

# Nebraska Investment Council Capital Market Assumptions

September 2018

**Aon Hewitt**  
Retirement and Investment

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

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# Capital Market Assumptions

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- What are they?
  - Aon Hewitt'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

# Coverage

<b>Equities</b>	<b>Bonds</b>	<b>Alternatives</b>
All major regions covered including emerging markets	Nominal U.S. and non-U.S. government bonds	Hedge funds
	Inflation-linked government bonds	Real estate (total market and core)
	Corporate bonds	Private equity
	High yield	Infrastructure
	Emerging market debt	Commodities

## Current Assumptions (10-Year): Expected Returns and Volatility (as of June 30, 2018)

Asset Class	Expected Nominal Return	Expected Risk (Volatility)
U.S. Equity	6.4%	17.4%
Global Equity (Developed & Emerging)	7.1	18.5
International Equity (Developed)	7.4	20.0
Emerging Markets Equity	7.9	27.0
TIPS	3.1	4.5
Core Fixed Income (Market Duration)	3.4	4.0
High Yield Bonds	4.1	12.0
Bank Loans	5.2	7.0
Non-US Developed Bonds (Unhedged)	1.6	10.0
Emerging Market Bonds (USD)	5.0	13.0
Hedge Funds (FoF)	4.1	9.0
Real Estate (Total Market)	5.8	12.2
Private Equity	8.4	24.0
U.S. Inflation (CPI)	2.3	--

## Current Assumptions (30-Year): Expected Returns and Volatility (as of June 30, 2018)

Asset Class	Expected Nominal Return	Expected Risk (Volatility)
U.S. Equity	6.4%	17.9%
Global Equity (Developed & Emerging)	7.3	19.0
International Equity (Developed)	7.3	20.0
Emerging Markets Equity	8.0	27.5
TIPS	3.4	4.5
Core Fixed Income (Market Duration)	3.5	4.5
High Yield Bonds	5.0	12.0
Bank Loans	5.8	7.5
Non-US Developed Bonds (Unhedged)	2.7	11.0
Emerging Market Bonds (USD)	5.0	13.5
Hedge Funds (FoF)	4.3	9.5
Real Estate (Total Market)	5.8	12.2
Private Equity	8.4	24.5
U.S. Inflation (CPI)	2.3	--

