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Do Investors' Subjective Risk Preferences Influence Their Portfolio Choices? A Household Bargaining Perspective

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Motivation



- A large body of literature examines the various determinants of households' investment choices (*but from a unitary decisionmaker perspective*).
 - Financial literacy (van Rooij et al., 2011; Disney et al., 2013; Jappelli et al., 2013; Calcagno and Monticone, 2015).
 - Labor income risk (Angerer et al., 2009; Lynch and Tan, 2011; Betermier et al., 2012; Jang et al., 2013).
 - Health status (Rosen et al., 2004; Berkowitz et al., 2006; Fan et al., 2009; Atella et al., 2012)
 - Marriage (Bertocchi et al., 2011; Barber and Odean, 2000)

Motivation



- Only a handful of studies have examined the effects of bargaining on households' investment choices (Lyons and Nelson, 2008; Gervais et al., 2012; Vardardottir, 2013; Yilmazer and Lich, 2013; Ke, 2016).
- Most of these are unpublished.

Motivation



- The exception is Yilmazer and Lich (2013) published in *Review of Economics of the Household*.
 - Examined the effects of risk tolerance (based on income gamble questions, related to risk aversion) on portfolio composition.
 - Hypothesized and found evidence that the share of risky assets in the portfolios of two-person households increases with the risk tolerance of the spouse who has more bargaining power but is unaffected by the risk tolerance of the spouse with less bargaining power.

Contributions of Our Paper



- Examines the share of risky assets in a household's portfolio as in Yilmazer and Lich (2013) but uses a measure of *subjective risk perception* rather than risk tolerance.
 - Subjective risk perception plays a significant role in individual investors' investment decisions (Gotzmann et al., 2016).
- Tests the sensitivity of the results to the particular bargaining power measure used (more alternative measures than Yilmazer and Lich, 2013).

➤ Data: 2012 Wave of the Health and Retirement Study (HRS)



➤ Subjective Risk Perception Question:

- By next year at this time, what is the percent chance (0-100) that mutual fund shares invested in blue-chip stocks (like those in the Dow Jones Industrial Average) will have fallen in value by more than 20 percent compared to what they are worth today?
- Note: Based on the rolling annual returns of the DJIA index from 1901 to 2017, the historical percent chance of this happening is 7.67%. However, almost everyone assigns a much higher percent chance.

➤ Data: 2012 Wave of the Health and Retirement Study (HRS)

