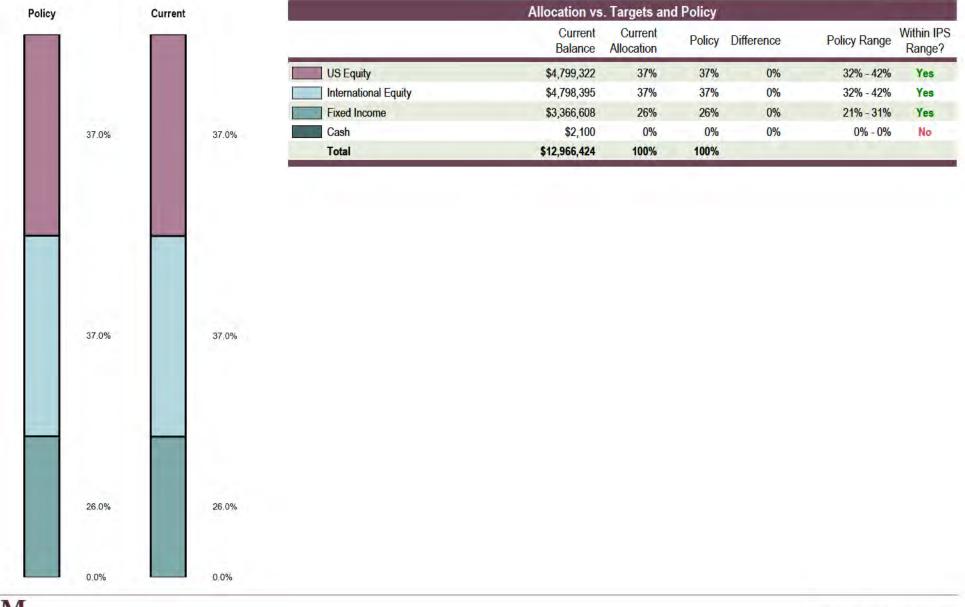


# Total Fund

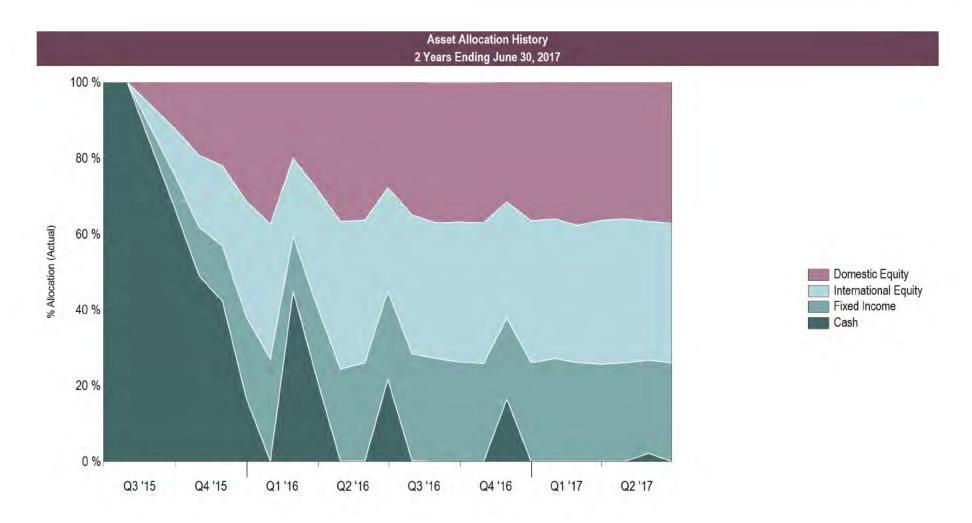
Investment Expense Analysis As Of June 30, 2017							
Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee				
	\$63,096,578						
0.035% of First \$50.0 Mil, 0.030% of Next \$50.0 Mil, 0.025% Thereafter	\$63,096,578	\$21,429	0.035%				
	\$63,084,400						
0.050% of Assets	\$63,084,400	\$31,542	0.050%				
	\$44,260,715						
0.050% of Assets	\$44,260,715	\$22,130	0.050%				
	As Of June 30, 2017 Fee Schedule 0.035% of First \$50.0 Mil, 0.030% of Next \$50.0 Mil, 0.025% Thereafter 0.050% of Assets	As Of June 30, 2017   Fee Schedule Market Value   \$63,096,578 \$63,096,578   0.035% of First \$50.0 Mil, \$63,096,578   0.030% of Next \$50.0 Mil, \$63,096,578   0.025% Thereafter \$63,084,400   0.050% of Assets \$63,084,400   \$44,260,715 \$44,260,715	As Of June 30, 2017   Fee Schedule Market Value Estimated Fee Value   \$63,096,578 \$63,096,578 \$21,429   0.030% of First \$50.0 Mil, 0.030% of Next \$50.0 Mil, 0.025% Thereafter \$63,096,578 \$21,429   0.025% Thereafter \$63,084,400 \$31,542   0.050% of Assets \$63,084,400 \$31,542				