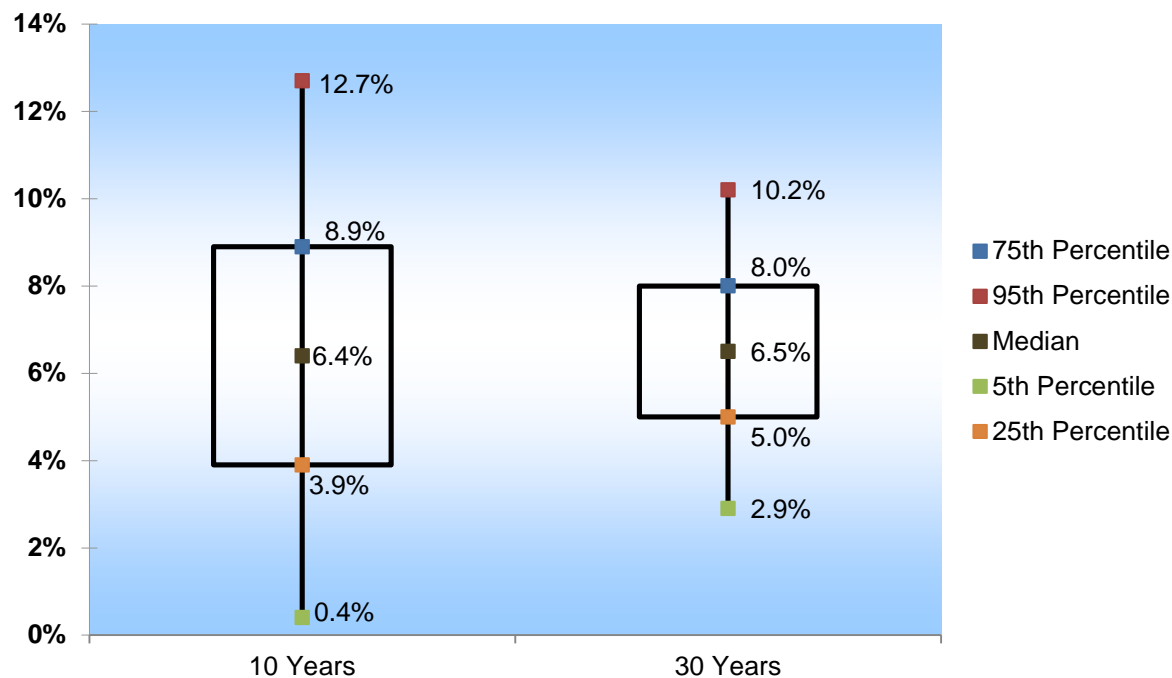
# Projected Returns

	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%	6.4%	17.4%	6.4%	17.9%
Non-U.S. Equity	11.5	7.8	20.5	7.7	20.6
Global Equity	19.0	7.1	18.5	7.3	19.0
Fixed Income*	30.0	3.8	4.1	4.1	4.4
Private Equity	5.0	8.4	24.0	8.4	24.5
Real Estate	7.5	5.8	12.2	5.8	12.2
<b>Total Fund</b>	<b>100.0%</b>	<b>6.4%</b>	<b>12.0%</b>	<b>6.5%</b>	<b>12.3%</b>

- Assumed rates for the Nebraska DB Plans, CBB Plans, and OSERS:
  - The Defined Benefit Plans’ actuarial assumed rate is 7.5%
  - The Cash Balance Benefit Plans’ actuarial assumed rate was lowered from 7.75% to 7.5% in January of 2018
  - OSERS’ actuarial assumed rate is 7.5%
- Lowering the actuarial assumed rates increases the probability that these rates of return will be achieved
- Given existing market conditions, meeting or exceeding 7.5% is still likely to prove challenging in our view

\*Modeled as 20% core bonds, 1.5% international bonds, 3.5% high yield bonds, and 5% bank loans

## Projected Returns (cont'd)



- Based on our capital market assumptions and the defined benefit plans' asset allocation targets, the defined benefit plans have an approximately 1 in 3 chance of meeting or exceeding the assumed rate of return of 7.5% over the next 10-to-30 years

# AHIC 10-Year Assumptions: How Expected Returns Have Evolved Over the Past Several Years

Asset Class	Expected Nominal Return							
	6/30/18	2017	2016	2015	2014	2013	2012	2011
Large Cap U.S. Equity	6.3%	6.3%	6.2%	6.6	6.7%	7.1%	7.5%	8.0%
Small Cap U.S. Equity	6.5	6.5	6.4	6.8	6.9	7.3	7.7	8.2
Global Equity	7.1	7.1	7.0	7.1	7.1	7.5	8.3	8.9
International Equity (Developed)	7.4	7.2	7.0	7.1	7.2	7.3	8.4	9.1
Emerging Markets Equity	7.9	7.6	7.4	8.4	8.4	8.9	9.4	9.8
Cash (Gov't)	2.6	2.0	1.3	1.8	2.2	2.5	1.3	1.5
Core Fixed Income (Market Duration)	3.4	2.7	2.1	2.7	2.9	3.3	1.9	2.6
High Yield Bonds	4.1	3.6	4.1	5.9	4.2	4.6	3.9	5.9
Hedge Funds Universe <sup>1</sup>	4.1	3.7	3.4	3.8	5.0	5.2	5.2	5.7
Real Estate (Broad Market)	5.8	6.0	5.4	6.6	7.0	7.2	7.4	7.3
Private Equity	8.4	8.7	8.2	9.0	9.0	9.3	9.7	9.8
Inflation	2.3	2.3	2.1	2.0	2.2	2.1	2.3	2.1

