



# **Heterogeneity, Financial Literacy and Asset Allocation:**

## **A Study Using Experimental and Field Data**

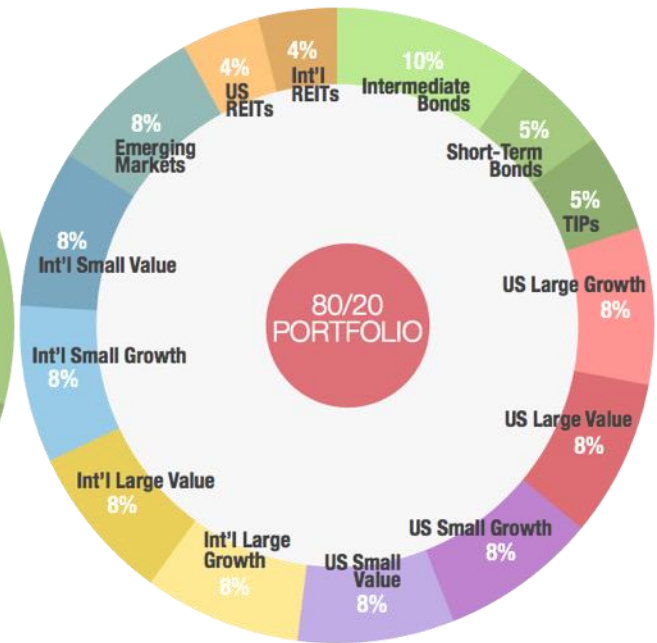
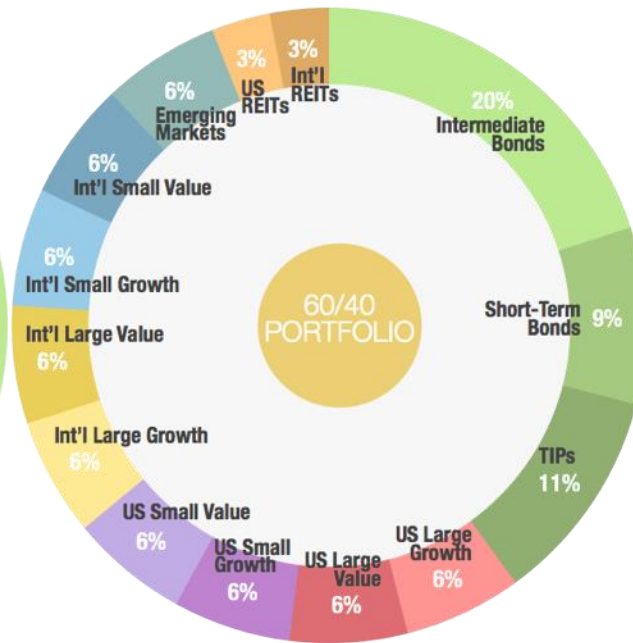
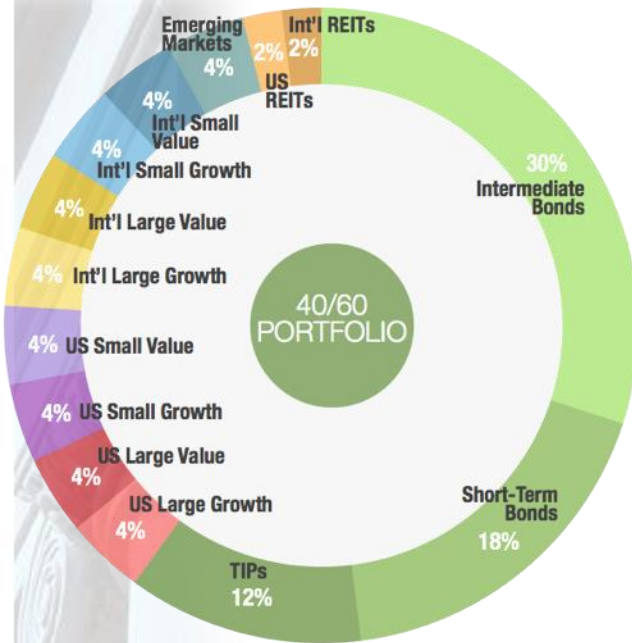
**Quentin Graham, Tai Kam, Robert L. McDonald,  
David P. Richardson and Thomas A. Rietz**

**June 24, 2015**

# The General Question: How do people allocate their retirement assets?



UBS Tactical  
Allocation Diagram



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Wells Fargo Retirement  
Asset Allocation Diagram



# Our Data

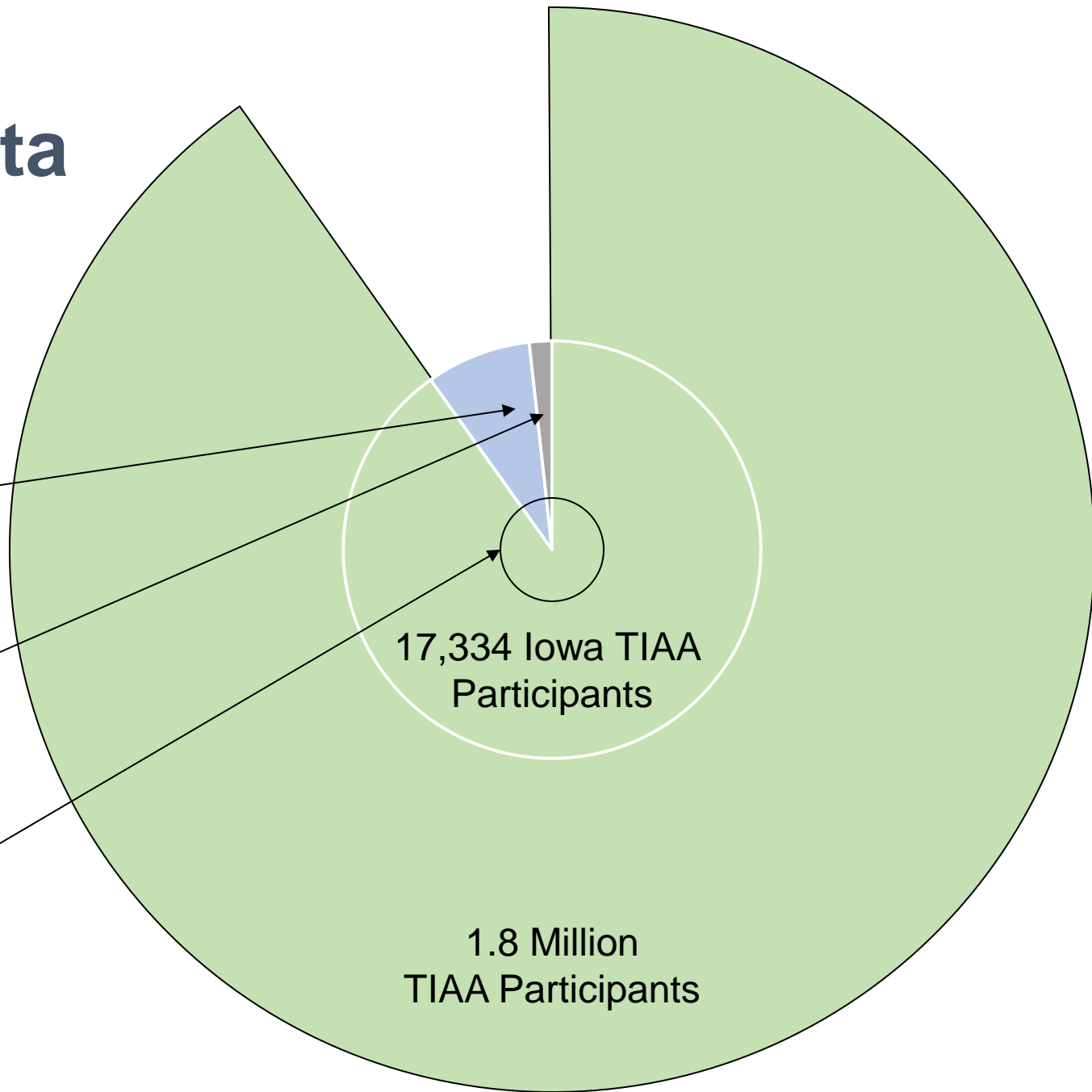
Iowa IPERS  
Participants

Iowa Other  
Participants  
(8,870 total  
IPERS &  
Other)