San Francisco Community College District Health Care Trust Fund As of June 30, 2017

# **Total Fund**



## **Total Fund**



# Total Fund

Asset Class Performance Summary									
	Market Value (\$)	% of Portfolio	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Return (%)	Since
Total Fund	12,966,324	100.0	3.9	9.2	13.1	4	-	7.5	Sep-1
CPI - Medical Care			0.0	1.0	2.7	2.9	2.7	3.4	Sep-1
Domestic Equity	4,799,322	37.0	3.1	9.3	17.9	-		14.3	Sep-15
S&P 500	100 million (100 m		3.1	9.3	17.9	9.6	14.6	14.3	Sep-1
International Equity	4,798,395	37.0	6.2	14.0	20.5	-	-	7.7	Sep-15
MSCIEAFE	10 March 10		6.1	13.8	20.3	1.1	8.7	7.5	Sep-1
Fixed Income	3,366,608	26.0	1.5	2.4	-0.3	<del></del>	-	2.8	Sep-15
BBgBarc US Aggregate TR			1.4	2.3	-0.3	2.5	2.2	2.7	Sep-1
Cash	2,100	0.0	0.3	0.5	0.8	-	- C-	0.7	Sep-15
91 Day T-Bills			0.2	0.4	0.5	0.2	0.2	0.4	Sep-1

# Total Fund

	Trailing N	et Perform	ance							
	Market Value (\$)	% of Portfolio	3 Mo Net Cash Flows (\$)	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	Return (%)	Sinc
otal Fund	12,966,324	100.0	331	3.9	9.2	13.1			7.5	Sep-1
CPI - Medical Care				0.0	1.0	2.7	2.9	2.7	3.4	Sep-1
Domestic Equity	4,799,322	37.0		3.1	9.3	17.9		-	14.3	Sep-1
S&P 500				3.1	9.3	17.9	9.6	14.6	14.3	Sep-1
Northern Trust S&P 500 Index	4,799,322	37.0		3.1	9.3	17.9	-	-	14.3	Sep-1
S&P 500				3.1	9.3	17.9	9.6	14.6	14.3	Sep-1
International Equity	4,798,395	37.0		6.2	14.0	20.5	-	-	7.7	Sep-1
MSCIEAFE				6.1	13.8	20.3	1.1	8.7	7.5	Sep-1
Northern Trust EAFE Index	4,798,395	37.0		6.2	14.0	20.5	-	-	7.7	Sep-1
MSCIEAFE				6.1	13.8	20.3	1.1	8.7	7.5	Sep-1
Fixed Income	3,366,608	26.0		1.5	2.4	-0.3		-	2.8	Sep-1
BBgBarc US Aggregate TR				1.4	2.3	-0.3	2.5	2.2	2.7	Sep-1
BlackRock U.S. Debt Index	3,366,608	26.0		1.5	2.4	-0.3			2.8	Sep-1
BBgBarc US Aggregate TR				1.4	2.3	-0.3	2.5	2.2	2.7	Sep-1
Cash	2,100	0.0	331	0.3	0.5	0.8	-	-	0.7	Sep-1
91 Day T-Bills				0.2	0.4	0.5	0.2	0.2	0.4	Sep-1

