



San Jose Federated City Employees' Health Care 115 Trust

Asset Allocation Review and Risk Analysis

August 2018

Asset Allocation Policy Options¹

	Current Federated HC Targets (%)	Federated Pension Targets (%)	Recommended HC Option (%)	Proposed Target Ranges (%)	Proposed Benchmarks
Growth	55	58	56	40-70	
US Equity	34	13	28	20-40	Russell 3000
Developed Market Equity (non-US)	14	7	13	10-20	MSCI EAFE
Emerging Market Equity	7	10	15	10-20	MSCI Emerging Markets
Emerging Market Bonds	0	3	0	NA	
Private Assets	0	25	0	NA	
Zero Beta	0	32	29	15-35	
Hedge Funds	0	7	0	NA	
Short-term Investment Grade Bonds	0	25	29	15-35	ICE BofAML 3-Mo T-Bills
Cash	0	0	0	0-5	
Other	45	10	15	5-25	
Core Real Estate	8	5	10	5-15	NCREIF ODCE (Equal-Wtd)
Commodities	5	3	5	0-10	Bloomberg Commodity
Public Natural Resources	4	0	0	NA	
Investment Grade Bonds	23	0	0	0-5	
TIPS	5	2	0	0-5	
<i>Expected Return (20 years)</i>	<i>6.8</i>	<i>7.3</i>	<i>6.8</i>		
<i>Standard Deviation</i>	<i>12.0</i>	<i>12.3</i>	<i>11.8</i>		
<i>Sharpe Ratio</i>	<i>0.33</i>	<i>0.36</i>	<i>0.33</i>		
<i>Probability of Achieving 6.875% over 20 Years</i>	<i>49</i>	<i>56</i>	<i>48</i>		

¹ Expected return and standard deviation are based upon Meketa Investment Group's 2018 Annual Asset Study. Throughout this document, returns for periods longer than one year are annualized.

MVO-Based Risk Analysis

Scenario:	Current Federated HC Targets (%)	Federated Pension Targets (%)	Recommended HC Option (%)
Worst Case Returns¹			
One Year	-17.6	-17.6	-17.3
Three Years (annualized)	-8.1	-7.9	-7.9
Five Years (annualized)	-4.9	-4.7	-4.7
Ten Years (annualized)	-1.6	-1.3	-1.5
Twenty Years (annualized)	0.8	1.1	0.8
Probability of Experiencing Negative Returns			
One Year	27.8	26.8	27.5
Three Years	15.4	14.2	15.1
Five Years	9.4	8.3	9.1
Ten Years	3.1	2.5	3.0
Twenty Years	0.4	0.3	0.4
Probability of Achieving at least a 6.875% Return			
One Year	49.7	51.3	49.6
Three Years	49.5	52.2	49.3
Five Years	49.4	52.9	49.1
Ten Years	49.2	54.1	48.7
Twenty Years	48.8	55.7	48.1

¹ "Worst Case" return projections encompass 99% of all possible outcomes.

Historical Scenario Analysis¹ (Cumulative Return)

Negative Scenarios	Current Federated HC Targets (%)	Federated Pension Targets (%)	Recommended HC Option (%)
Taper Tantrum (May-Aug 2013)	-1.2	0.2	-0.7
Global Financial Crisis (Oct 2007 - Mar 2009)	-25.8	-19.6	-25.4
Popping of the TMT Bubble (Apr 2000 - Sep 2002)	-14.6	-6.4	-15.3
Asian Financial Crisis (Aug 1997 - Jan 1998)	-0.4	1.2	-3.0
Rate spike (1994 Calendar Year)	1.8	3.6	1.9
Crash of 1987 (Sep - Nov 1987)	-13.7	-7.9	-13.1
Strong dollar (Jan 1981-Sep 1982)	4.0	6.4	5.5
Volcker Recession (Jan - Mar 1980)	-5.7	-3.4	-3.7
Stagflation (Jan 1973- Sep 1974)	-13.6	-12.2	-15.5
Positive Scenarios			
Global Financial Crisis Recovery (Mar 2009 - Nov 2009)	37.7	27.7	37.6
Best of Great Moderation (Apr 2003 -Feb 2004)	32.0	26.9	32.9
Peak of the TMT Bubble (Oct 1998 - Mar 2000)	36.8	60.4	40.3
Plummeting Dollar (Jan 1986 - Aug 1987)	60.8	44.8	61.8
Volcker Recovery (Aug 1982 - Apr 1983)	36.9	25.4	33.7
Bretton Wood Recovery (Oct 1974 - Jun 1975)	29.9	21.8	28.8

¹ See the Appendix for our scenario inputs. In periods where the ideal benchmark was not yet available we used the next closest benchmark(s) as a proxy.

