

Nebraska Investment Council Capital Market Assumptions

September 2022

Capital Market Assumptions

- What are they?
 - Aon's asset class return, volatility and correlation assumptions
 - Long-term; based on 10-year and 30-year projection periods
 - Forward looking assumptions
 - Best estimate assumptions (50/50 better or worse)
 - Market returns; i.e., no manager alpha (other than hedge funds and private equity which are entirely actively managed)
 - Global geographic coverage
 - Updated quarterly

Current Assumptions (10-Year): Expected Returns and Volatility (as of June 30, 2022)

Asset Class	Expected Nominal Return	Expected Risk (Volatility)
U.S. Equity	7.3%	17.5%
Global Equity (Developed & Emerging)	7.7	18.0
International Equity (Developed)	7.6	20.5
Emerging Markets Equity	8.1	24.0
TIPS	3.3	3.5
Core Fixed Income (Market Duration)	3.9	4.0
High Yield Bonds	6.4	10.5
Bank Loans	6.8	7.0
Emerging Market Bonds (USD)	7.1	11.0
Emerging Market Bonds (LC)	6.4	13.0
Hedge Funds (FoF)	4.6	9.0
Real Estate (Total Market)	6.1	17.4
Private Equity	9.9	25.0
U.S. Inflation (CPI)	2.7	--

Current Assumptions (30-Year): Expected Returns and Volatility (as of June 30, 2022)

Asset Class	Expected Nominal Return	Expected Risk (Volatility)
U.S. Equity	7.4%	18.0%
Global Equity (Developed & Emerging)	7.8	18.5
International Equity (Developed)	7.6	21.0
Emerging Markets Equity	8.2	24.5
TIPS	3.4	3.5
Core Fixed Income (Market Duration)	3.7	4.5
High Yield Bonds	5.8	10.5
Bank Loans	6.2	7.5
Emerging Market Bonds (USD)	5.8	11.5
Emerging Market Bonds (LC)	6.4	13.5
Hedge Funds (FoF)	4.5	9.0
Real Estate (Total Market)	5.6	17.9
Private Equity	10.2	25.5
U.S. Inflation (CPI)	2.4	--

DB Plans -- Projected Returns

	Long-Term Policy Allocation	Annualized Return (10 Year Forecast)	Standard Deviation (10 Year Forecast)	Annualized Return (30 Year Forecast)	Standard Deviation (30 Year Forecast)
U.S. Equity	27.0%	7.3%	17.5%	7.4%	18.0%
Non-U.S. Equity	11.5	7.9	20.3	8.0	20.8
Global Equity	19.0	7.7	18.0	7.8	18.5
Private Equity	5.0	9.9	25.0	10.2	25.5
Real Estate	7.5	6.1	17.4	5.6	17.9
RS Fixed Income*	10.0	6.2	6.9	5.6	7.2
RR Fixed Income	20.0	3.9	4.0	3.7	4.5
Total Fund	100.0%	7.1%	12.1%	7.1%	12.4%

- Current assumed rate for the Nebraska DB Plans and CBB Plans = 7.2%
 - Assumed rate will continue to step down as follows in the coming years:
 - 2023 = 7.1%
 - 2024 = 7.0%
- Current assumed rate for OSERS (FY 2023) = 7.3%
 - FY 2024 = 7.2%
 - FY 2025 = 7.0%