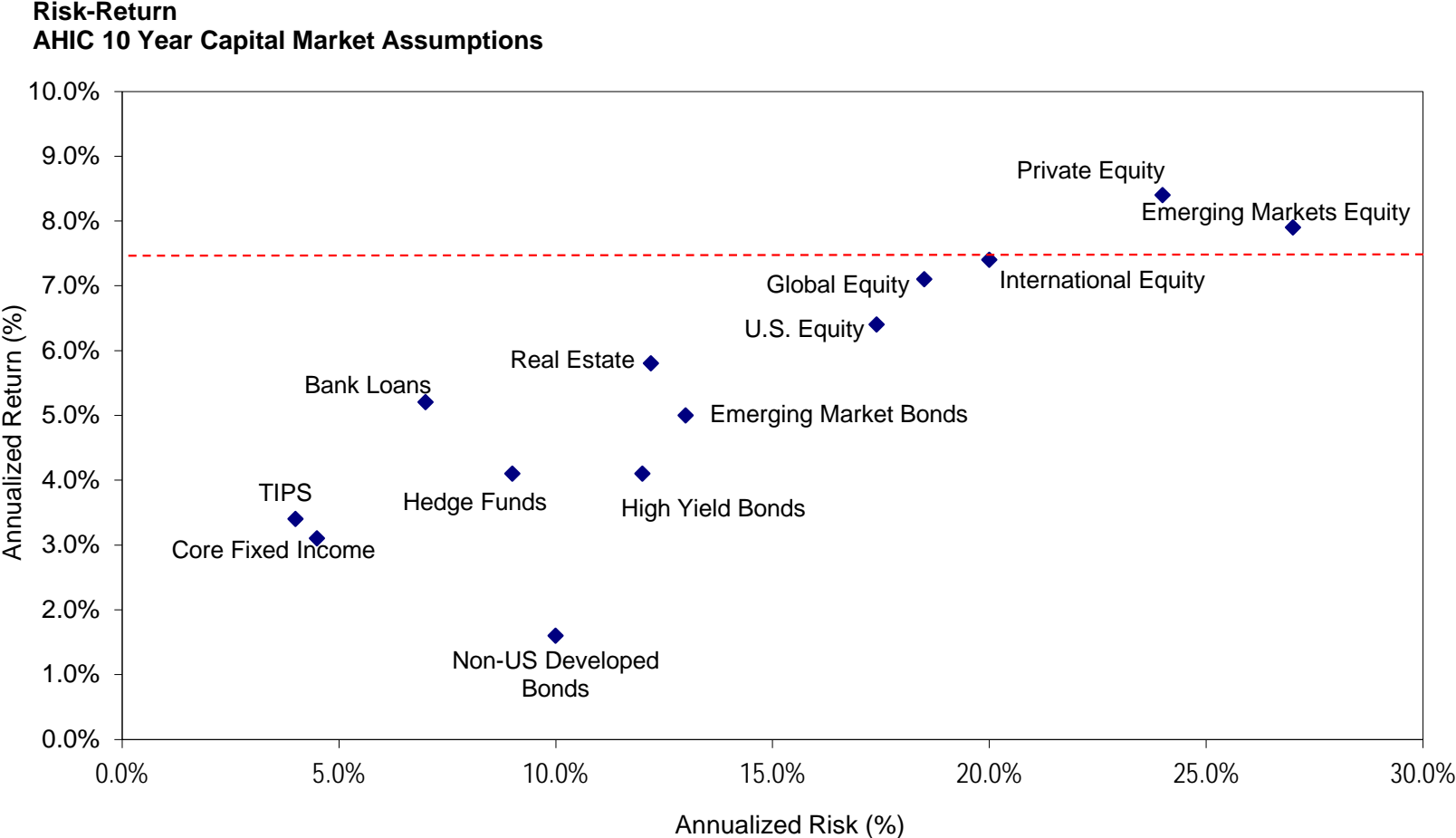
<sup>1</sup> Hedge Fund Universe assumptions are capital market assumptions for fund of hedge funds

