

Nebraska Investment Council Capital Market Assumptions

September 2019

Capital Market Assumptions

- 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

Equities	Bonds	Alternatives
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, 2019)

Asset Class	Expected Nominal Return	Expected Risk (Volatility)
U.S. Equity	6.3%	17.4%
Global Equity (Developed & Emerging)	7.1	18.5
International Equity (Developed)	7.3	20.0
Emerging Markets Equity	7.9	27.0
TIPS	2.5	4.5
Core Fixed Income (Market Duration)	2.5	4.0
High Yield Bonds	4.0	12.0
Bank Loans	4.8	7.0
Non-US Developed Bonds (Unhedged)	1.0	10.0
Emerging Market Bonds (USD)	4.2	13.0
Hedge Funds (FoF)	3.6	9.0
Real Estate (Total Market)	6.1	14.2
Private Equity	8.7	25.0
U.S. Inflation (CPI)	2.1	--

Current Assumptions (30-Year): Expected Returns and Volatility (as of June 30, 2019)

Asset Class	Expected Nominal Return	Expected Risk (Volatility)
U.S. Equity	6.9%	17.9%
Global Equity (Developed & Emerging)	7.6	19.0
International Equity (Developed)	7.5	20.0
Emerging Markets Equity	8.1	27.5
TIPS	3.0	4.5
Core Fixed Income (Market Duration)	3.1	5.0
High Yield Bonds	4.9	12.5
Bank Loans	5.5	7.5
Non-US Developed Bonds (Unhedged)	2.1	11.0
Emerging Market Bonds (USD)	4.7	14.0
Hedge Funds (FoF)	4.0	10.0
Real Estate (Total Market)	6.2	14.3
Private Equity	9.6	25.5
U.S. Inflation (CPI)	2.1	--