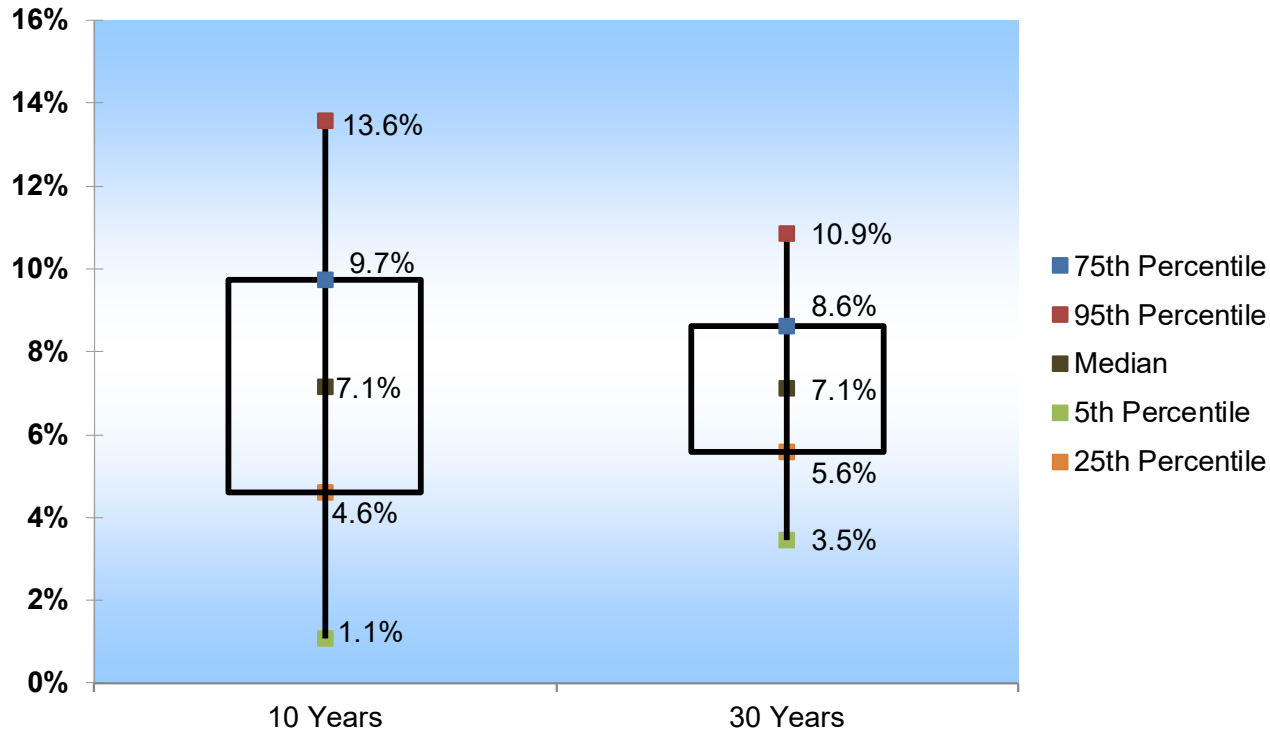
*Modeled as 2.5% U.S. IG credit, 2.5% HY Credit, 2.5% EMD USD, 2.5% Bank Loans

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DB Plan -- Projected Returns (cont'd)



- Based on our capital market assumptions and the defined benefit plans' asset allocation targets, the NPERS defined benefit / cash balance benefit plans have a roughly 1 in 2 chance of meeting or exceeding the assumed rate of return of 7.2% over the next 10-to-30 years
- OSERS' chances of meeting or exceeding its assumed rate of 7.3% are similar

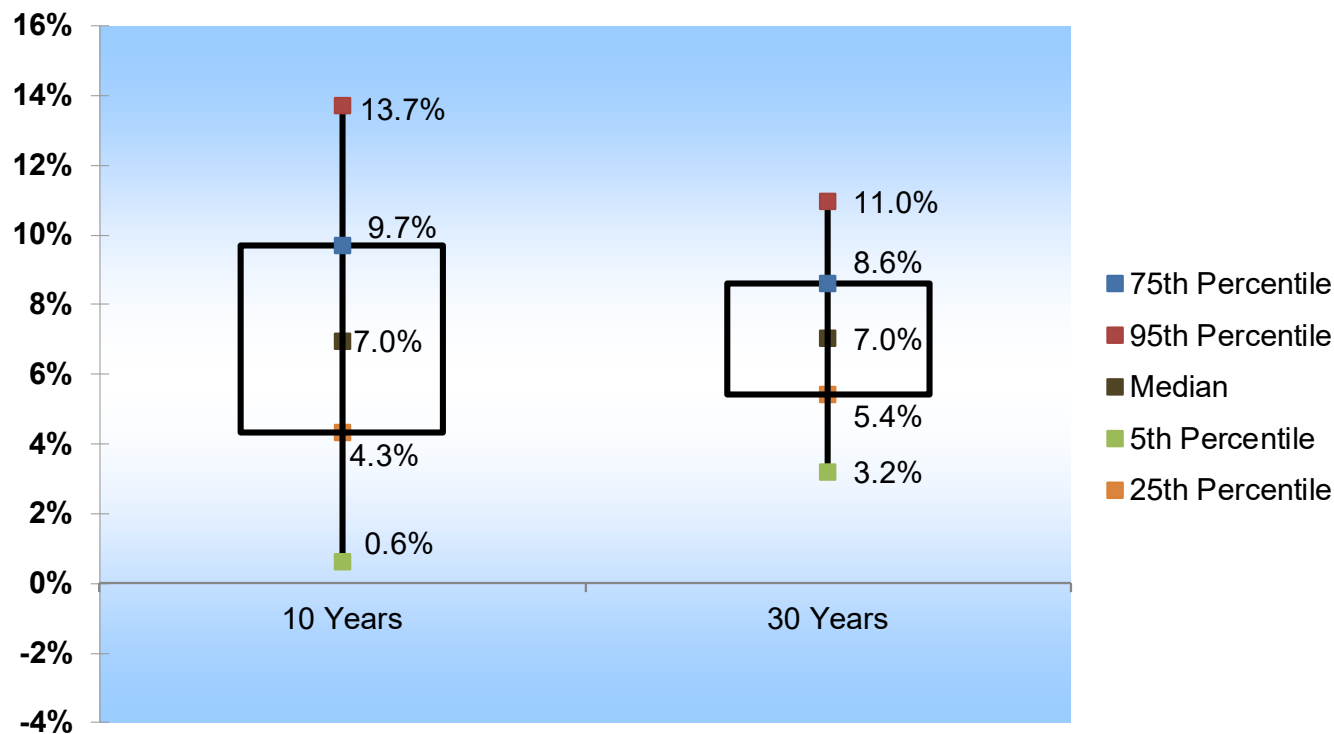
Health Care Endowment -- Projected Returns