Stress Testing: Impact of Market Movements (Expected Return under Stressed Conditions)¹

Scenarios	Current Federated HC Targets (%)	Federated Pension Targets (%)	Recommended HC Option (%)
10-year Treasury Bond rates rise 100 bps	5.7	6.3	5.9
10-year Treasury Bond rates rise 200 bps	3.2	4.6	5.1
10-year Treasury Bond rates rise 300 bps	1.3	2.9	3.8
Baa Spreads widen by 50 bps, High Yield by 200 bps	-1.1	-0.2	-1.4
Baa Spreads widen by 300 bps, High Yield by 1000 bps	-20.0	-17.3	-19.6
Trade Weighted Dollar gains 10%	0.2	0.4	0.1
Trade Weighted Dollar gains 20%	-3.2	-3.7	-3.9
U.S. Equities decline 10%	-5.1	-4.2	-5.1
U.S. Equities decline 25%	-14.7	-12.2	-14.5
U.S. Equities decline 40%	-27.3	-22.1	-27.0

¹ Assumes that assets not directly exposed to the factor are affected nonetheless. See the Appendix for further details.

Summary

- Given the actuarial assumed rate of return of 6.875% for the Health Care Trust, Meketa Investment Group recommends that the Trustees adopt the Recommended Healthcare Option. The Recommended Option is better aligned philosophically with the recently adopted Pension Asset Allocation, with the exception of private assets, due to the higher liquidity needs of the Health Care Trust.
 - The Recommended Option has a nearly identical allocation to Growth assets as the current Health Care Trust asset allocation, and shifts exposure from Investment Grade Bonds to Short-Term Investment Grade Bonds. Given this shift, the Recommended Option would be expected to outperform the current asset allocation in a rising interest rate environment.
 - The Recommended Option's estimated historical performance and expected future performance in a variety of possible scenarios is otherwise similar to that of the current allocation.
- In terms of implementation, we recommend shifting the Health Care Trust's emerging markets equity exposure from the Vanguard Emerging Markets Equity Index Fund to the Northern Trust MSCI Emerging Markets Index Fund, in order to be consistent across plans and with the policy benchmark. The annual management fee for the MSCI Emerging Markets Index fund is 0.095% (please see attached factsheet).

Appendices

Scenario Return Inputs

Asset Class	Benchmark Used
Investment Grade Bonds	Barclays Aggregate
TIPS	Barclays U.S. TIPS
Intermediate-term Government Bonds	Barclays Treasury Intermediate
Long-term Government Bonds	Barclays Long U.S. Treasury
EM Bonds (local)	JPM GBI-EM Global Diversified Composite
Bank Loans	CSFB Leveraged Loan
High Yield Bonds	Barclays High Yield
Direct Lending - First Lien	Cliffwater Direct Lending Index
Direct Lending - Second Lien	Cliffwater Direct Lending Index
Mezzanine Debt	Cambridge Associates Mezzanine
Distressed Debt	Cambridge Associates Distressed Debt Index
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	Bloomberg Commodity Index
U.S. Equity	Russell 3000
Public Foreign Equity (Developed)	MSCI EAFE
Public Foreign Equity (Emerging)	MSCI Emerging Markets
Private Equity	Cambridge Associates Private Equity Composite
Long-short Equity	HFRI Equity Hedge
Global Macro	HFRI Macro
Hedge Funds	HFRI Fund Weighted Composite
Private Debt	Weighted average of Distressed Debt, Mezzanine Debt and Direct Lending (2 nd Lien)