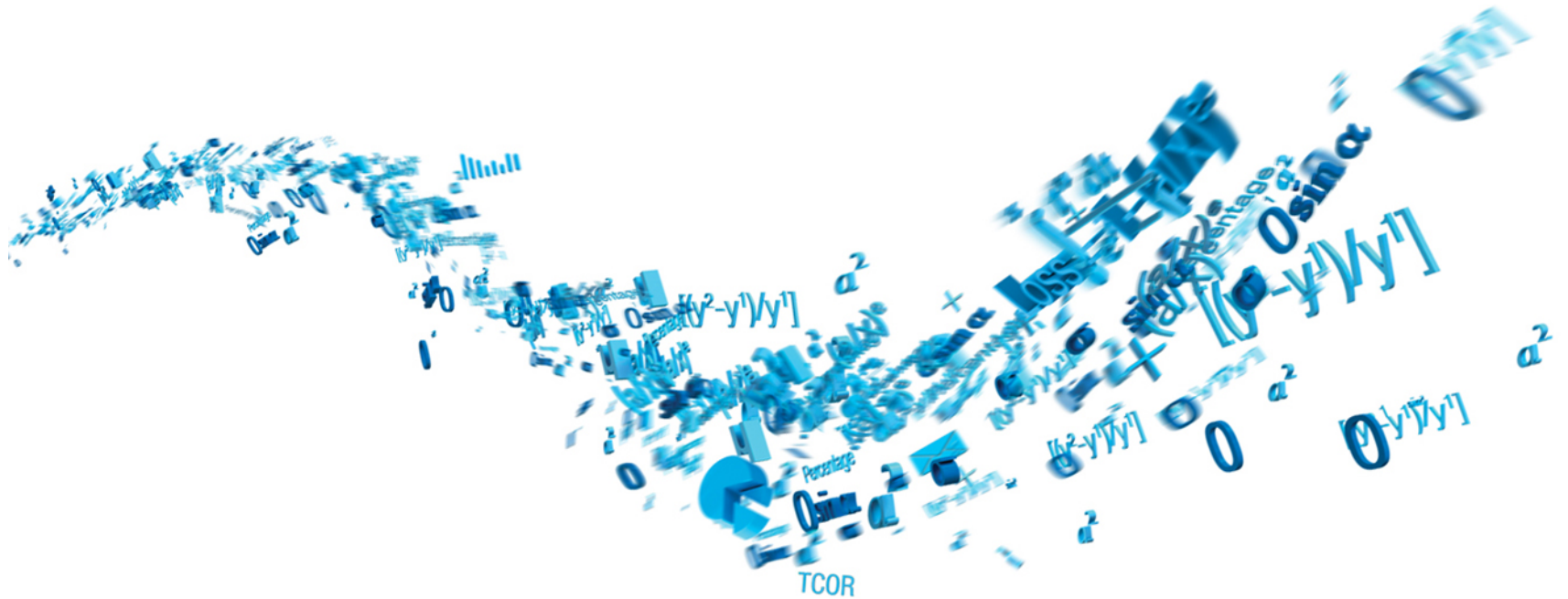
- Our return expectations have generally decreased over the past five+ years

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



# Appendix III: AHIC Forward Looking Return Expectations by Asset Class





# Nebraska Investment Council Capital Market Assumptions Endowments

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# Capital Market Assumptions

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# Coverage

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	Corporate bonds	Private equity
	High yield	Infrastructure
	Emerging market debt	Commodities

## Current Assumptions (10-Year): Expected Returns and Volatility (as of June 30, 2018)

Asset Class	Expected Nominal Return	Expected Risk (Volatility)
U.S. Equity	6.4%	17.4%
Global Equity (Developed & Emerging)	7.1	18.5
International Equity (Developed)	7.4	20.0
Emerging Markets Equity	7.9	27.0
TIPS	3.1	4.5
Core Fixed Income (Market Duration)	3.4	4.0
Intermediate Fixed Income	3.0	3.0
Cash	2.6	1.0
High Yield Bonds	4.1	12.0
Bank Loans	5.2	7.0
Non-US Developed Bonds (Unhedged)	1.6	10.0
Emerging Market Bonds (USD)	5.0	13.0
Hedge Funds (FoF)	4.1	9.0
Real Estate (Total Market)	5.8	12.2
Private Equity	8.4	24.0
U.S. Inflation (CPI)	2.3	--

# Current Assumptions (30-Year): Expected Returns and Volatility (as of June 30, 2018)

Asset Class	Expected Nominal Return	Expected Risk (Volatility)
U.S. Equity	6.4%	17.9%
Global Equity (Developed & Emerging)	7.3	19.0
International Equity (Developed)	7.3	20.0
Emerging Markets Equity	8.0	27.5
TIPS	3.4	4.5
Core Fixed Income (Market Duration)	3.5	4.5
Intermediate Fixed Income	3.1	3.7
Cash	2.6	2.0
High Yield Bonds	5.0	12.0
Bank Loans	5.8	7.5
Non-US Developed Bonds (Unhedged)	2.7	11.0
Emerging Market Bonds (USD)	5.0	13.5
Hedge Funds (FoF)	4.3	9.5
Real Estate (Total Market)	5.8	12.2
Private Equity	8.4	24.5
U.S. Inflation (CPI)	2.3	--

## 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%	6.4%	17.4%	6.4%	17.9%
Non-U.S. Equity	13.0	7.8	20.5	7.7	20.6
Global Equity	21.5	7.1	18.5	7.3	19.0
Fixed Income*	25.0	3.0	2.8	3.0	3.4
Private Equity	5.0	8.4	24.0	8.4	24.5
Real Estate	5.0	5.8	12.2	5.8	12.2
<b>Total Fund</b>	<b>100.0%</b>	<b>6.3%</b>	<b>12.7%</b>	<b>6.4%</b>	<b>13.0%</b>