	Long-Term Policy Allocation	Annualized Return (10 Year Forecast)	Standard Deviation (10 Year Forecast)	Annualized Return (30 Year Forecast)	Standard Deviation (30 Year Forecast)
U.S. Equity	30.5%	7.3%	17.5%	7.4%	18.0%
Non-U.S. Equity	13.0	7.9	20.3	8.0	20.8
Global Equity	21.5	7.7	18.0	7.8	18.5
Fixed Income*	25.0	3.3	2.8	3.6	3.4
Private Equity	5.0	9.9	25.0	10.2	25.5
Real Estate	5.0	6.1	17.4	5.6	17.9
Total Fund	100.0%	7.0%	12.7%	7.0%	13.1%

- The table above presents our median return and volatility forecasts for the Health Care Endowment over 10- and 30-year periods

*Modeled as 22.5% Intermediate G/C Bonds, 2.5% Cash

Health Care Endowment -- Projected Returns (cont'd)



- The chart above presents a forecasted distribution of outcomes for the Health Care Endowment over 10- and 30-year periods

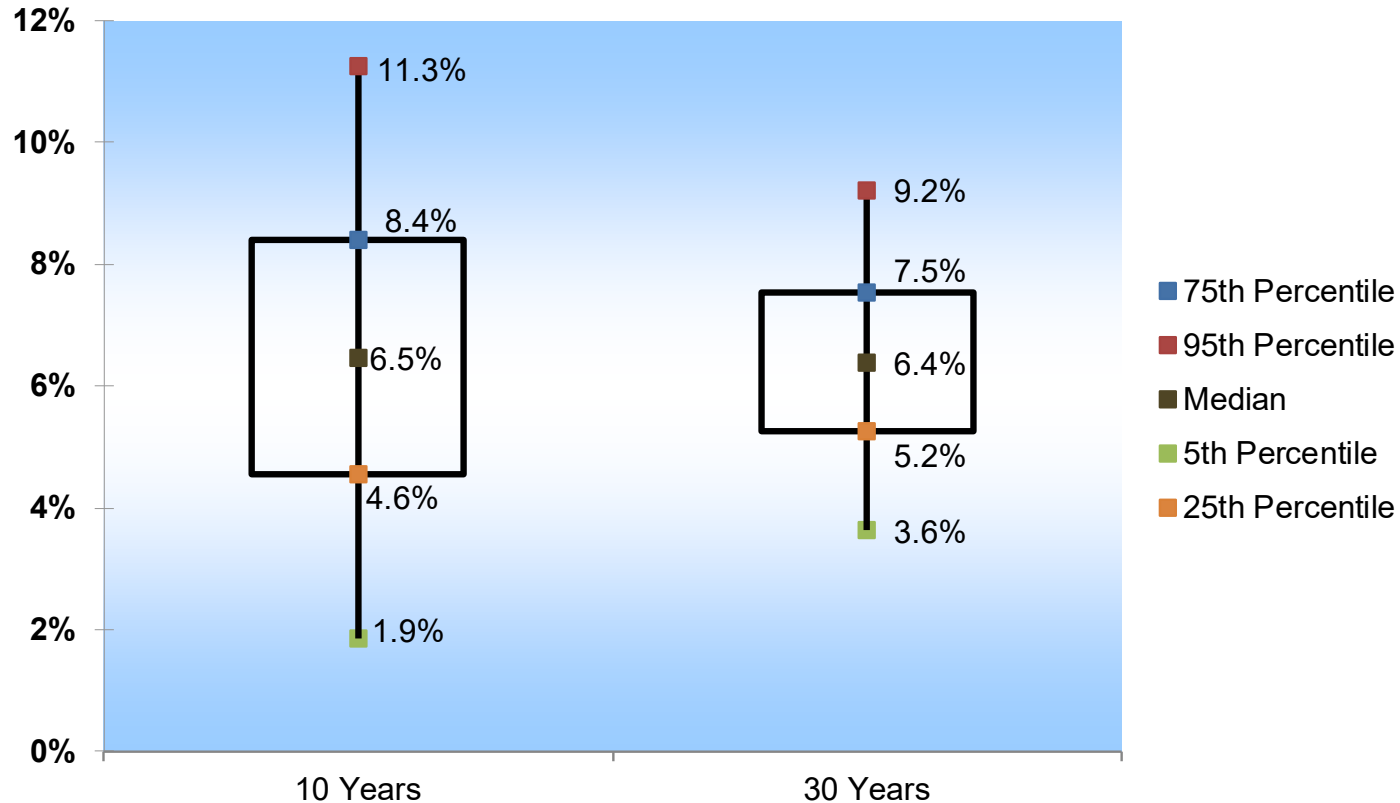
50/50 Endowments -- Projected Returns

	Long-Term Policy Allocation	Annualized Return (10 Year Forecast)	Standard Deviation (10 Year Forecast)	Annualized Return (30 Year Forecast)	Standard Deviation (30 Year Forecast)
U.S. Equity	19.0%	7.3%	17.5%	7.4%	18.0%
Non-U.S. Equity	8.0	7.9	20.3	8.0	20.8
Global Equity	13.0	7.7	18.0	7.8	18.5
Private Equity	5.0	9.9	25.0	10.2	25.5
Real Estate	5.0	6.1	17.4	5.6	17.9
RS Fixed Income*	15.0	5.5	6.0	5.0	6.2
RR Fixed Income	35.0	3.9	4.0	3.7	4.5
Total Fund	100.0%	6.5%	9.1%	6.4%	9.4%