Negative Historical Scenario Returns - Sample Inputs

	Taper Tantrum (May - Aug 2013)	Global Financial Crisis (Oct 2007 - Mar 2009)	2008 Calendar Year	Popping of the TMT Bubble (Apr 2000 - Sep 2002)	LTCM (Jul - Aug 1998)	Asian Financial Crisis (Aug 1997 - Jan 1998)	Rate spike (1994 Calendar Year)	Crash of 1987 (Sep - Nov 1987)	Strong dollar (Jan 1981 - Sep 1982)	Stagflation (Jan - Mar 1980)	Stagflation (Jan 1973 - Sep 1974)
Cash Equivalents	0.0	3.1	1.7	9.9	0.8	2.4	3.9	1.4	24.4	2.9	13.5
Short-term Investment Grade Bonds	-0.1	8.7	5.0	21.9	1.6	3.5	0.5	2.3	29.9	-2.6	4.3
Investment Grade Bonds	-3.7	9.3	5.2	28.6	1.8	4.9	-2.9	2.2	29.9	-8.7	7.9
Long-term Corporate Bonds	-9.3	-9.4	-5.2	26.9	-0.6	5.4	-5.8	1.5	29.6	-14.1	-12.0
Long-term Government Bonds	-11.6	24.5	24.0	35.5	4.1	8.6	-7.6	2.6	28.4	-13.6	-1.8
TIPS	-8.5	9.6	-2.4	37.4	0.7	2.0	-7.5	2.8	15.6	-7.8	4.3
Global ILBs	-7.4	-1.5	-7.7	39.7	0.7	2.2	-7.9	2.9	16.5	-8.3	4.5
High Yield Bonds	-2.0	-20.7	-26.2	-6.3	-5.0	5.6	-1.0	-3.6	6.9	-2.3	-15.5
Bank Loans	0.8	-22.5	-28.8	6.3	0.7	3.3	10.3	-1.7	3.3	-1.1	-7.5
Direct Lending - First Lien	3.4	-2.1	-5.8	-0.7	-0.7	1.7	0.7	-0.2	2.0	-0.6	-4.4
Direct Lending - Second Lien	4.6	-2.9	-7.8	-1.0	-0.9	2.3	1.0	-0.3	2.6	-0.8	-5.9
Foreign Bonds	-3.2	5.3	4.4	8.5	3.5	3.3	5.3	-0.3	34.8	-6.5	-1.4
Mezzanine Debt	4.6	-25.5	-25.9	-2.0	-2.6	10.3	7.6	0.4	3.2	-1.0	-7.2
Distressed Debt	4.6	-25.5	-25.9	-2.0	-2.6	10.3	7.6	0.4	3.2	-1.0	-7.2
Emerging Market Bonds (major)	-11.5	-2.7	-9.7	6.3	-28.2	-1.8	-18.9	-9.2	-1.6	-2.6	-20.2
Emerging Market Bonds (local)	-14.3	-2.3	-5.2	7.2	-34.1	-2.4	-22.8	-11.0	-2.0	-3.2	-23.9
US Equity	3.0	-43.8	-37.0	-43.8	-15.4	3.6	1.3	-29.5	-2.3	-4.1	-42.6
Developed Market Equity (non-US)	-2.2	-49.6	-43.4	-46.7	-11.5	-5.8	7.8	-14.5	-18.0	-7.0	-36.3
Emerging Market Equity	-9.4	-45.8	-53.3	-43.9	-26.7	-31.8	-7.3	-25.3	-12.1	-6.6	-44.2
Global Equity	-0.7	-46.6	-42.2	-46.7	-14.0	-3.2	5.0	-21.5	-11.2	-5.8	-39.3
Private Equity/Debt	5.7	-25.6	-27.2	-23.4	-3.2	15.7	13.2	0.6	-2.7	-2.5	-18.2
Private Equity	5.8	-25.8	-27.6	-26.0	-3.3	16.7	14.2	0.6	-3.9	-2.7	-20.1
Private Debt Composite	4.6	-21.3	-22.5	-1.7	-2.3	8.7	6.2	0.2	3.0	-1.0	-6.9
REITs	-13.3	-61.3	-37.7	45.4	-15.3	9.8	-3.5	-19.5	2.5	-3.6	-33.9
Core Private Real Estate	3.6	-7.3	-6.5	23.6	2.3	8.5	6.4	0.7	23.9	5.5	-4.4
Value-Added Real Estate	3.8	-18.0	-13.4	177.0	1.8	11.4	11.2	1.2	44.2	9.6	-7.6
Opportunistic Real Estate	4.0	-24.7	-21.8	21.4	1.5	20.0	18.8	0.9	30.7	7.0	-5.6
Natural Resources (Private)	2.5	-26.2	-34.1	-3.9	-16.9	-7.8	12.6	-10.8	-9.4	-9.2	19.3
Timberland	1.3	25.4	9.5	-1.5	0.5	12.0	15.4	3.8	23.6	-7.4	5.5
Farmland	3.3	30.2	15.8	11.4	0.8	3.9	9.4	2.2	13.3	-4.2	3.1
Commodities (naïve)	-2.4	-31.8	-35.6	18.5	-12.0	-6.2	16.6	1.8	-16.0	-9.6	139.5
Core Infrastructure	3.7	0.2	-0.6	24.8	-0.3	6.1	-11.5	0.0	-0.2	-0.1	-0.5
Hedge Funds	-0.4	-15.6	-19.0	-2.1	-9.4	1.7	4.1	-7.8	-3.8	-1.9	-15.7
Long-Short	1.0	-24.0	-26.6	-8.8	-8.3	7.9	2.6	-10.0	-4.9	-2.5	-19.8
Hedge Fund of Funds	-0.5	-17.8	-21.4	-0.4	-7.7	0.5	-3.5	-5.7	-2.7	-1.4	-11.5