# Northern Trust S&P 500 Index

	Northern Trus	st S&P 500 Index-NL C	haracteristics	
		Portfolio	Index	Portfolio
6		Q2-17	Q2-17	Q1-17
Market Va	alue			
Market Val	ue (\$M)	4.8	-	4.5
Number O	f Holdings	506	505	506
Character	istics			
Weighted ( (\$B)	Avg. Market Cap.	154.7	154.7	151.4
Median Ma	arket Cap (\$B)	20.5	20.6	19.9
P/E Ratio		25.2	24.7	24.6
Yield		2.0	2.0	2.0
EPS Grow	th - 5 Yrs.	9.7	9.2	9.5
Price to Bo	ook	5.4	4.6	4.9
Beta (holdi	ngs; domestic)	1.0	1.0	1.0
Sector Di	stribution			
Energy		6.0	6.0	6.6
Materials		2.9	2.9	2.9
Industrials		10.2	10.2	10.0
Consumer	Discretionary	12.2	12.3	12.3
Consumer	Staples	9.1	9.0	9.3
Health Car	e	14.5	14.5	13.9
Financials		14.6	14.6	14.3
Information	Technology	22.2	22.3	22.0
Telecomm	unication Services	2.1	2.1	2.4
Utilities		3.2	3.2	3.2
Real Estat	9	2.9	2.9	2.9

Acco	unt Information
Account Name	Northern Trust S&P 500 Index
Account Structure	Commingled Fund
Investment Style	Passive
Inception Date	9/01/15
Account Type	US Equity
Benchmark	S&P 500
Universe	

Portfolio Performance Summary								
	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
Northern Trust S&P 500 Index	3.1	9.3	179		- 1	-	14.3	Sep-15
S&P 500	3.1	9.3	17.9	9.6	14.6	7.2	14.3	Sep-15

Top 10 Holdings	
APPLE	3.6%
MICROSOFT	2.6%
AMAZON.COM	1.8%
FACEBOOK CLASS A	1.7%
JOHNSON & JOHNSON	1.7%
EXXON MOBIL	1.6%
JP MORGAN CHASE & CO.	1.6%
BERKSHIRE HATHAWAY 'B'	1.5%
ALPHABET 'A'	1.3%
ALPHABET 'C'	1.3%
Total	18.8%

# Northern Trust EAFE Index

### As of June 30, 2017

Northern	Trust EAFE Index Cha	racteristics	1000
	Portfolio	Index	Portfoli
	Q2-17	Q2-17	Q1-1
Market Value			
Market Value (\$M)	4.8	-	4.
Number Of Holdings	937	927	97
Characteristics			
Weighted Avg. Market Cap. (\$B)	56.2	55.8	53.3
Median Market Cap (\$B)	9.9	10.2	9.1
P/E Ratio	22.6	21.0	22.0
Yield	3.0	3.0	3.0
EPS Growth - 5 Yrs.	4.5	4.3	4.(
Price to Book	3.0	2.5	3.0
Beta (holdings; domestic)	1.0	1.1	1.0
Sector Distribution			
Energy	4.7	4.8	5.0
Materials	7.2	6.9	7.6
Industrials	14.6	14.6	14.4
Consumer Discretionary	12.1	12.1	12.3
Consumer Staples	11.5	11.5	11.4
Health Care	10.9	11.0	10.8
Financials	21.5	21.6	21.3
Information Technology	6.0	6.1	5.
Telecommunication Services	4.3	4.3	4.4
Utilities	3.4	3.4	3.4
Real Estate	3.6	3.7	3.6

nation
Northern Trust EAFE Index
Commingled Fund
Passive
9/01/15
Non-US Stock All
MSCI EAFE