- The table above presents our median return and volatility forecasts for the 50/50 Endowments over 10- and 30-year periods

*Modeled as 7.5% U.S. IG credit, 4.5% HY Credit, 3% EMD USD

50/50 Endowments -- Projected Returns (cont'd)



- The chart above presents a forecasted distribution of outcomes for the 50/50 Endowments over 10- and 30-year periods

Aon 10-Year Assumptions: How Expected Returns Have Evolved Over the Past Decade

Asset Class	Expected Nominal Return											
	6/30/22	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011
Large Cap U.S. Equity	7.2%	5.6%	5.7%	6.2%	6.2%	6.3%	6.2%	6.6	6.7%	7.1%	7.5%	8.0%
Small Cap U.S. Equity	7.4	5.8	5.9	6.4	6.4	6.5	6.4	6.8	6.9	7.3	7.7	8.2
Global Equity	7.7	6.3	6.5	7.0	7.2	7.1	7.0	7.1	7.1	7.5	8.3	8.9
International Equity (Developed)	7.6	6.5	6.8	7.0	7.3	7.2	7.0	7.1	7.2	7.3	8.4	9.1
Emerging Markets Equity	8.1	7.0	6.9	7.9	8.1	7.6	7.4	8.4	8.4	8.9	9.4	9.8
Cash (Gov't)	3.0	1.5	0.9	1.4	2.8	2.0	1.3	1.8	2.2	2.5	1.3	1.5
Core Fixed Income (Market Duration)	3.9	2.0	1.4	2.2	3.5	2.7	2.1	2.7	2.9	3.3	1.9	2.6
High Yield Bonds	6.4	3.2	2.8	3.6	4.0	3.6	4.1	5.9	4.2	4.6	3.9	5.9
Hedge Funds Universe ¹	4.6	3.1	2.8	3.3	4.2	3.7	3.4	3.8	5.0	5.2	5.2	5.7
Real Estate (Broad Market)	6.1	6.2	6.1	6.1	5.9	6.0	5.4	6.6	7.0	7.2	7.4	7.3
Private Equity	9.9	8.3	8.0	8.6	8.2	8.7	8.2	9.0	9.0	9.3	9.7	9.8
Inflation	2.7	2.2	2.1	2.1	2.3	2.3	2.1	2.0	2.2	2.1	2.3	2.1