620 Iowa  
Experiment  
Participants

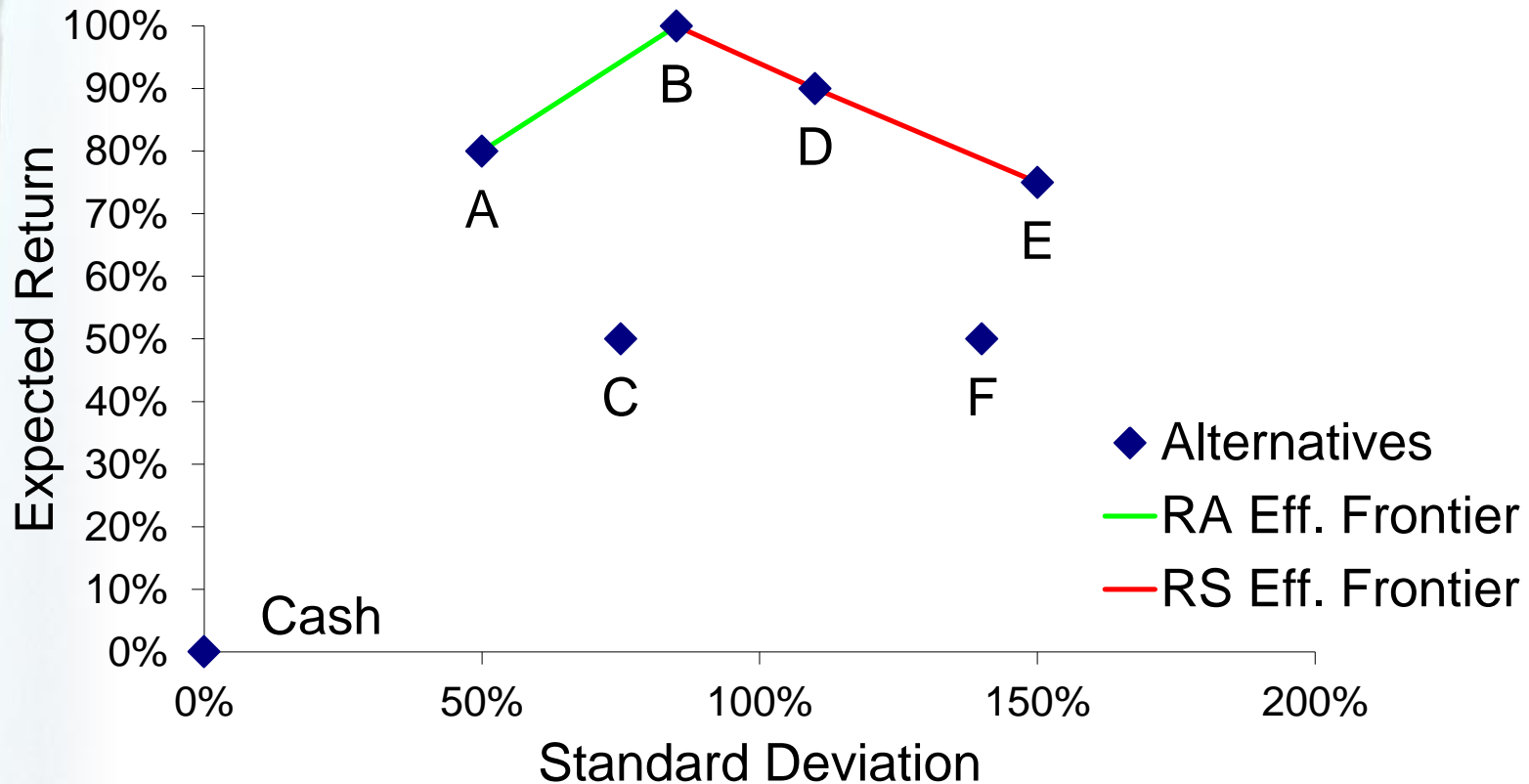
17,334 Iowa TIAA  
Participants

1.8 Million  
TIAA Participants

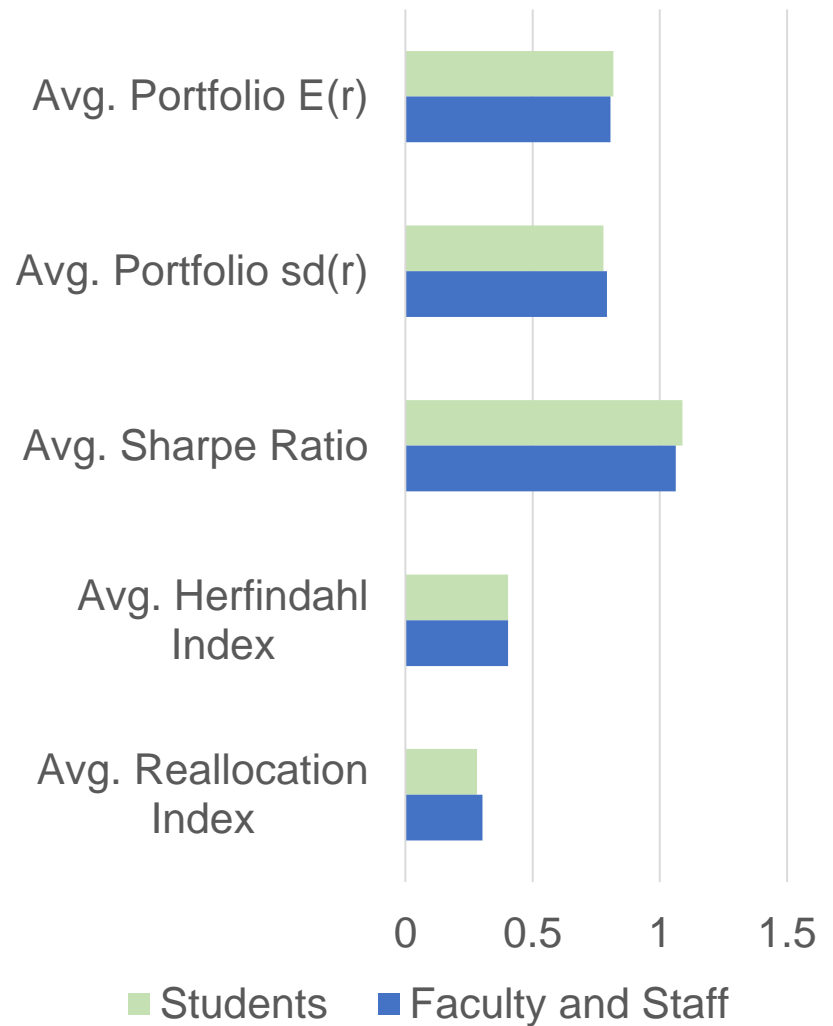
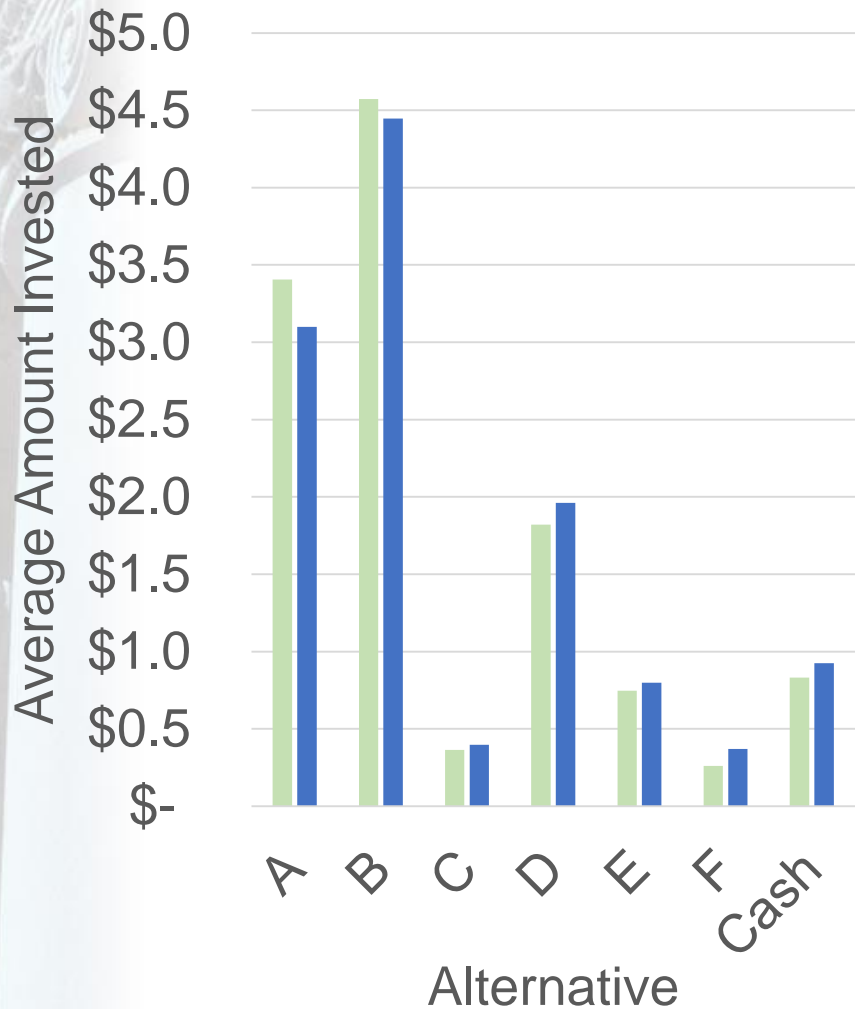