Portfolio Performance Summary									
	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since	
Northern Trust EAFE Index	6.2	14.0	20 5	1.1.2	1.4		7.7	Sep-15	
MSCI EAFE	6.1	13.8	20.3	1.1	8.7	1.0	7.5	Sep-15	

	Performance Summar	Jitopoli						
As of 6/30/2017								
Region	Number Of Assets	% of Total	% of Bench	% Diff				
North America ex U.S.	0	0%	0%	0%				
United States	0	0%	0%	0%				
Europe Ex U.K.	427	46%	46%	0%				
United Kingdom	167	18%	18%	0%				
Pacific Basin Ex Japan	111	12%	12%	0%				
Japan	223	24%	24%	0%				
Emerging Markets	0	0%	0%	0%				
Other	9	0%	1%	-1%				
Total	937	100%	100%	0%				

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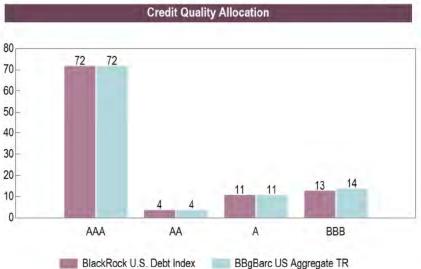
# BlackRock U.S. Debt Index

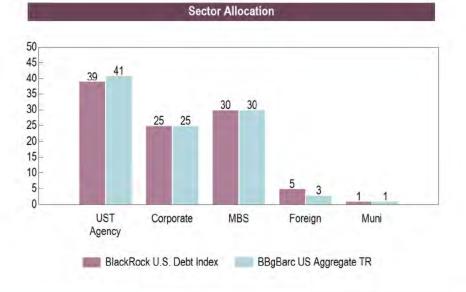
#### As of June 30, 2017



	Portfolio Performance Summary							
	QTD (%)	YTD (%)	1 Yr (%)	3 Yrs (%)	5 Yrs (%)	10 Yrs (%)	Return (%)	Since
BlackRock U.S. Debt Index	1.5	2.4	-03	1.10	( ÷		2.8	Sep-15
BBgBarc US Aggregate TR	1.4	2.3	-0.3	2.5	2.2	4.5	2.7	Sep-15

BlackRock US Debt Index Fund "B" Characteristics vs. BBgBarc US Aggregate TR						
	Portfolio	Index	Portfolio			
	Q2-17	Q2-17	Q1-17			
Fixed Income Characteristics						
Yield to Maturity	2.6	2.5	2.6			
Average Duration	5.8	6.0	5.7			
Average Quality	AA	AA	A			





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# Total Fund

Investment Expense Analysis As Of June 30, 2017							
Name	Fee Schedule	Market Value	Estimated Fee Value	Estimated Fee			
Domestic Equity		\$4,799,322					
Northern Trust S&P 500 Index	0.035% of First \$50.0 Mil, 0.030% of Next \$50.0 Mil, 0.025% Thereafter	\$4,799,322	\$1,680	0.035%			
International Equity		\$4,798,395					
Northern Trust EAFE Index	0.050% of Assets	\$4,798,395	\$2,399	0.050%			
Fixed Income		\$3,366,608					
BlackRock U.S. Debt Index	0.050% of Assets	\$3,366,608	\$1,683	0.050%			

# **Capital Market Assumptions**

Asset Allocation Discussion

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

Asset Class	Annualized Compounded Return (%)	Annualized Standard Deviation (%)
Fixed Income		
Investment Grade Bonds	3.5	4.0
TIPS	3.5	7.5
High Yield Bonds	6.0	12.5
Bank Loans	5.5	10.0
Emerging Market Bonds (major; unhedged)	5.5	12.0
Equities		
Public U.S. Equity	7.5	18.0
Public Developed Market Equity	7.3	20.0
Public Emerging Market Equity	9.8	26.0
Private Equity	9.2	24.0
Real Assets		
REITs	6.5	29.0
Core Private Real Estate	5.7	12.5
Value Added Real Estate	7.2	19.0
Natural Resources (Private)	8.4	23.0
Commodities	4.5	19.5
Infrastructure (Core)	6.8	16.0
Infrastructure (Non-Core)	8.8	23.0
Other		
Hedge Funds	5.3	9.5