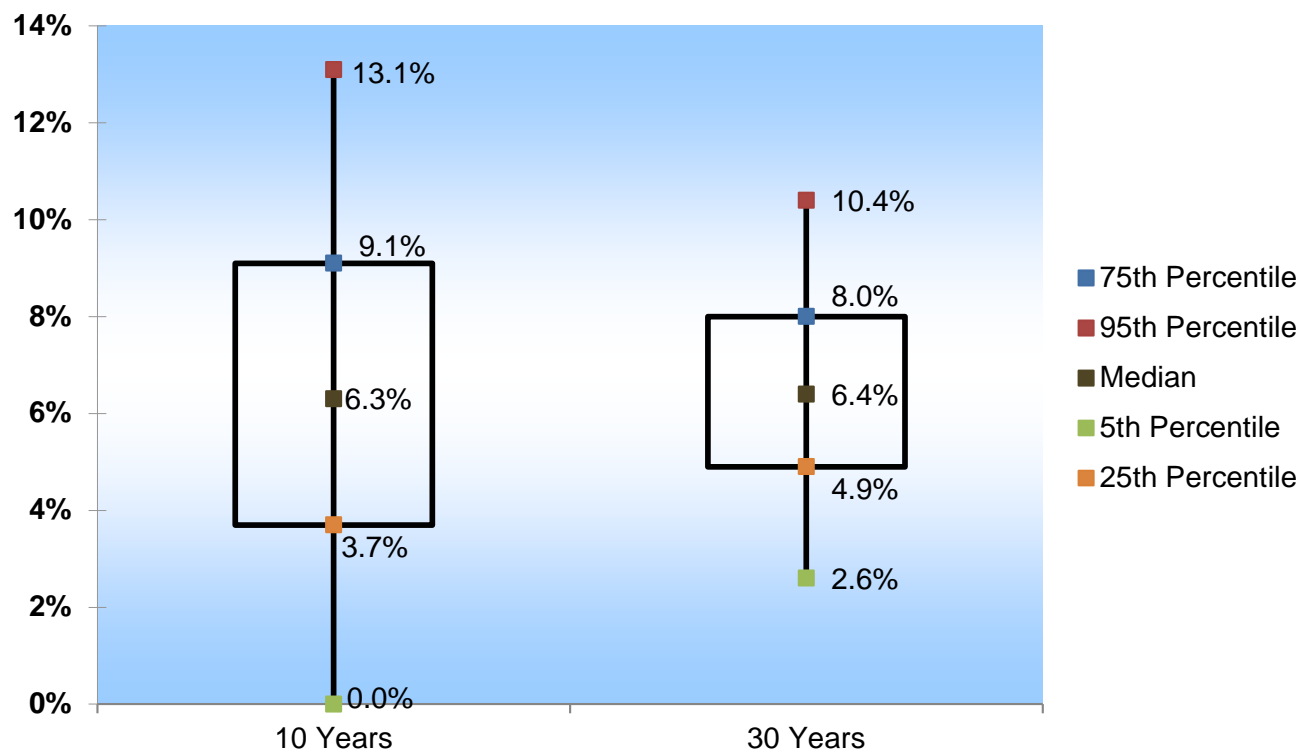
- The table above presents our median return and volatility forecasts for the Health Care Endowment over 10 and 30 year periods

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

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## 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%	6.4%	17.4%	6.4%	17.9%
Non-U.S. Equity	8.0	7.8	20.5	7.7	20.6
Global Equity	13.0	7.1	18.5	7.3	19.0
Fixed Income*	50.0	3.6	4.2	3.8	4.6
Private Equity	5.0	8.4	24.0	8.4	24.5
Real Estate	5.0	5.8	12.2	5.8	12.2
<b>Total Fund</b>	<b>100.0%</b>	<b>5.7%</b>	<b>9.0%</b>	<b>5.8%</b>	<b>9.3%</b>