# Allocation Stage Alternatives

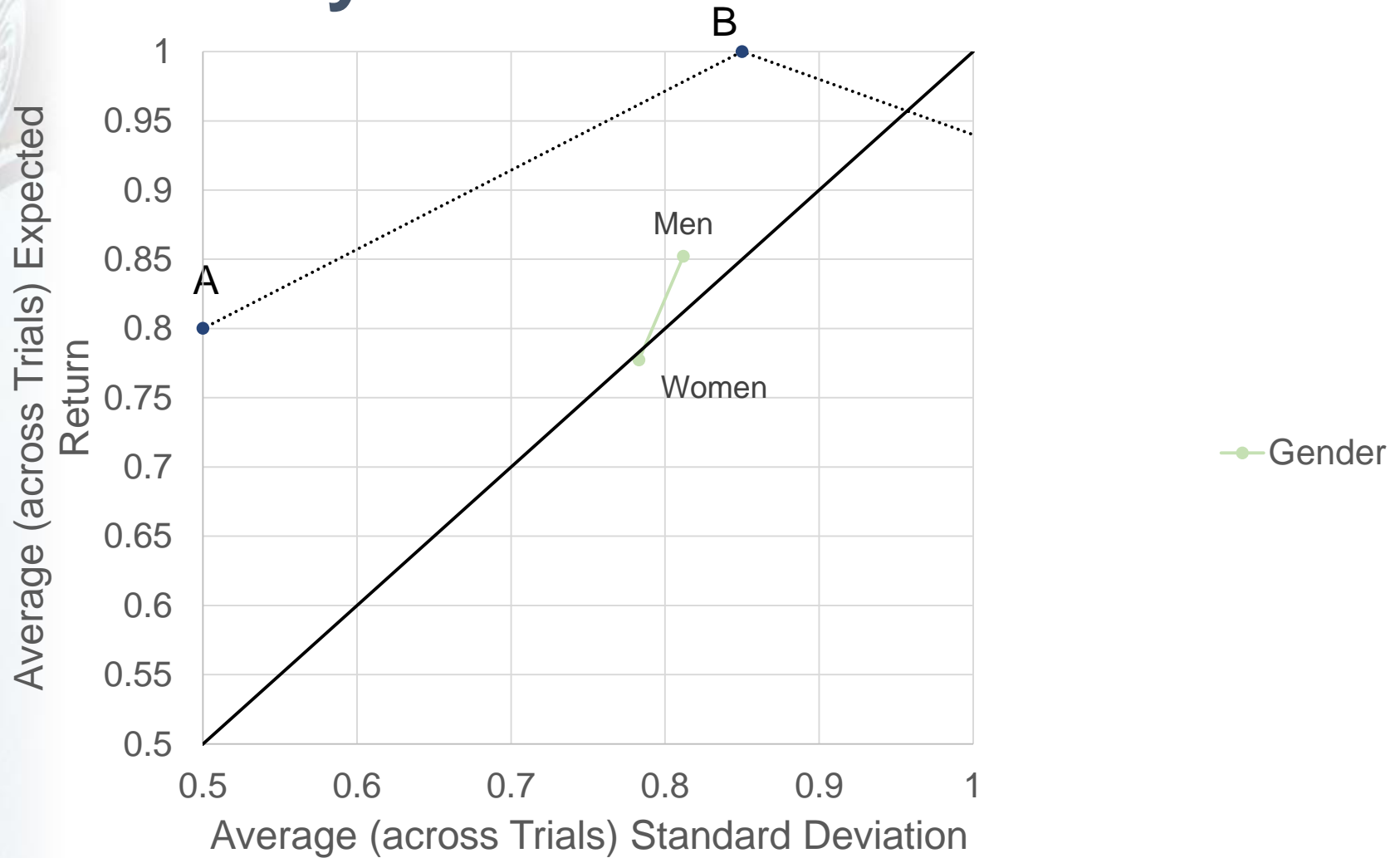
Alternative	A	B	C	D	E	F
High Return	130%	185%	125%	200%	225%	190%
Low Return	30%	15%	-25%	-20%	-75%	-90%
Average Return	80%	100%	50%	90%	75%	50%
Range of Returns	100%	170%	150%	220%	300%	280%
Return/Risk Ratio	0.8000	0.5882	0.3333	0.4091	0.2500	0.1786
Uncategorized Rating	***	***	**	**	*	*
Categorized Rating	***	**	*	***	**	*



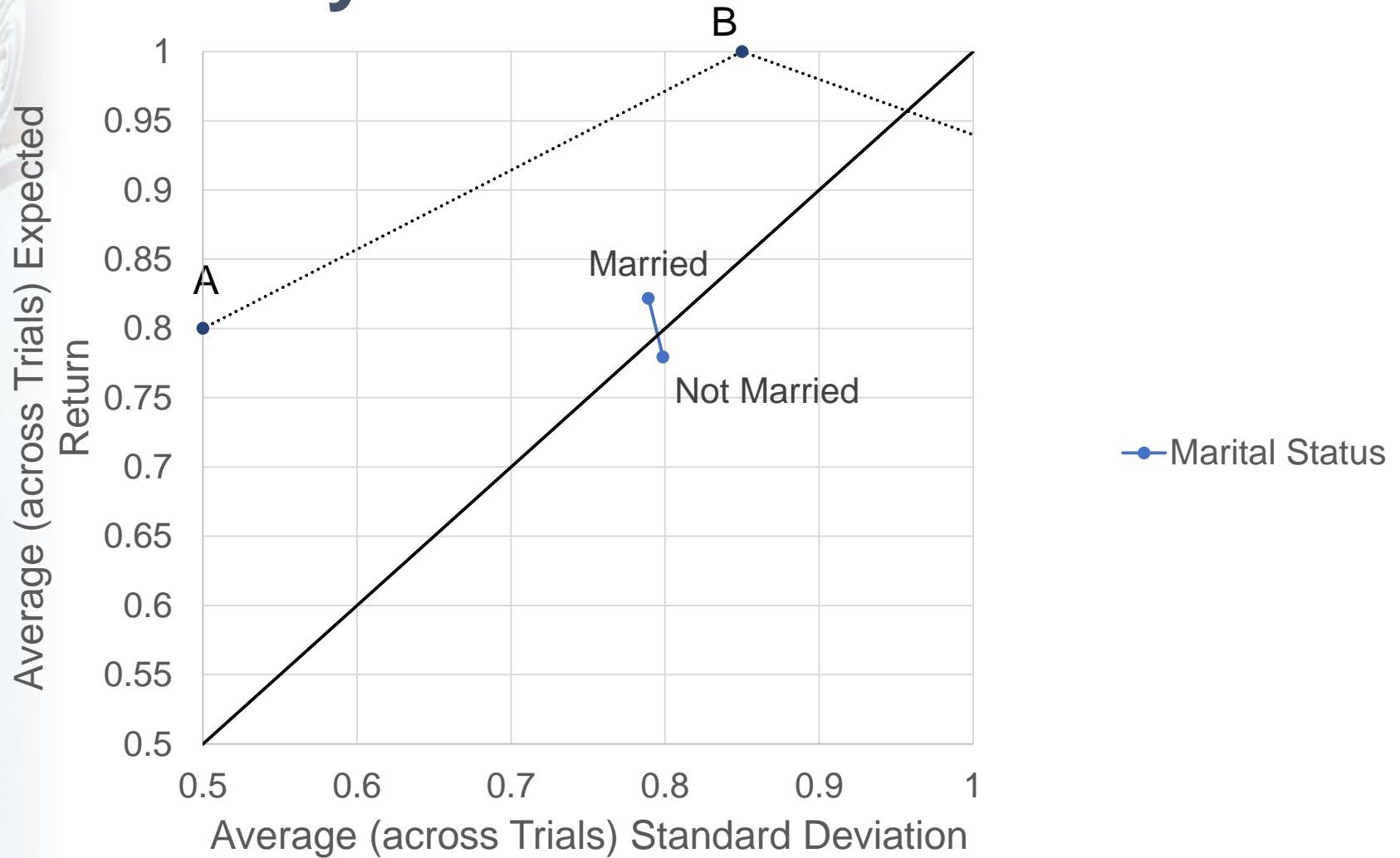
# Faculty and staff behave similarly to students