Positive Historical Scenario Returns - Sample Inputs

	Global Financial Crisis Recovery (Mar 2009 - Nov 2009)	Best of Great Moderation (Apr 2003 - Feb 2004)	Peak of the TMT Bubble (Oct 1998 - Mar 2000)	Pre-Recession (Jun - Oct 1990)	Plummeting Dollar (Jan 1986 - Aug 1987)	Volcker Recovery (Aug 1982 - Apr 1983)	Bretton Wood Recovery (Oct 1974 - Jun 1975)
Cash Equivalents	0.1	0.9	6.7	3.3	10.0	6.0	4.5
Short-term Investment Grade Bonds	4.3	2.8	5.3	4.5	13.2	15.4	5.0
Investment Grade Bonds	9.0	4.6	1.7	3.8	14.4	26.4	9.2
Long-term Corporate Bonds	28.8	11.3	-3.1	1.5	15.9	42.1	17.5
Long-term Government Bonds	2.0	4.9	-2.3	2.4	15.4	33.6	11.8
TIPS	14.3	9.1	6.3	2.2	10.2	11.5	4.1
Global ILBs	24.7	9.6	6.6	2.3	10.8	12.1	4.3
High Yield Bonds	49.1	21.8	2.1	-12.9	24.9	23.3	19.3
Bank Loans	32.9	10.1	6.1	-6.1	11.1	10.4	8.7
Direct Lending - First Lien	10.6	5.7	1.1	-1.9	5.8	5.0	5.1
Direct Lending - Second Lien	14.3	7.7	1.4	-2.5	7.8	6.7	6.8
Foreign Bonds	23.4	15.2	-7.0	15.8	44.5	32.3	17.9
Mezzanine Debt	30.8	23.7	26.8	0.7	5.4	8.2	8.3
Distressed Debt	30.8	23.7	26.8	0.7	5.4	8.2	8.3
Emerging Market Bonds (major)	27.0	20.6	49.0	-8.7	38.9	21.6	21.0
Emerging Market Bonds (local)	37.5	25.2	61.0	-10.5	48.4	26.5	25.7
US Equity	51.6	37.2	50.2	-14.7	64.8	59.3	55.1
Developed Market Equity (non-US)	60.5	56.7	53.0	-9.7	140.0	29.6	34.6
Emerging Market Equity	94.6	79.4	101.3	-15.9	126.5	52.1	53.4
Global Equity	59.9	46.2	54.8	-11.1	108.4	43.0	44.6
Private Equity/Debt	15.4	23.3	84.6	4.6	19.1	13.7	18.4
Private Equity	13.0	23.7	92.1	5.5	21.7	14.8	20.2
Private Debt Composite	27.5	20.4	21.4	0.1	5.9	7.9	8.0
REITs	82.5	44.6	-5.2	-15.6	51.8	47.4	42.5
Core Private Real Estate	-16.4	9.0	18.1	1.9	13.1	6.8	4.5
Value-Added Real Estate	-32.7	11.4	19.6	3.2	23.6	11.9	7.8
Opportunistic Real Estate	-19.0	13.6	27.9	0.4	16.7	8.6	5.7
Natural Resources (Private)	57.8	36.1	22.2	6.0	78.3	30.2	14.8
Timberland	-3.3	8.5	20.5	5.7	28.6	20.0	8.7
Farmland	5.4	9.6	10.4	3.3	15.9	11.3	5.0
Commodities (naïve)	28.9	30.6	17.1	43.5	27.6	6.2	-20.2
Core Infrastructure	2.1	8.5	33.0	0.0	1.4	0.6	0.6
Hedge Funds	20.1	22.4	52.8	-1.9	30.6	13.8	14.5
Long-Short	25.9	25.3	81.4	5.1	40.8	18.0	18.9
Hedge Fund of Funds	10.3	13.3	36.8	11.9	21.3	9.7	10.3