Asset Allocation Discussion

# Meketa Investment Group 2017 Annual Asset Study: Correlation Expectations

	IGB	TIPS	High Yield	Bank Loans	EMD	US Equity	Int'i Equity	EM Equity	Private Equity	REITS	Core RE	VA RE	Nat Res	Commodities	Infra-Core	Infra - NonCore	Hedge Funds
IGB	1.0																
TIPS	0.8	1.0										-		1			
High Yield	0.2	0.3	1.0														
Bank Loans	0.0	0.2	0.8	1.0								-					
EMD	0.5	0.5	0.7	0.4	1.0												
US Equity	0.1	0.0	0.7	0.6	0.6	1.0											
Int'l Equity	0.1	0.2	0.7	0.6	0.6	0.9	1.0										
EM Equity	0.1	0.2	0.7	0.6	0.7	0.8	0.9	1.0									
Private Equity	0.0	0.0	0.7	0.6	0.4	0.9	0.8	0.8	1.0								
REITS	0.2	0.2	0.7	0.6	0.5	0.7	0.7	0.6	0.5	1.0							
Core RE	0.3	0.1	0.5	0.5	0.3	0.4	0.4	0.3	0.4	0.7	1.0		1				
VA RE	0.2	0.1	0.5	0.5	0.3	0.5	0.5	0.4	0.4	0.8	0.9	1.0		1			
Nat Res	0.1	0.1	0.5	0.4	0.5	0.7	0.6	0.6	0.6	0.4	0.5	0.5	1.0				
Commodities	0.1	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.3	0.3	0.1	0.1	0.7	1.0			
Infra - Core	0.3	0.3	0.6	0.5	0.5	0.6	0.6	0.5	0.4	0.5	0.7	0.6	0.6	0.4	1.0		
Infra- NonCore	0.3	0.3	0.7	0.5	0.6	0.7	0.7	0.6	0.6	0.5	0.6	0.6	0.7	0.4	1.0	1.0	
Hedge Funds	0.1	0.2	0.7	0.7	0.6	0.8	0.9	0.9	0.6	0.6	0.4	0.4	0.7	0.7	0.6	0.6	1.0



Prepared by Meketa Investment Group

#### Asset Allocation Discussion

	Policy A: -50bps	Policy B: -25bps	Current Policy	Policy C: Same ER	Policy D: +25bps	Policy E: +50bps
Rate Sensitive	32	29	26	25	22	18
Investment Grade Bonds	22	20	26	17	15	13
TIPS	10	9	-	8	7	5
Credit	26	23	0	21	18	15
High Yield Bonds	9	8	<.e-	7	6	5
Bank Loans	9	8		7	6	5
Emerging Market Debt	8	7		7	6	5
Equities	42	48	74	54	60	67
U.S.	22	25	37	28	31	35
Int'l Developed Markets	15	16	37	17	18	19
Emerging Markets	5	7	-	9	11	13
Expected Return	6.4	6.65	6.9	6.9	7.15	7.4
Standard Deviation	10.4	11.3	13.8	12.2	13.1	14.2
Sharpe Ratio	0.35	0.34	0.30	0.34	0.33	0.33
% Emerging Markets	13	14	0	16	17	18
% Non USD	28	30	38	33	35	37

# Sample Tradeoff of Risk and Return<sup>1,2</sup>

<sup>&</sup>lt;sup>2</sup> These samples include a sample of certain liquid asset classes. Illiquid asset classes are not included in these samples.



<sup>&</sup>lt;sup>1</sup> 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.