# Demographics and Portfolio Efficiency

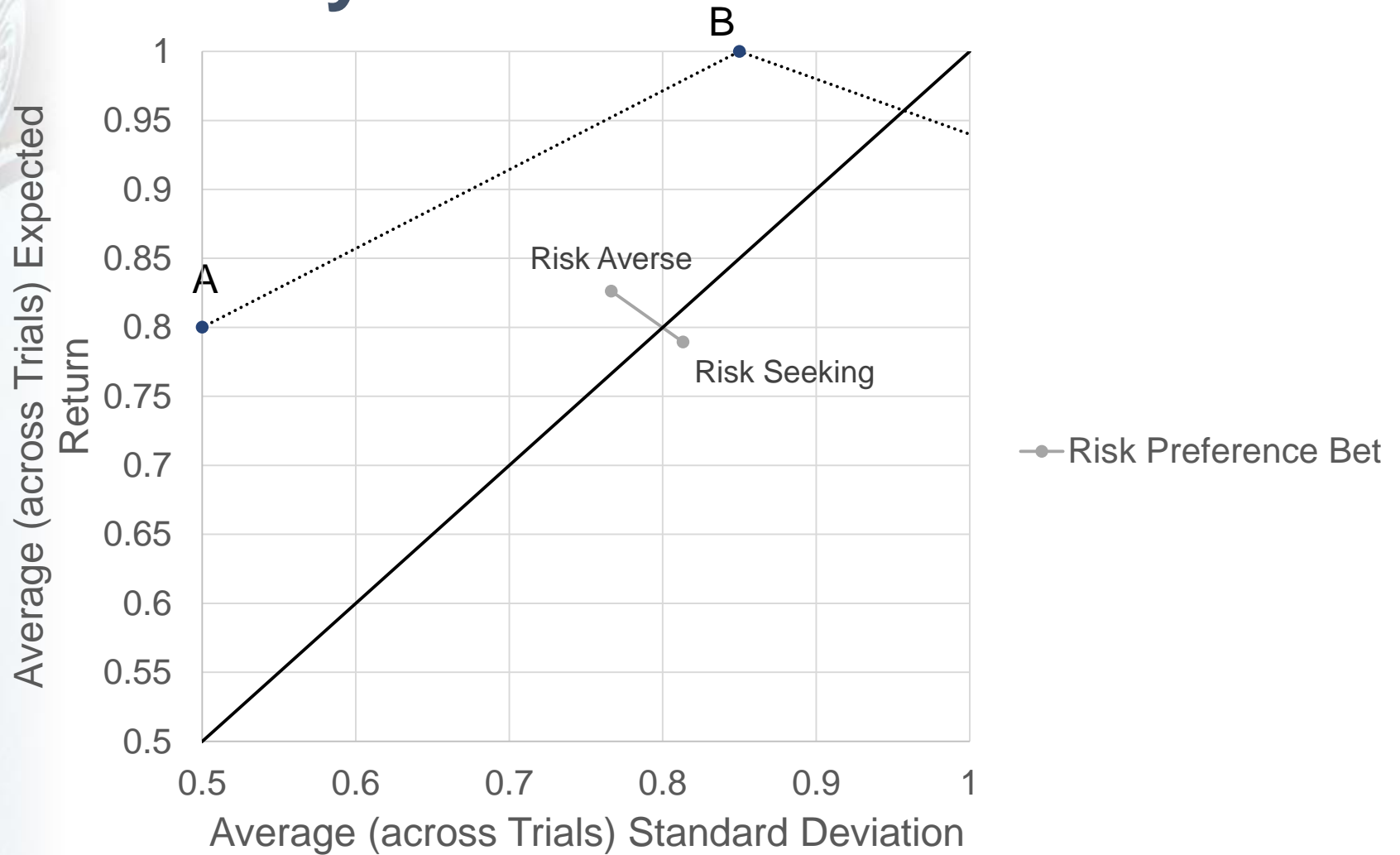


# Demographics and Portfolio Efficiency

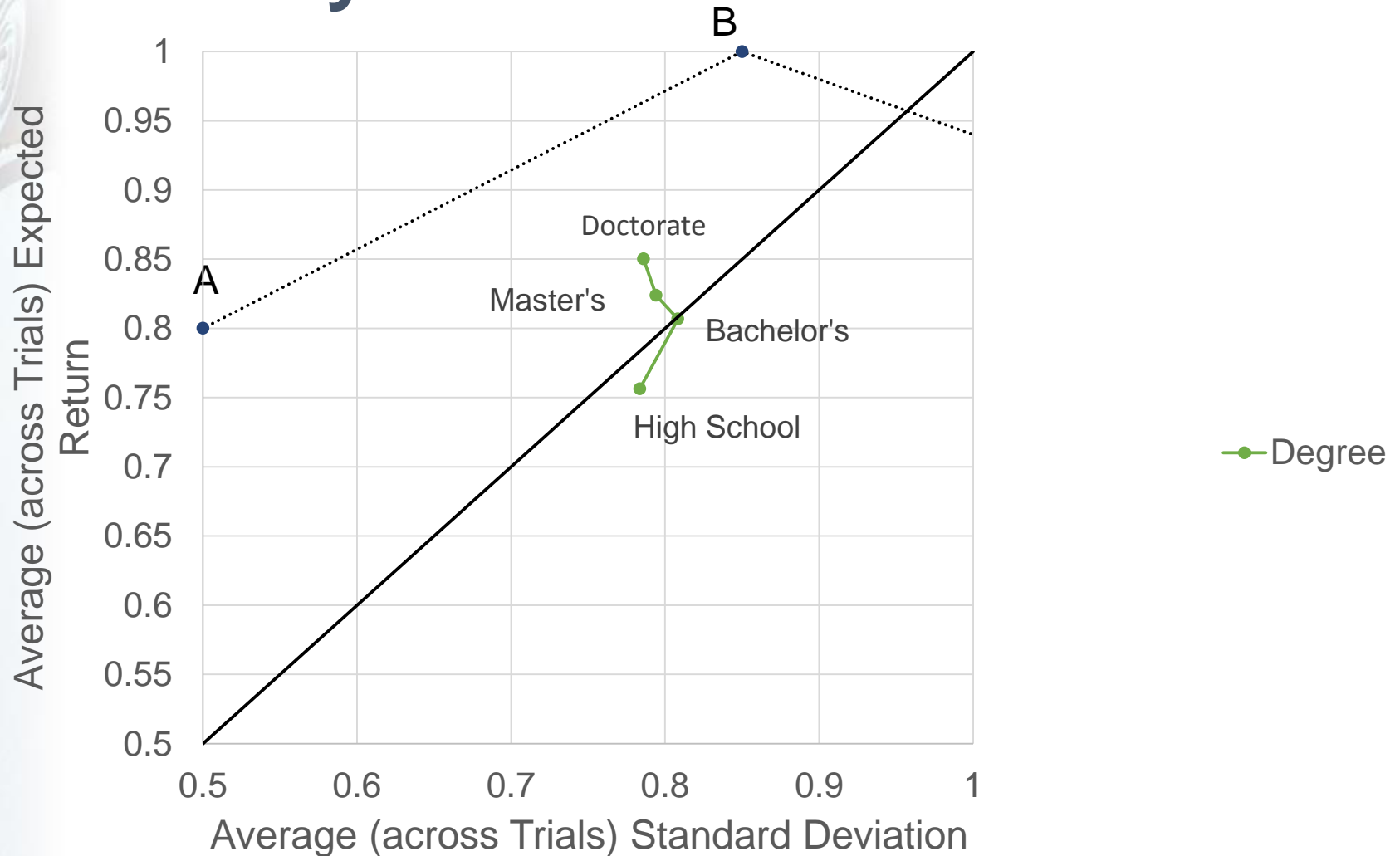




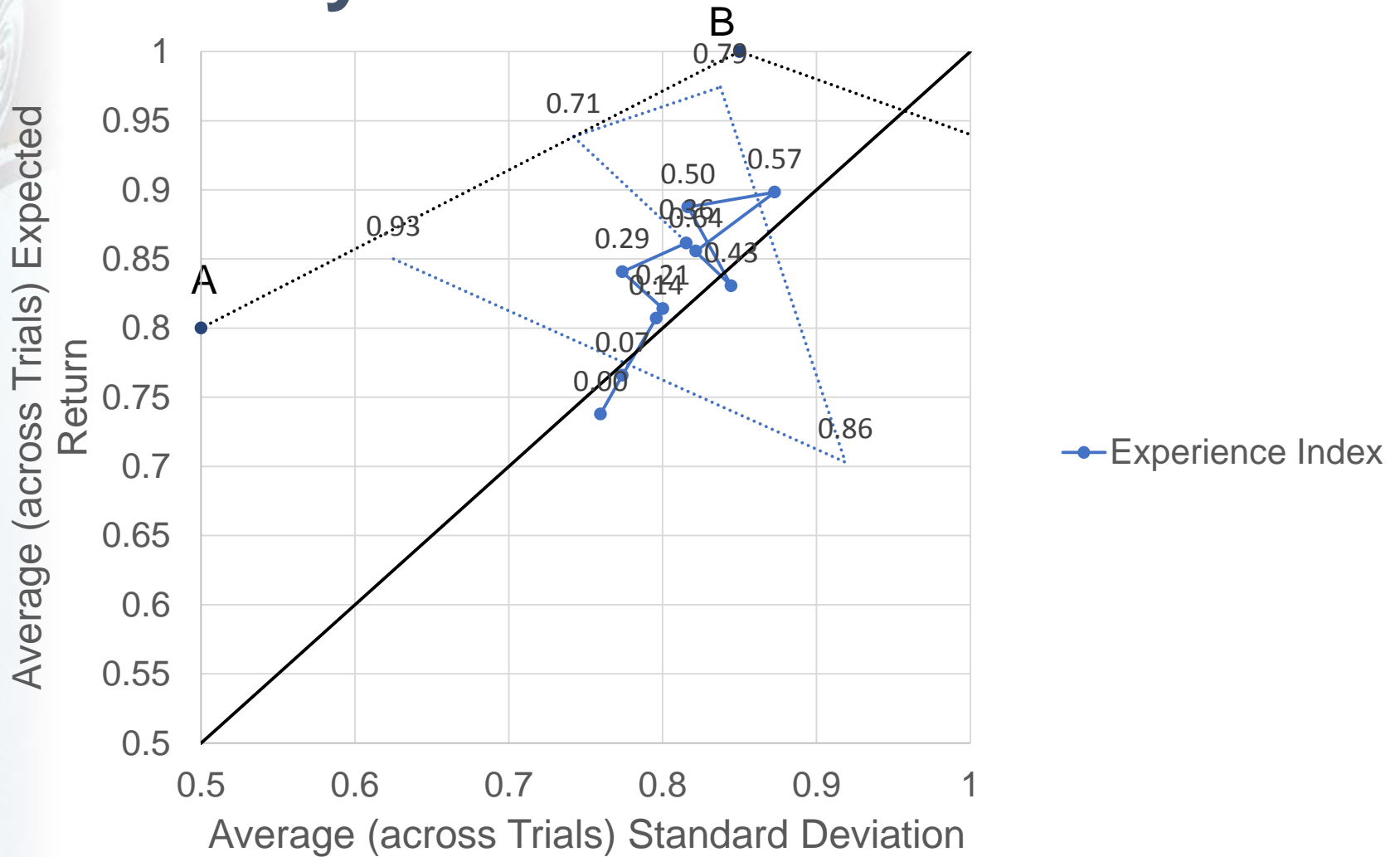