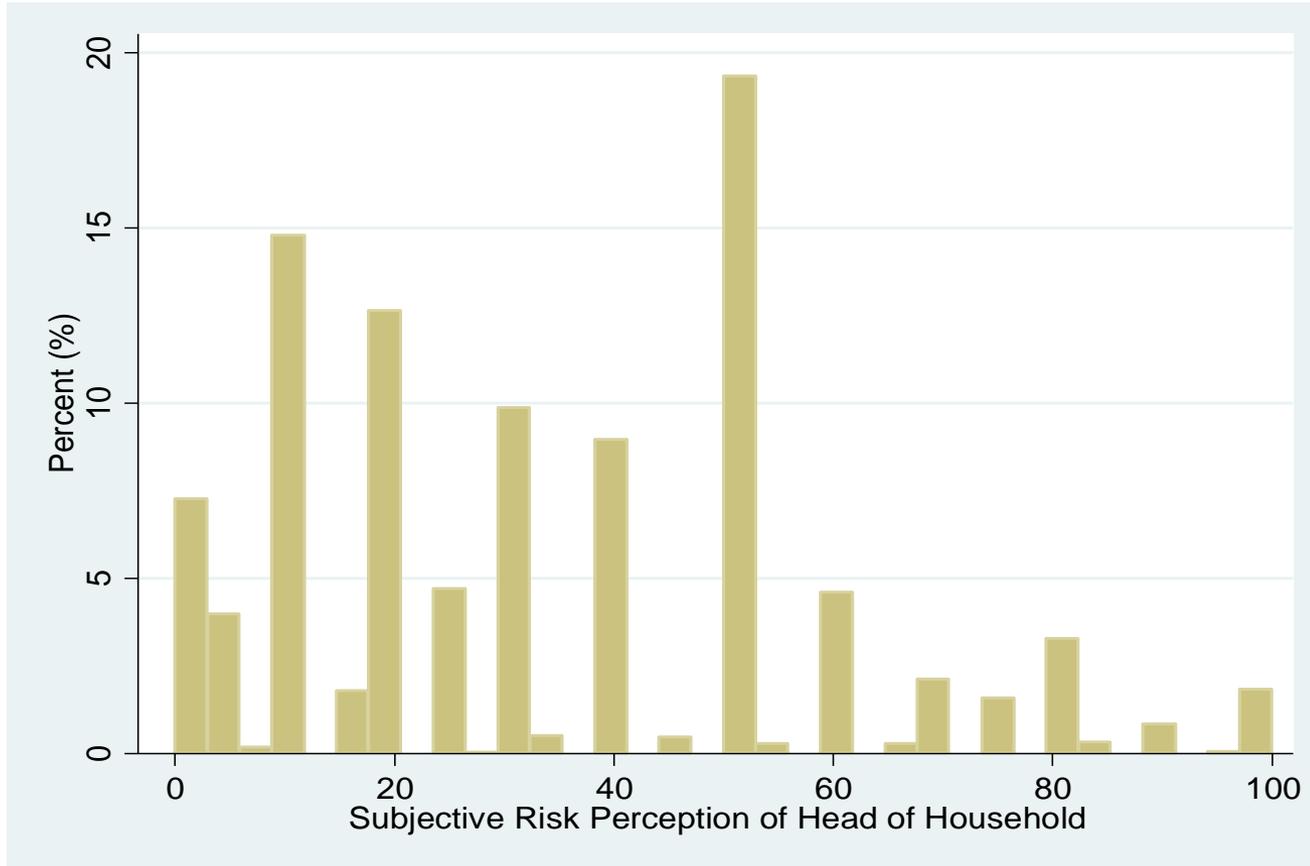


Figure 2 The Distribution of the Subjective Risk Perception of Head of Household

➤ Data: 2012 Wave of the Health and Retirement Study (HRS)