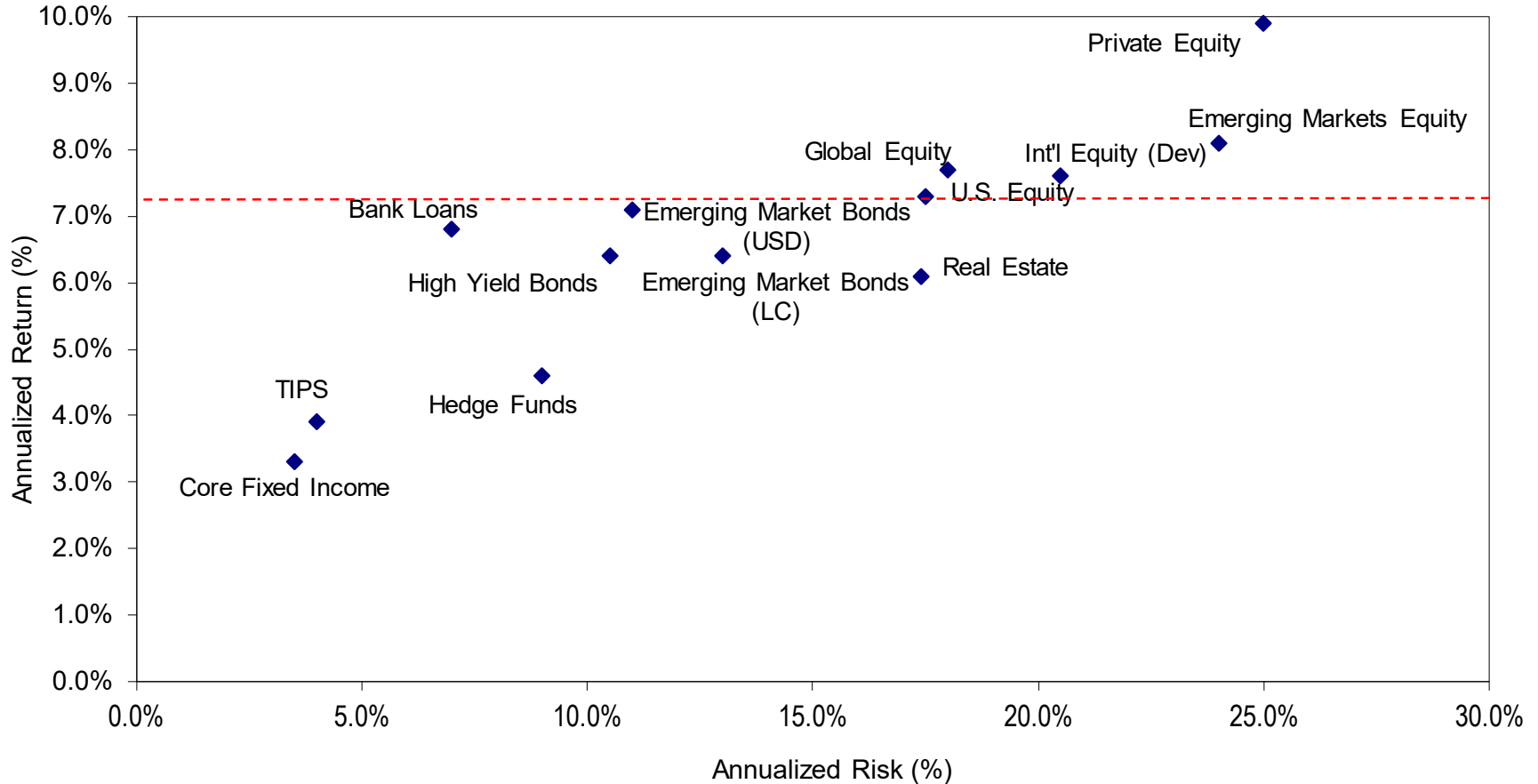
¹ Hedge Fund Universe assumptions are capital market assumptions for fund of hedge funds