# Demographics and Portfolio Efficiency



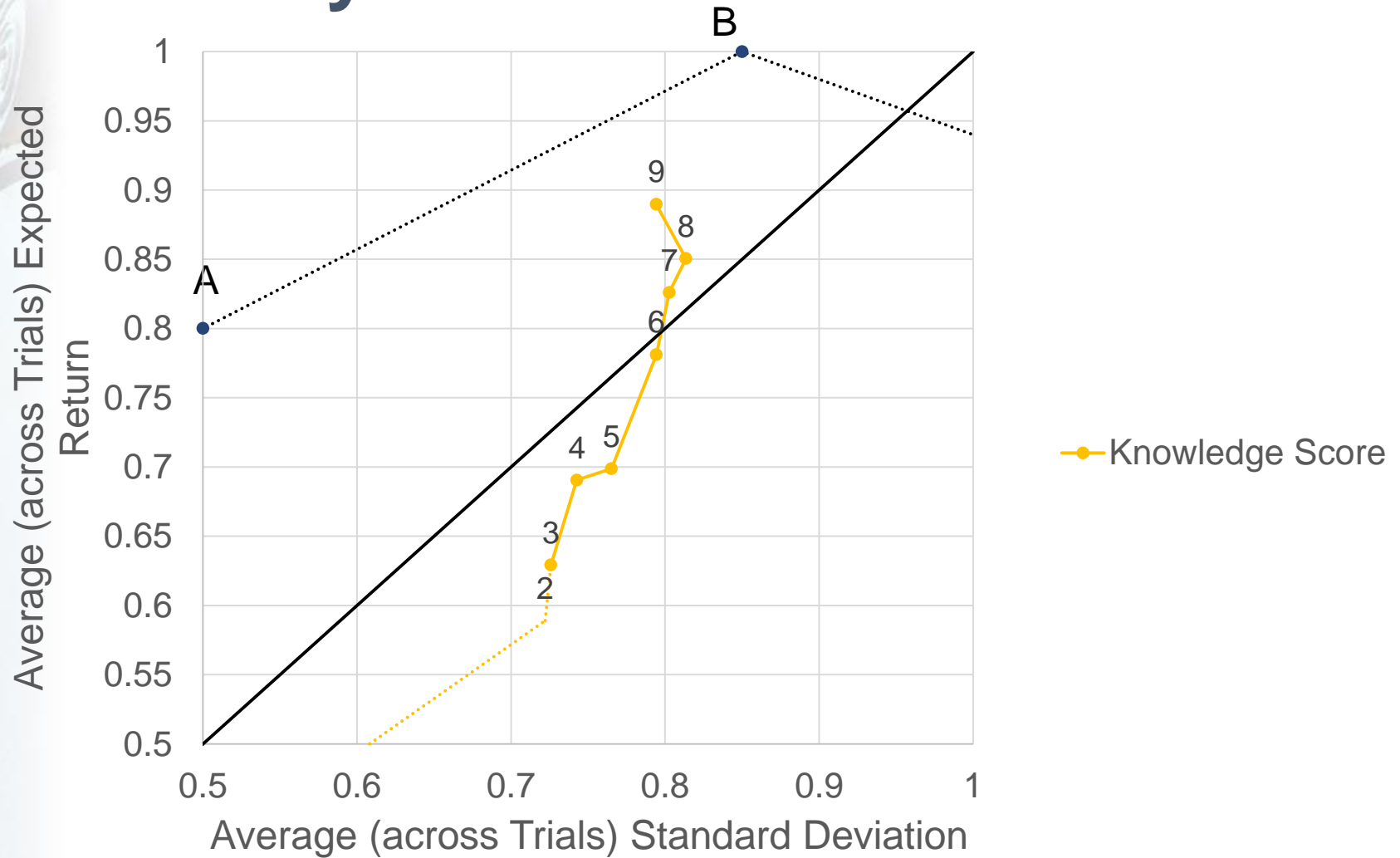
# Demographics and Portfolio Efficiency



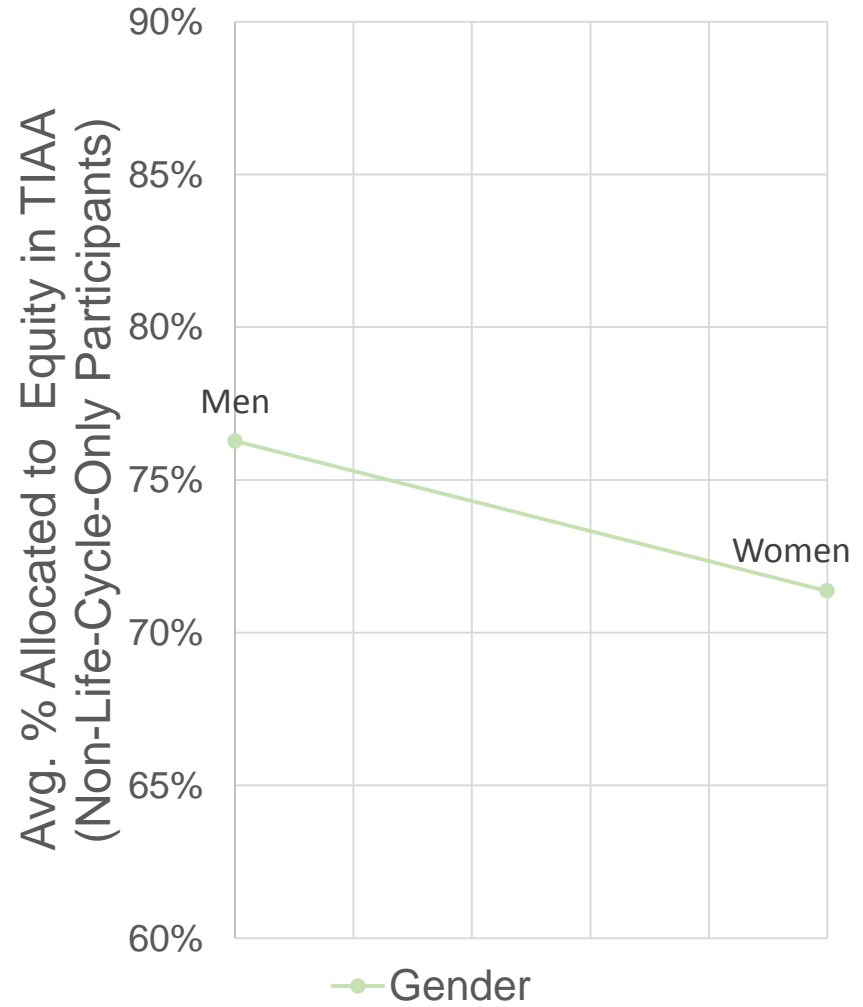
# Demographics and Portfolio Efficiency



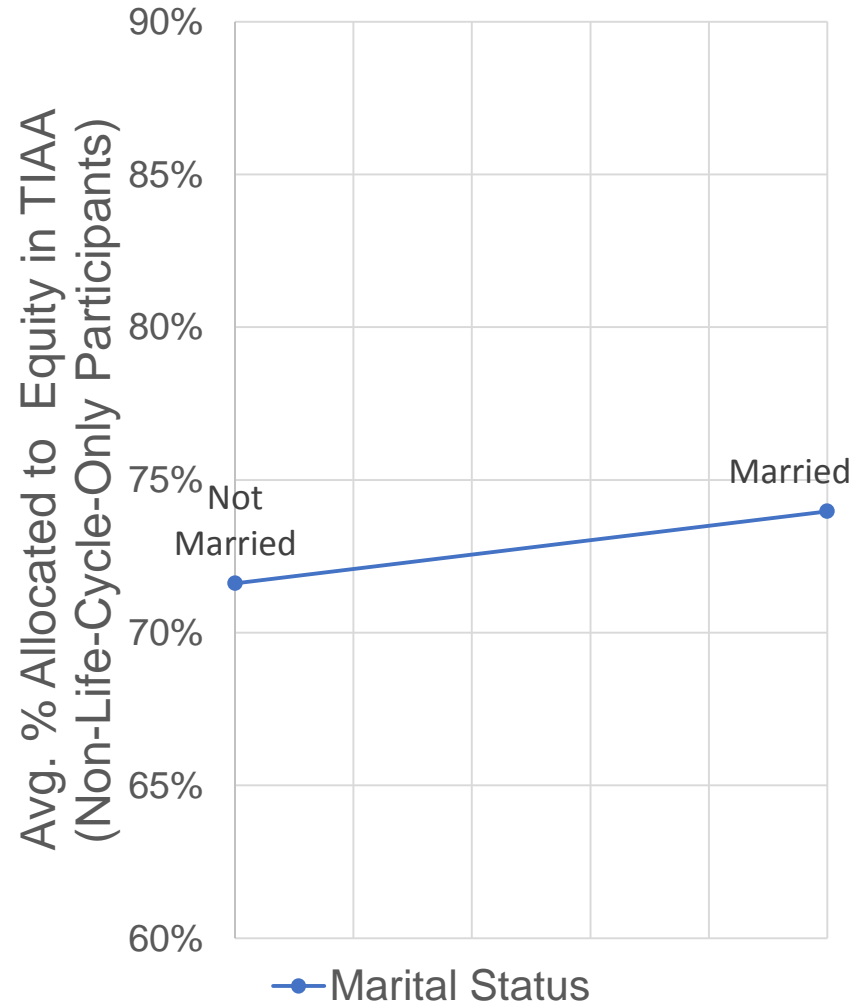