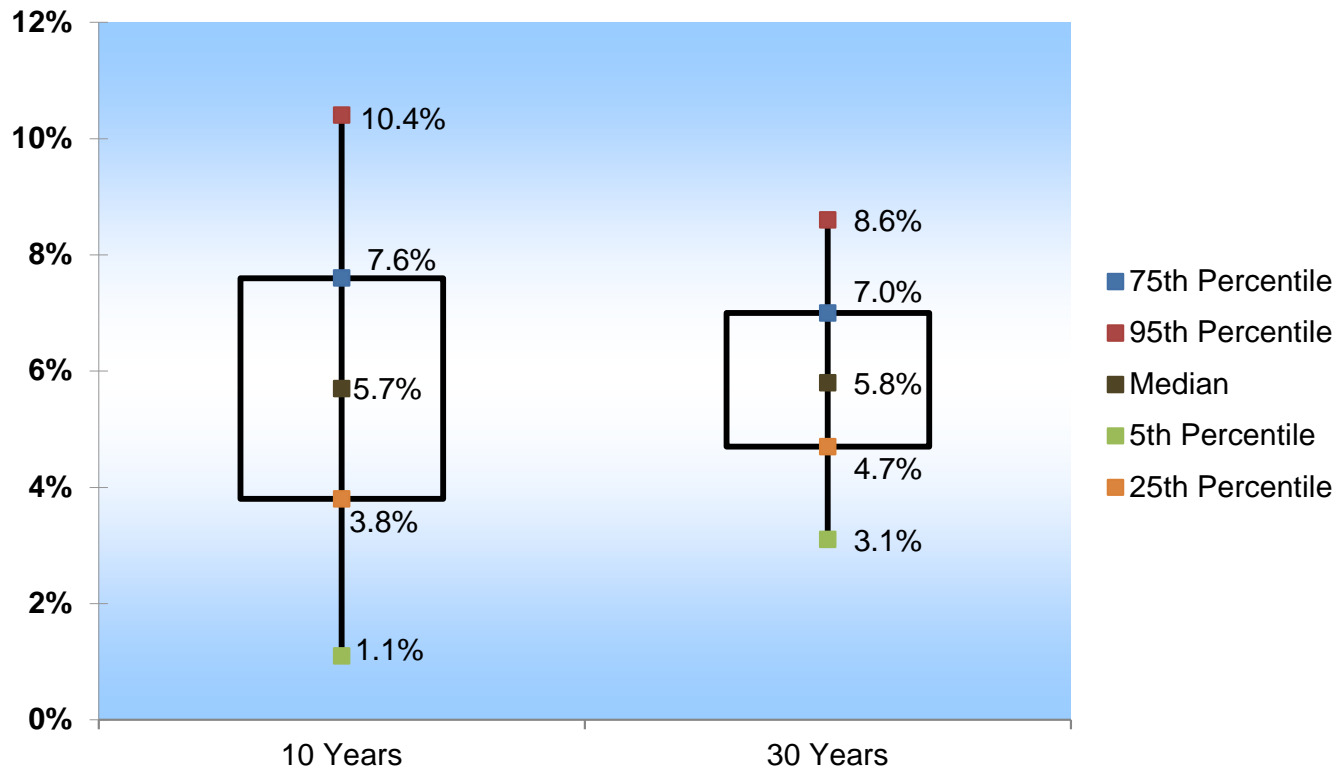
- The table above presents our median return and volatility forecasts for the 50/50 Endowments over 10 and 30 year periods

\*Modeled as 43.75% Core U.S. Fixed Income, 6.25% HY Bonds

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## 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

# AHIC 10-Year Assumptions: How Expected Returns Have Evolved Over the Past Several Years

Asset Class	Expected Nominal Return							
	6/30/18	2017	2016	2015	2014	2013	2012	2011
Large Cap U.S. Equity	6.3%	6.3%	6.2%	6.6	6.7%	7.1%	7.5%	8.0%
Small Cap U.S. Equity	6.5	6.5	6.4	6.8	6.9	7.3	7.7	8.2
Global Equity	7.1	7.1	7.0	7.1	7.1	7.5	8.3	8.9
International Equity (Developed)	7.4	7.2	7.0	7.1	7.2	7.3	8.4	9.1
Emerging Markets Equity	7.9	7.6	7.4	8.4	8.4	8.9	9.4	9.8
Cash (Gov't)	2.6	2.0	1.3	1.8	2.2	2.5	1.3	1.5
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Hedge Funds Universe <sup>1</sup>	4.1	3.7	3.4	3.8	5.0	5.2	5.2	5.7
Real Estate (Broad Market)	5.8	6.0	5.4	6.6	7.0	7.2	7.4	7.3
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