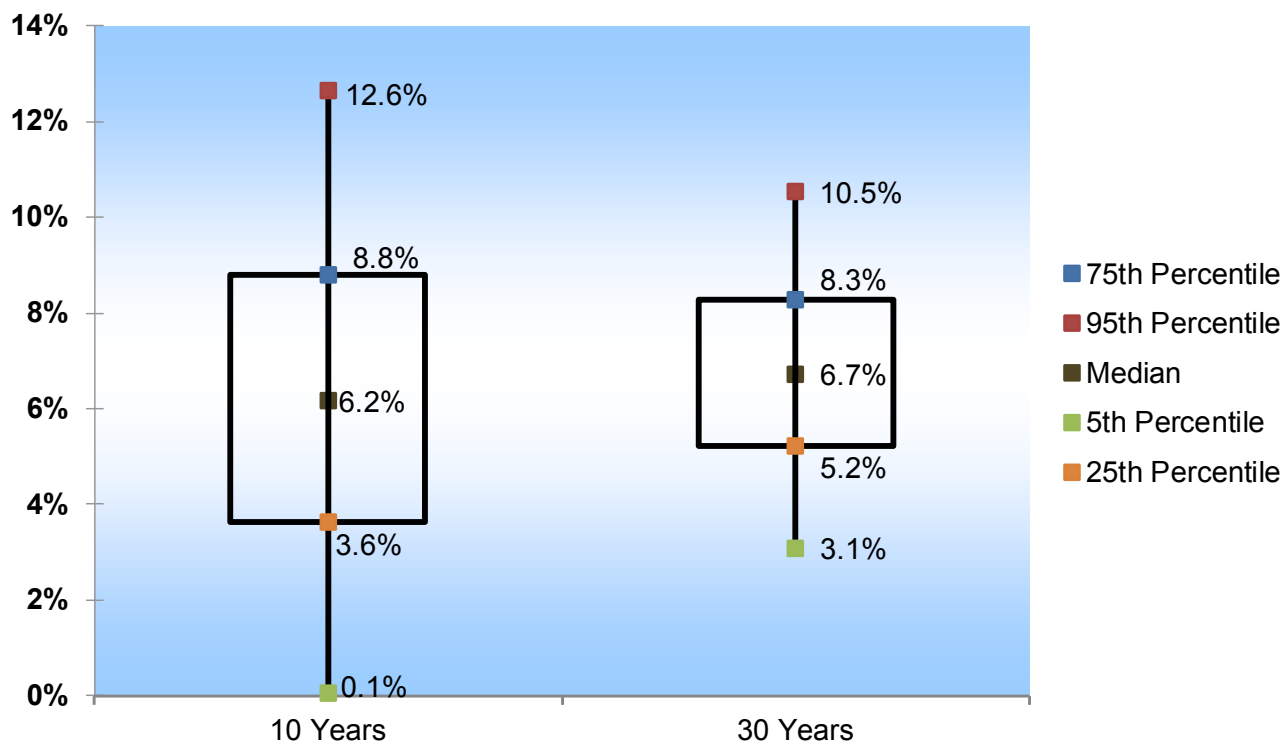
Projected Returns

	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%	6.3%	17.4%	6.9%	17.9%
Non-U.S. Equity	11.5	7.7	20.5	7.9	20.6
Global Equity	19.0	7.1	18.5	7.6	19.0
Fixed Income*	30.0	3.1	4.2	3.8	4.9
Private Equity	5.0	8.7	25.0	9.6	25.5
Real Estate	7.5	6.1	14.2	6.2	14.3
Total Fund	100.0%	6.2%	12.2%	6.7%	12.5%

- Assumed rates for the Nebraska DB Plans, CBB Plans, and OSERS = 7.5%
- Given existing market conditions, meeting or exceeding 7.5% is still likely to prove challenging

*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 slightly better than a 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