Stress Test Return Assumptions - Sample Inputs¹

	10-year Treasury Bond rates rise 100 bps	10-year Treasury Bond rates rise 200 bps	10-year Treasury Bond rates rise 300 bps	Baa Spreads widen by 50 bps, High Yield by 200 bps	Baa Spreads widen by 300 bps, High Yield by 1000 bps	Trade Weighted Dollar gains 10%	Trade Weighted Dollar gains 20%	U.S. Equities decline 10%	U.S. Equities decline 25%	U.S. Equities decline 40%
Cash Equivalents	0.3	0.2	0.0	1.8	0.9	4.5	0.2	1.4	1.2	0.0
Short-term Investment Grade Bonds	-0.5	-2.4	-4.3	3.0	2.3	5.9	0.8	1.8	1.7	0.6
Investment Grade Bonds	-3.3	-9.2	-15.0	3.5	-0.5	6.5	2.6	2.1	1.6	1.0
Long-term Corporate Bonds	-9.3	-23.0	-36.7	1.5	-11.5	5.0	1.7	0.2	-5.2	-13.5
Long-term Government Bonds	-14.4	-31.7	-49.0	5.7	8.1	8.8	12.3	6.0	8.5	17.2
TIPS	-2.7	-7.5	-12.4	2.6	1.0	2.9	-2.6	1.7	0.4	-8.8
Global ILBs	-1.3	-3.9	-12.4	1.8	-11.4	1.4	-6.7	1.3	-1.7	-14.4
High Yield Bonds	1.6	-2.2	-6.1	-2.6	-22.9	0.3	-5.8	-3.1	-10.4	-20.5
Bank Loans	5.4	5.6	7.5	-1.3	-18.8	-0.2	-1.9	-2.0	-6.6	-13.7
Direct Lending - First Lien	4.9	6.0	7.5	0.3	-7.8	1.0	3.3	-1.8	-4.7	-5.0
Direct Lending - Second Lien	6.0	7.2	9.0	0.3	-11.1	1.3	4.1	-2.7	-6.8	-7.2
Foreign Bonds	-7.1	-14.9	-22.7	3.0	-2.8	-8.0	-16.0	1.3	-2.1	-8.3
Mezzanine Debt	7.2	7.0	8.0	-0.4	-20.6	-1.1	-1.3	-4.0	-11.0	-16.5
Distressed Debt	7.2	7.0	10.0	-0.7	-22.7	-1.5	-2.2	-4.7	-12.9	-18.5
Emerging Market Bonds (major)	1.3	-1.6	-3.2	0.9	-13.4	2.9	-5.3	-2.5	-9.1	-17.5
Emerging Market Bonds (local)	-1.2	-1.9	-3.8	-0.1	-12.9	-9.0	-18.9	-3.0	-11.4	-22.5
US Equity	8.8	6.3	7.5	-1.9	-28.4	0.3	2.0	-10.0	-25.0	-40.0
Developed Market Equity (non-US)	8.0	8.7	6.0	-5.6	-33.5	-6.7	-9.8	-9.3	-23.6	-43.5
Emerging Market Equity	8.0	10.9	7.0	-7.7	-40.4	-7.4	-18.5	-11.2	-29.7	-50.2
Global Equity	8.4	8.1	6.9	-4.3	-32.6	-3.7	-6.2	-10.0	-25.4	-43.3
Private Equity/Debt	10.1	6.0	4.0	1.3	-22.8	-0.7	-1.1	-6.4	-15.9	-20.8
Private Equity	11.0	5.9	3.2	1.9	-23.2	-0.5	-1.6	-6.8	-16.8	-21.7
Private Debt Composite	7.0	7.0	9.0	-0.4	-19.5	-0.8	-0.6	-4.0	-10.9	-15.4
REITs	5.0	4.5	5.2	-4.8	-39.1	-0.6	-0.1	-9.2	-26.8	-55.9
Core Private Real Estate	7.0	8.0	9.0	3.2	-7.5	6.4	8.2	0.3	-2.1	-14.3
Value-Added Real Estate	8.0	11.0	10.0	5.0	-13.7	4.0	11.0	-0.5	-3.5	-22.2
Opportunistic Real Estate	8.0	11.0	10.0	5.0	-21.0	3.1	20.0	-1.3	-6.2	-24.5
Natural Resources (Private)	15.5	10.9	7.1	-2.8	-21.7	-4.9	-17.8	-4.7	-14.6	-29.2
Timberland	7.1	5.5	4.0	5.0	6.5	3.0	10.0	2.0	2.9	1.7
Farmland	6.8	3.4	3.0	5.7	11.1	3.0	11.5	2.0	3.4	6.4
Commodities (naïve)	13.0	9.6	4.0	-3.8	-22.8	-7.1	-29.1	1.0	-4.8	-27.5
Core Infrastructure	6.0	5.0	4.0	4.8	-0.5	1.6	2.0	-0.1	-2.7	-9.6
Hedge Funds	6.0	5.0	3.0	0.6	-12.7	1.0	-1.3	-2.9	-8.3	-13.4
Long-Short	5.0	5.0	3.0	1.6	-18.6	0.7	-3.3	-4.7	-12.2	-20.6
Hedge Fund of Funds	4.5	3.6	1.7	-0.6	-14.0	-0.2	-2.5	-4.0	-10.0	-16.0