- Our return expectations had decreased over the past several years, but have ticked up in 2022
 - Increases driven by higher assumed yields, inflation

Color Key
Increased from 2011
No Change from 2011
Decreased from 2011

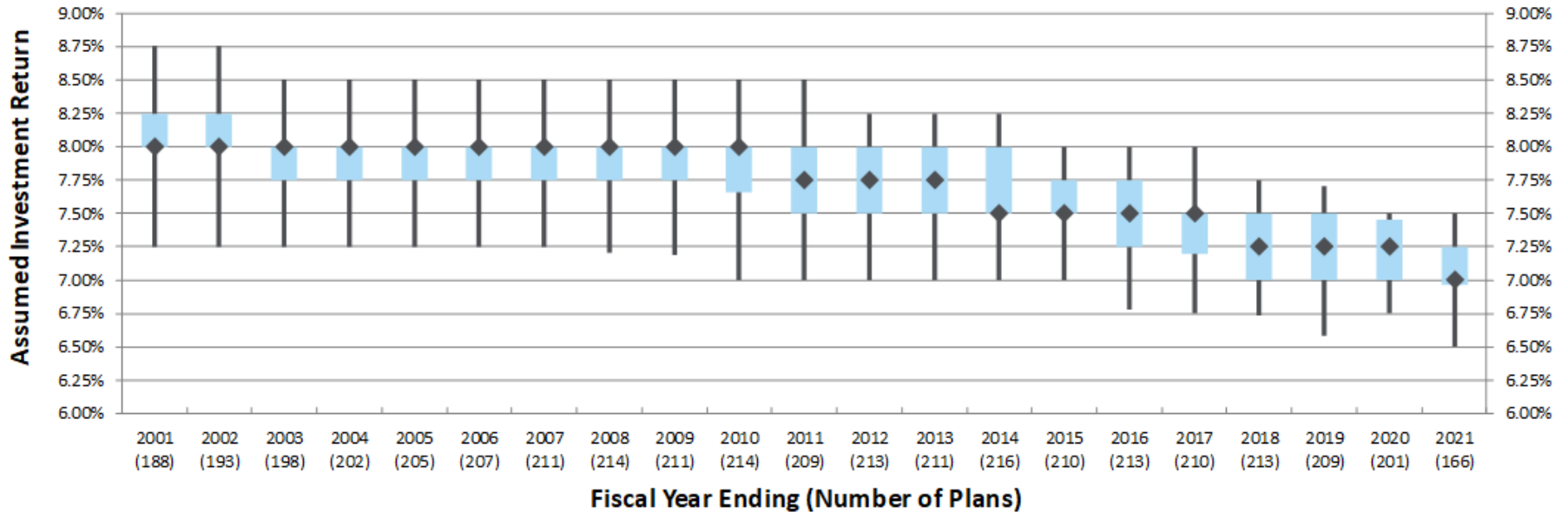
Appendix I: Aon Forward Looking Return Expectations by Asset Class

Risk-Return
Aon 10 Year Capital Market Assumptions

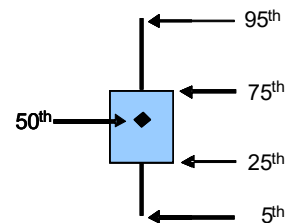


Appendix II: Peer Public Fund Assumed Rates¹

Distribution of U.S. Public Pension Investment Return Assumptions



Percentile



Source: Public Plans Data (publicplansdata.org) as of March 2022; 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 March 2022; Number of plans per year are shown in parentheses

Appendix III: Endowment -- Estimated Yields*

Health Care Endowments		
	Policy Target	Yield*
U.S. Equity	30.5%	1.7%
Non-U.S. Equity	13.0%	3.4%
Global Equity	21.5%	2.4%
Fixed Income	25.0%	3.3%
Real Estate	5.0%	3.8%
Private Equity	5.0%	0.0%
Total Fund	100.0%	2.5%
50/50 Endowments		
	Policy Target	Yield*
U.S. Equity	19.0%	2.3%
Non-U.S. Equity	8.0%	3.4%
Global Equity	13.0%	2.4%
RS Fixed Income	15.0%	7.0%
RR Fixed Income	35.0%	3.7%
Real Estate	5.0%	3.8%
Private Equity	5.0%	0.0%
Total Fund	100.0%	3.6%

*Based on Index yields at 6/30/2022. Estimates utilize dividend yield for stock indices, wtd. avg. coupon for bond indices, income component of real estate index.

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