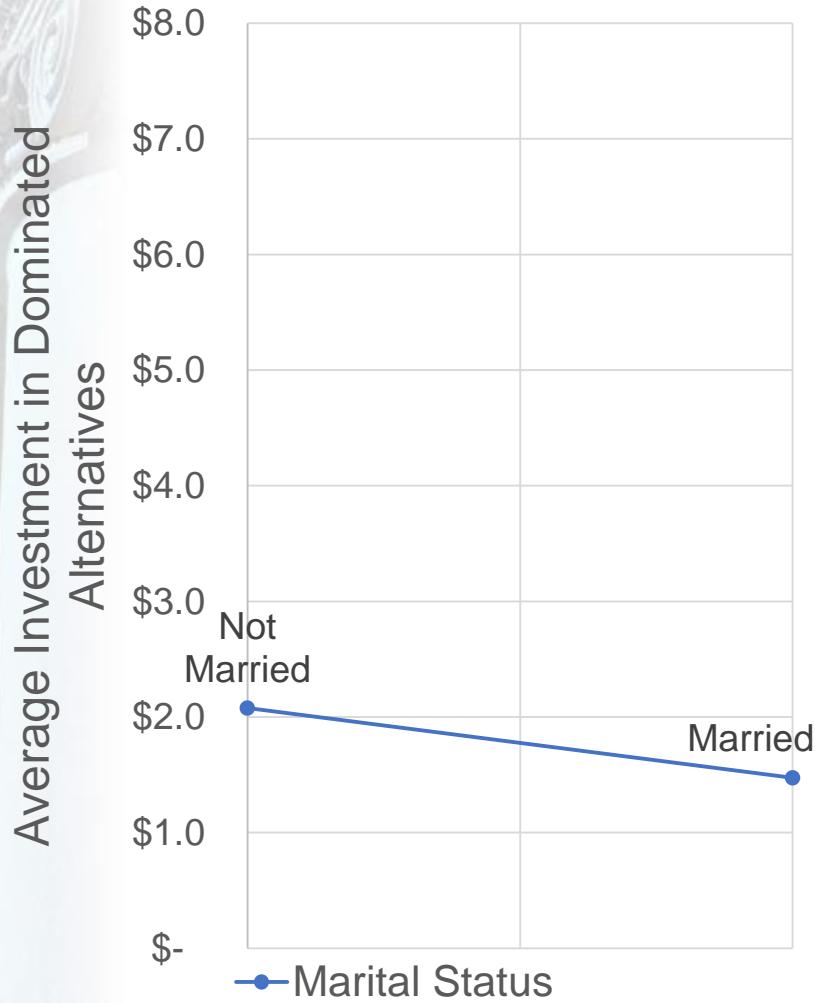
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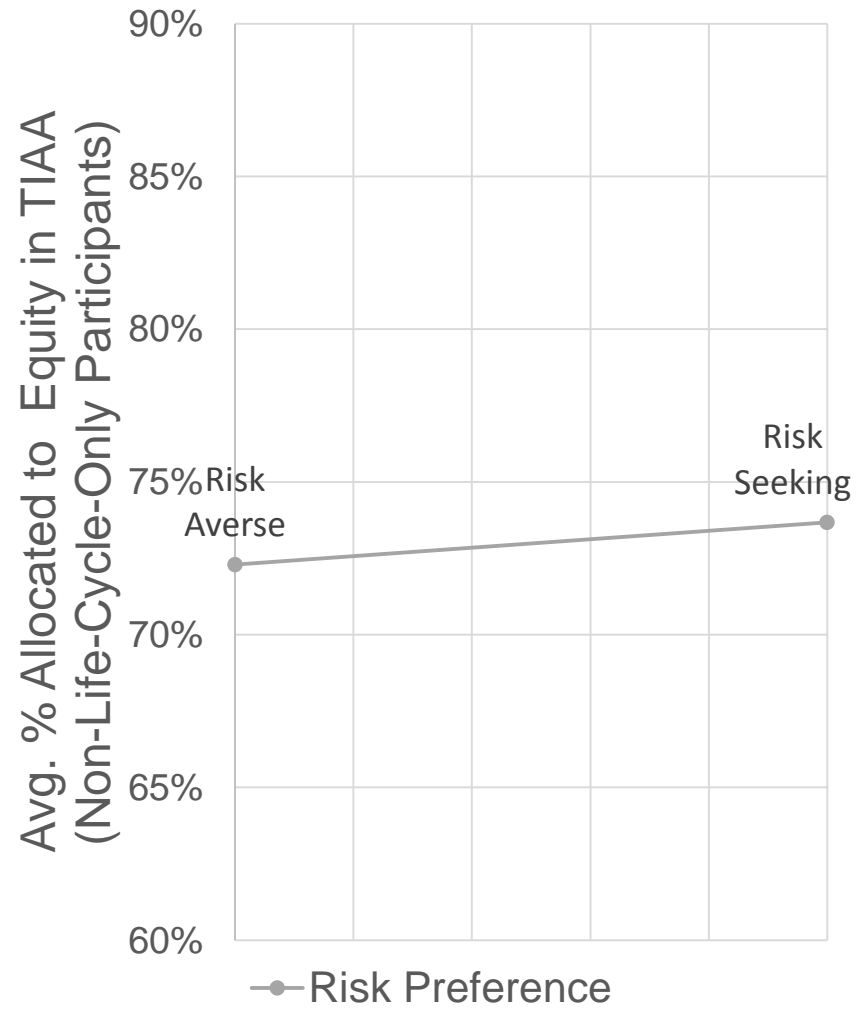
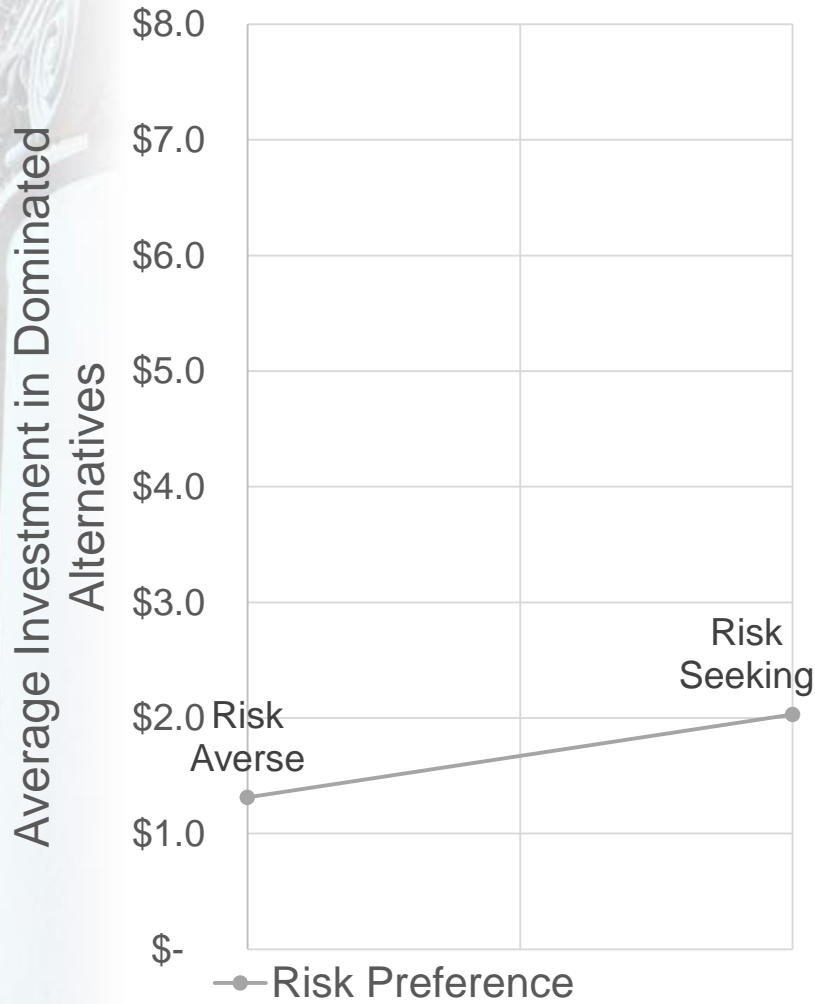
# Demographics, Knowledge and TIAA % Equity