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

Meketa Investment Group 2018 Annual Asset Study

Twenty-Year Annualized Return and Volatility Expectations for Major Asset Classes

Asset Class	Annualized Compounded Return (%)	Annualized Average Return (%)	Annualized Standard Deviation (%)
Rate Sensitive			
Cash Equivalents	2.9	2.9	1.0
Investment Grade Bonds	3.6	3.7	4.0
Long-term Government Bonds	3.5	4.3	13.0
TIPS	3.3	3.6	7.5
Credit			
High Yield Bonds	5.4	6.2	12.5
Bank Loans	5.0	5.5	10.0
Emerging Market Bonds (major; unhedged)	4.9	5.6	11.5
Emerging Market Bonds (local; unhedged)	5.4	6.5	14.5
Direct Lending - First Lien	5.7	6.4	11.0
Direct Lending - Second Lien	7.3	8.6	16.0
Mezzanine Debt	6.6	8.0	17.0
Distressed Debt	6.6	9.0	22.0
Equities			
Public U.S. Equity	7.3	8.9	18.0
Public Developed Market Equity	7.1	9.1	20.0
Public Emerging Market Equity	9.4	12.5	25.0
Private Equity Composite	9.3	12.9	27.0
Real Assets			
REITs	6.8	10.9	28.5
Core Private Real Estate	5.5	6.2	12.0
Value Added Real Estate	6.9	8.7	19.0
Opportunistic Real Estate	8.5	11.6	25.0
High Yield Real Estate Debt	6.4	9.0	23.0
Natural Resources (Private)	8.8	11.4	23.0
Commodities	4.6	6.2	18.0
Infrastructure (Core)	6.6	7.7	15.0
Infrastructure (Non-Core)	8.5	11.1	23.0
Other			
Hedge Funds	5.2	5.5	8.5

Meketa Investment Group 2018 Annual Asset Study: Correlation Expectations

	TIPS	Investment Grade Bonds	High Yield Bonds	U.S. Equity	Developed Market Equity	Emerging Market Equity	Private Equity	Real Estate	Natural Resources (private)	Commodities	Core Infrastructure (private)	Hedge Funds
TIPS	1.00											
Investment Grade Bonds	0.80	1.00										
High Yield Bonds	0.30	0.20	1.00									
U.S. Equity	0.00	0.05	0.70	1.00								
Developed Market Equity	0.15	0.05	0.70	0.90	1.00							
Emerging Market Equity	0.15	0.05	0.70	0.80	0.90	1.00						
Private Equity	0.05	0.05	0.65	0.85	0.80	0.75	1.00					
Real Estate	0.10	0.20	0.50	0.50	0.45	0.40	0.45	1.00				
Natural Resources (private)	0.10	0.10	0.45	0.65	0.60	0.60	0.55	0.45	1.00			
Commodities	0.35	0.05	0.40	0.35	0.55	0.60	0.30	0.15	0.65	1.00		
Core Infrastructure (private)	0.30	0.30	0.60	0.55	0.55	0.50	0.45	0.60	0.60	0.40	1.00	
Hedge Funds	0.20	0.05	0.70	0.80	0.85	0.85	0.65	0.45	0.65	0.35	0.60	1.00