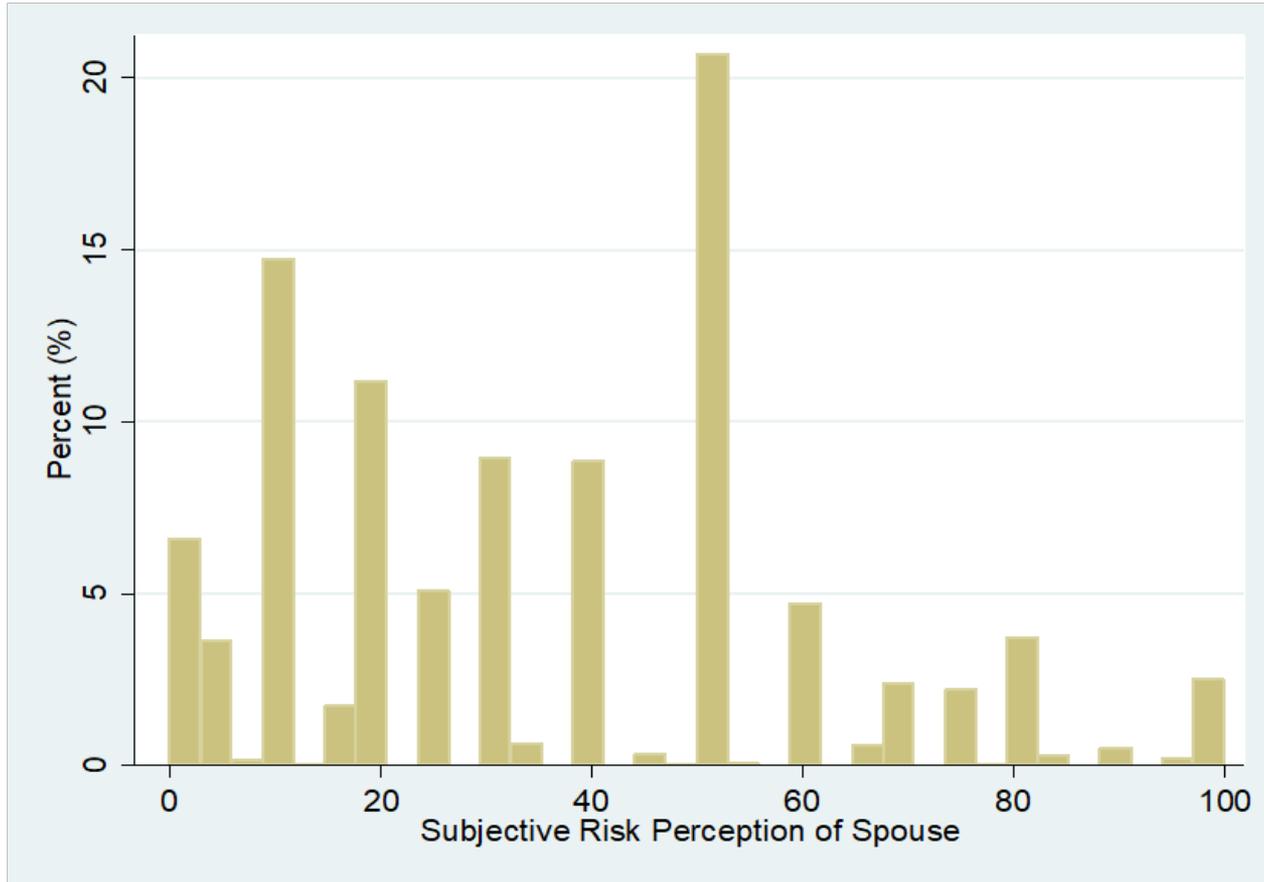


Figure 3 The Distribution of the Subjective Risk Perception of Spouse

➤ Data: 2012 Wave of the Health and Retirement Study (HRS)



➤ Sample:

- 2,709 couples with each spouse aged 50 or older.
- 87% of couples experience disagreement in subjective risk perception.

➤ Data: 2012 Wave of the Health and Retirement Study (HRS)



➤ Dependent Variable:

➤ Risky asset ratio * 100 (percent of portfolio in risky assets)

- Risky asset ratio is defined as the dollar value of risky assets divided by the dollar value of the household's total financial portfolio.
- The dollar value of risky assets is the sum of the net value of stocks, mutual funds, investment trusts, and private business.
- The dollar value of the total portfolio is the sum of the net value of these risky assets plus the net value of checking accounts, savings accounts, money market accounts, CDs, government savings bonds, T-bills, bonds, bond funds, private business, real estate, and other savings.
- Takes a value of zero for a substantial portion of the sample. Hence, a tobit model is estimated.
- 61.31% of the sample holds \$0 in risky assets.

➤ Data: 2012 Wave of the Health and Retirement Study (HRS)



➤ Key Explanatory Variables:

- Dominating spouse's subjective risk perception
- Other spouse's subjective risk perception

➤ Other Explanatory Variables:

- Age of Husband
- Age of Wife
- Education of Husband
- Education of Wife
- Labor income of Husband
- Labor income of Wife
- Race of Husband
- Race of Wife
- Total wealth (without IRA)

➤ Data: 2012 Wave of the Health and Retirement Study (HRS)



➤ Bargaining Power Proxies

- Gender norms (male dominates or female dominates)
- Years of education
- Hourly wage rates
- Earnings
- Work for pay
- Number of work hours per week

➤ Descriptive Statistics



	Mean	Standard Error
Dependent Variables		
Risky asset ratio * 100	25.64	0.93
Explanatory Variables		
Subjective Risk Perception of the Head of Household	34.04	0.61
Subjective Risk Perception of Spouse	35.74	0.63
Age-husband	63.37	0.21
Age-wife	60.69	0.20
Education-husband	13.99	0.06
Education-wife	13.89	0.06
Labor income-husband	\$40,886	\$2,270
Labor income-wife	\$25,799	\$1,272
Black-husband	0.061	0.004
Other-husband	0.057	0.004
Black-wife	0.053	0.005
Other-wife	0.057	0.005
Total Wealth (not including IRA)	\$553,263	\$36,502

Tobit Regression of Percent Risky Assets on Each Spouse's Subjective Risk Perception



Regressors	Years of Education Is the Bargaining Power Measure		Hourly Wage Rate Is the Bargaining Power Measure	
	Coefficient	Standard Error	Coefficient	Standard Error
Dominating spouse's subjective risk perception	-0.177*	0.098	-0.154**	0.074
Other spouse's subjective risk perception	-0.003	0.089	-0.107	0.070

Tobit Regression of Percent Risky Assets on Each Spouse's Subjective Risk Perception



Regressors	Male Dominate Is the Bargaining Power Measure		Female Dominate Is the Bargaining Power Measure	
	Coefficient	Standard Error	Coefficient	Standard Error
Dominating spouse's subjective risk perception	-0.068	0.071	-0.144**	0.069
Other spouse's subjective risk perception	-0.144**	0.069	-0.068	0.070

Tobit Regression of Percent Risky Assets on Each Spouse's Subjective Risk Perception



Regressors	Work for Pay Is the Bargaining Power Measure		Weekly Work Hours Is the Bargaining Power Measure	
	Coefficient	Standard Error	Coefficient	Standard Error
Dominating spouse's subjective risk perception	-0.008	0.105	-0.224***	0.075
Other spouse's subjective risk perception	-0.204*	0.104	-0.0334	0.072

Conclusion



- The subjective risk perception of the household member with more bargaining power is related negatively to the percent of the portfolio allocated to risky assets.
- This result for subjective risk perception is consistent with the result found by Yilmazer and Lich (2015) for the objective risk tolerance measure.