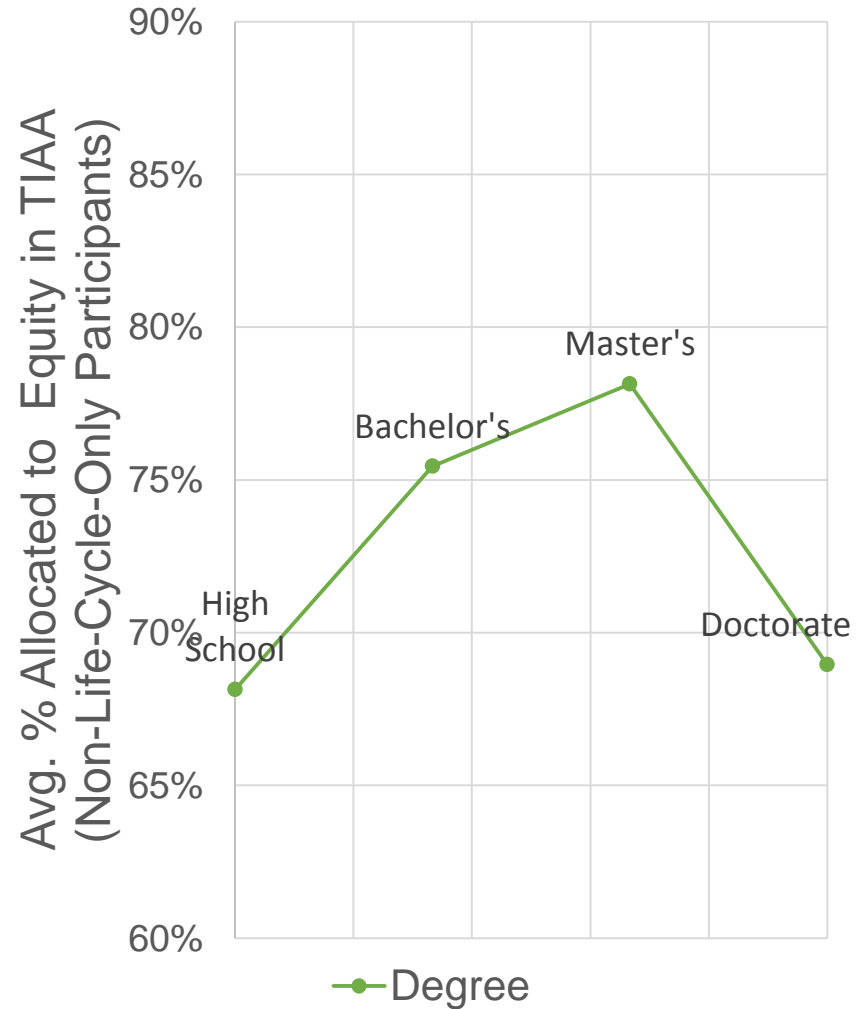
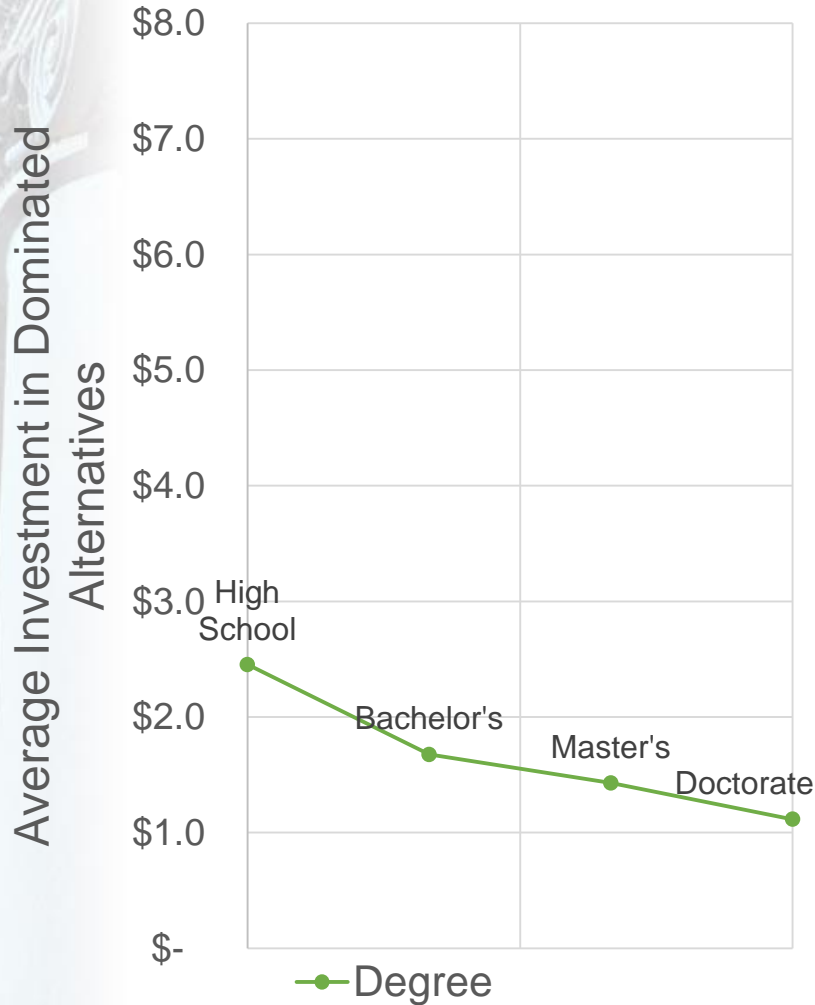
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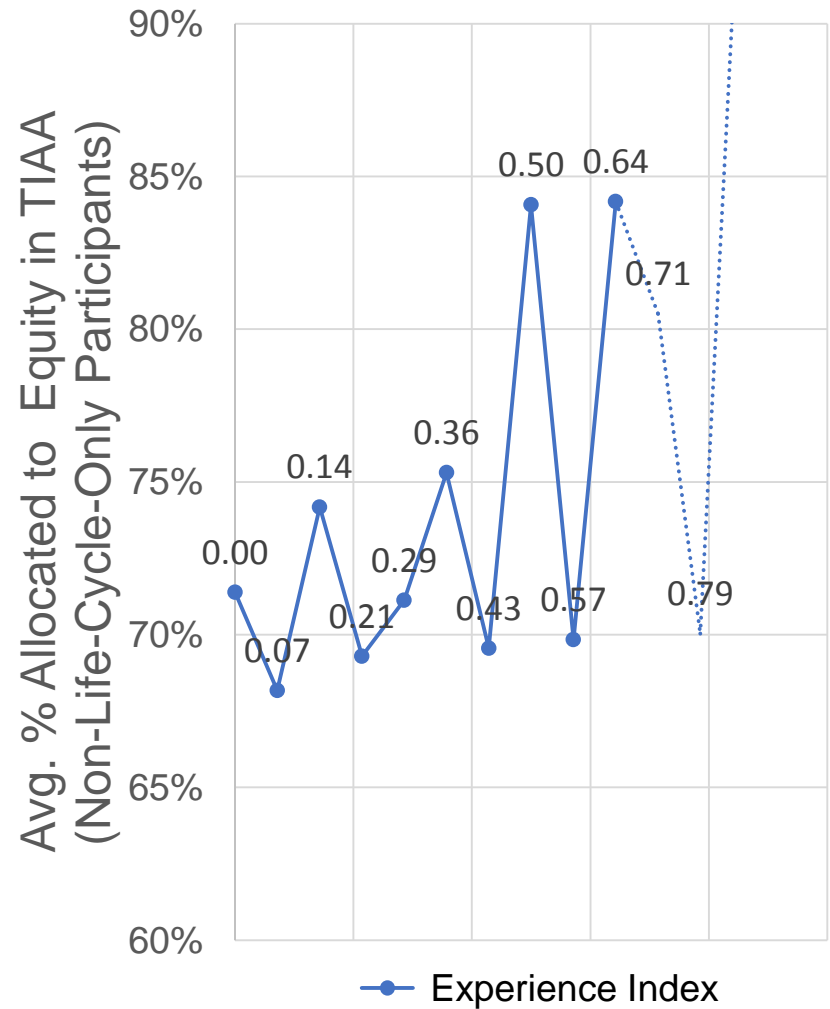
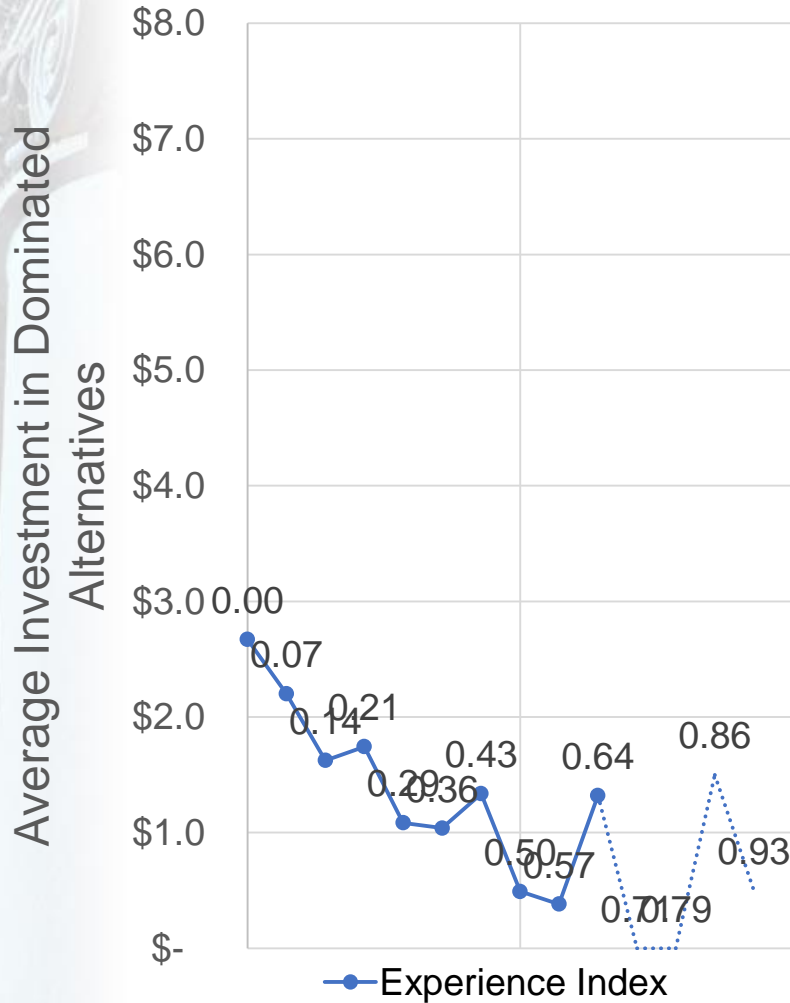