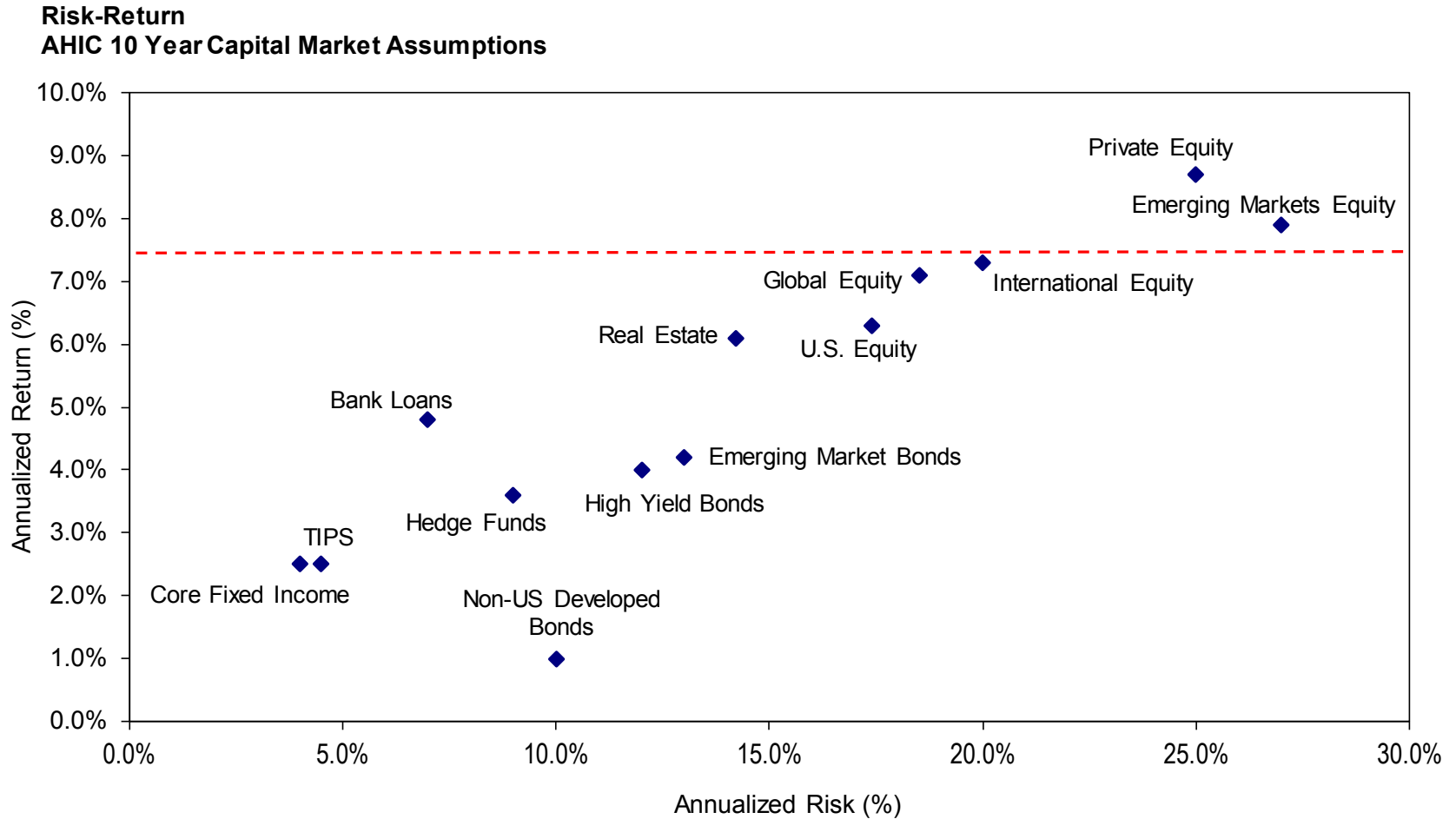
Asset Class	Expected Nominal Return								
	6/30/19	2018	2017	2016	2015	2014	2013	2012	2011
Large Cap U.S. Equity	6.2%	6.2%	6.3%	6.2%	6.6	6.7%	7.1%	7.5%	8.0%
Small Cap U.S. Equity	6.4	6.4	6.5	6.4	6.8	6.9	7.3	7.7	8.2
Global Equity	7.1	7.2	7.1	7.0	7.1	7.1	7.5	8.3	8.9
International Equity (Developed)	7.3	7.3	7.2	7.0	7.1	7.2	7.3	8.4	9.1
Emerging Markets Equity	7.9	8.1	7.6	7.4	8.4	8.4	8.9	9.4	9.8
Cash (Gov't)	1.8	2.8	2.0	1.3	1.8	2.2	2.5	1.3	1.5
Core Fixed Income (Market Duration)	2.5	3.5	2.7	2.1	2.7	2.9	3.3	1.9	2.6
High Yield Bonds	4.0	4.0	3.6	4.1	5.9	4.2	4.6	3.9	5.9
Hedge Funds Universe ¹	3.6	4.2	3.7	3.4	3.8	5.0	5.2	5.2	5.7
Real Estate (Broad Market)	6.1	5.9	6.0	5.4	6.6	7.0	7.2	7.4	7.3
Private Equity	8.7	8.2	8.7	8.2	9.0	9.0	9.3	9.7	9.8
Inflation	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 have generally decreased over the past several years

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

Appendix I: AHIC Forward Looking Return Expectations by Asset Class



Appendix II: Estimated Yields

DB/CBB 6/30/19			
	% Allocation	Actual Yield	Policy Yield
U.S. Equity	27.9%	1.9%	1.9%
Non-U.S. Equity	11.1%	3.2%	3.2%
Global Equity	19.8%	2.4%	2.5%
Fixed Income	29.3%	3.2%	2.9%
Real Estate	6.5%	4.1%	4.1%
Private Equity	5.6%	0.0%	0.0%
Total Yield	100.0%	2.6%	2.5%
OSERS 6/30/19			
	% Allocation	Actual Yield	Policy Yield
U.S. Equity	19.7%	1.9%	1.9%
Non-U.S. Equity	9.3%	3.2%	3.2%
Global Equity	13.0%	2.4%	2.5%
Fixed Income	26.1%	2.9%	2.9%
Real Asset	3.0%	0.0%	0.0%
Hedge Fund	0.7%	0.0%	0.0%
Real Estate	15.8%	4.1%	4.1%
Private Equity	12.3%	0.0%	0.0%
Total Yield	100.0%	2.4%	2.4%

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