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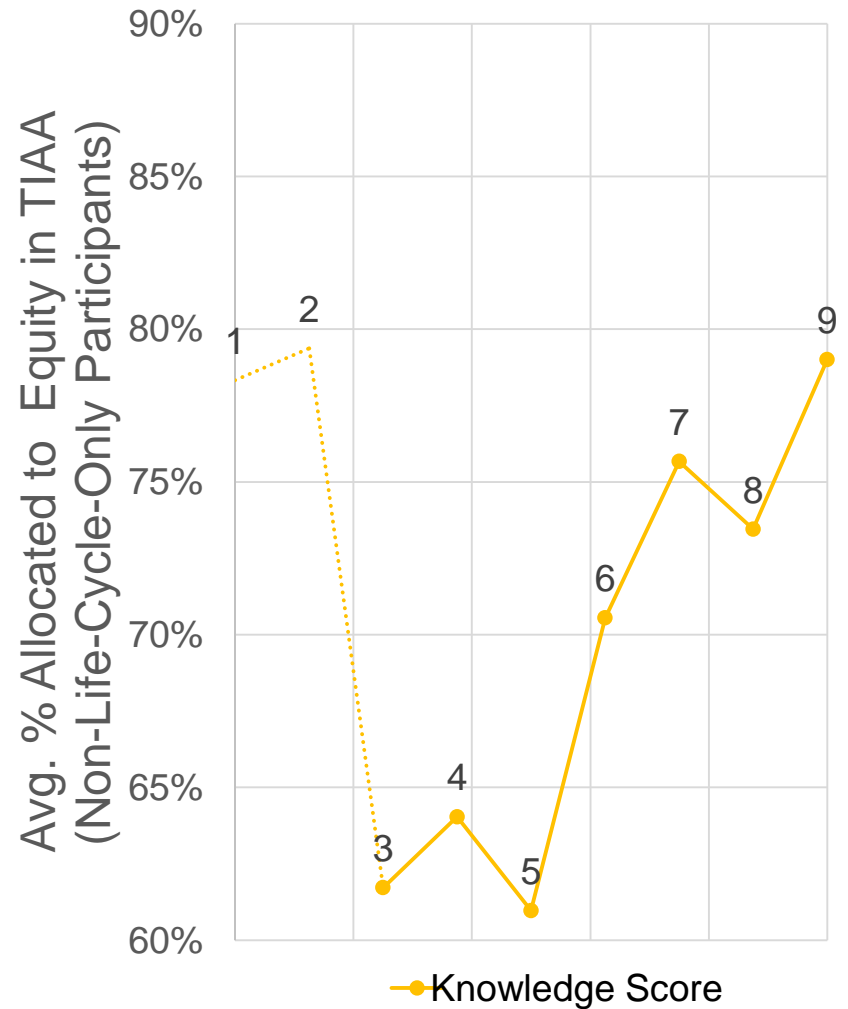
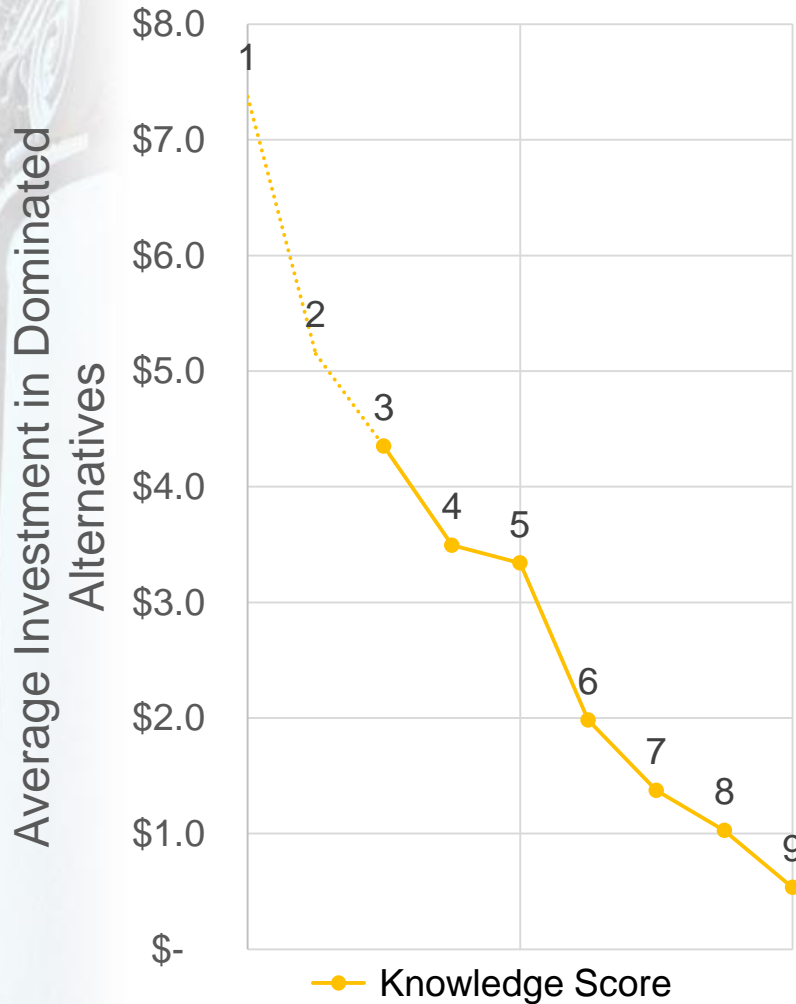




# Demographics, Knowledge and TIAA % Equity



# Demographics, Knowledge and TIAA % Equity



# We have significant correlations in behavior between experiment and TIAA portfolios

		Risk Pref. Bet	Self-Reported Experience	Knowledge Score	Experimental Portfolio Averages			
					Expected Return	Sharpe Ratio	Portfolio Concentration	Investment in Dominated Assets
<b>Participants who ONLY Choose Life-Cycle Funds</b>		-0.0841 (0.054)	-0.1247 (0.004)	-0.1247 (0.004)				
<b>Non-Life-Cycle Only Investors</b>	<b>% Equity in Allocation</b>		0.1107 (0.065)	0.1845 (0.002)	0.1804 (0.002)	0.1102 (0.080)	-0.1325 (0.026)	-0.1713 (0.004)
	<b>% Guaranteed in Allocation</b>		-0.1657 (0.006)	-0.1655 (0.006)	-0.1973 (0.001)	-0.2143 (0.001)	0.1053 (0.077)	0.2333 (0.000)
	<b>Annual Contributions</b>	-0.1611 (0.007)	0.3279 (0.000)	0.2609 (0.000)	0.2119 (0.000)	0.2008 (0.001)	0.1985 (0.001)	-0.2122 (0.000)
	<b>Tenure w. TIAA</b>				-0.1319 (0.027)	-0.1291 (0.040)		0.1559 (0.009)
	<b>Assets w/ TIAA</b>	-0.1072 (0.074)	0.2272 (0.000)	0.2128 (0.000)			0.1378 (0.021)	
	<b>Participate in Supplemental Plan</b>	-0.1247 (0.036)	0.1991 (0.001)	0.2097 (0.000)	0.1291 (0.030)			-0.1298 (0.029)

# Discussion

- **Subject pool validity**
  - In spite of large demographic differences, faculty and staff behavior mirrors student behavior in experiments overall
- **External validity**
  - Behavior in experiments and survey results correlated with TIAA portfolio behavior
- **Heterogeneity**
  - Different people, with different degrees of knowledge and expertise, with different backgrounds, in different life stages behave differently
- **Relatively low degree of patently suboptimal behavior in experiments**
  - Correlated with financial knowledge
  - Correlated with TIAA portfolio behavior