

Financial risk tolerance within couples of retail bank clients

Conseil scientifique de l'AMF

11/01/2023

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Introduction

- **Risk tolerance (RT)** is “the maximum amount of uncertainty that someone is willing to accept when making a financial decision” (Grable, 2000)
- RT is an important driver of **risk-taking behavior** (Hoffmann *et al.*, 2015)
- **Gender gap in RT**: on average, men exhibit a significantly higher RT than women (Bollen and Posavac, 2018; Brooks *et al.*, 2019)
- Observed in **couples** (Yilmazer and Lich, 2015; Di Falco and Vieider, 2018)

In this paper:

- A **subjective RT** measure is used to examine the RT gender gap in spouses
 - Extracted from the **MiFID questionnaire answers** (self-assessed RT)
 - Shown to be a better measure to explain objective risk (Hermansson, 2018)
 - Analysis in a real-world banking decision-making context

Self-assessed RT (MiFID questionnaire)

As a general rule, which assertion best describes you?

- Accepting lower remuneration by taking no risk on the invested capital (“**Low RT**”, coded 0)*
- Seeking better remuneration by taking a capital risk (“**Medium RT**”, coded 1)*
- Seeking high performance by accepting a significant part of capital risk (“**High RT**”, coded 2)*

Trade-off between risk and return

Similar to the Survey of Consumer Finance (SCF) question -> financial RT

The SCF question is a reliable and valid measure for investment RT (Grable and Lytton, 2001)

Literature and hypotheses development

● Gender gap in RT at the individual level:

- Explanations: **socioeconomics** (Bajtelsmit and Bernasek, 1996), **biology** (Apicella *et al.*, 2008), or **psychology** (Lemaster and Strough, 2014)
- Moderators: **education** (Yao *et al.*, 2011), **financial knowledge/experience** (Bollen and Posavac, 2018)

● Marital status and RT:

- **Mixed evidence:** greatest in singles (Grable *et al.*, 2019) or in married individuals (Brooks *et al.*, 2018), or even contested (Hallahan *et al.*, 2003)
- **Weakens upon the marriage**, especially for men (Yao and Hanna, 2005)
 - RT single men > RT married men > RT single women > RT married women

- **Intra-household RT differences:**

- Spousal similarity in RT is maybe due to **positive assortative mating** (Bacon *et al.*, 2014) or to **assimilation** (Di Falco and Vieider, 2018)
- **Unitary model** (*e.g.*, Becker, 1985) vs. **bargaining model** (*e.g.*, McElroy and Horney, 1981)
 - Usual bargaining power determinants: income, age, education, employment status (*e.g.* Ward and Lynch, 2019)

- **Decision-making context and RT gender gap:**

- Considering a **real-world context** where individuals take decisions that impact their wealth (Brooks *et al.*, 2019)
- Presence of a **financial advisor**: mixed evidence (Gibson *et al.*, 2013; Baeckström *et al.*, 2021)

Since we collected MiFID questionnaire administration dates:

Hypothesis 1

- Controlling for the usual determinants of RT and bargaining power, the RT gender gap is weaker in spouses visiting their financial advisor together than in spouses visiting their advisor separately.

- **Investment experience and RT gender gap:**

- Self-assessed investment experience explains RT gender differences (Brooks *et al.*, 2019)

We instead use banking records on whether individuals hold stocks or not, and test:

Hypothesis 2

- The size of the RT gender gap in spouses is associated with equity investment within the couple.

Since stocks can be held by the husband, the wife, or both, we study the gap by considering cases where (i) both spouses are stockholders, (ii) only the husband holds stocks, and (iii) only the wife holds stocks.

Hypothesis 3

- The gender of the single stockholder spouse within the household (*i.e.*, in cases (ii) and (iii)) plays a significant role in the direction of the RT gender gap.

Data

Initial dataset

- MiFID questionnaire answers: self-assessed RT
- Banking records: sociodemographics and financial data
- Available for > 70,000 retail bank clients over the 2007-2015 period

Couple sample

- 20,462 spouses, or 10,231 dual-income heterosexual couples
- **RT gap** = RT of the husband (H) - RT of his wife (W)

Self-assessed RT (MiFID questionnaire)

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Descriptive statistics and preliminary results

Table 1: Descriptive statistics at the individual level

Variables	Men \bar{X} / %	Women \bar{X} / %	min	max	Diff. Men - Women
Risk tolerance	0.39 (0.53)	0.34 (0.50)	0	2	0.05***
Low RT	63.29%	67.67%	-	-	-4.38%***
Medium RT	34.38%	31.02%	-	-	3.35%***
High RT	2.34%	1.31%	-	-	1.03%***
Age	53.31 (15.65)	51.13 (15.46)	18	102	2.18***
Native	86.42%	86.43%	-	-	-0.01%
Self-employment	16.47%	8.37%	-	-	8.10%***
Income	3,509.65 (2,382.03)	2,936.88 (2,282.43)	750	10,000	572.77***
Equity	14.34%	10.77%	-	-	3.57%***
N	10,231	10,231			

Table 2: Descriptive statistics at the couple level

Variables	\bar{X} / %	Std. Dev.
RT level of spouses	0.36	0.47
Age couple	52.22	15.38
Intercultural	12.33%	-
Self-employment H and/or W	20.68%	-
Surveyed together	70.88%	-
Income couple	3,223.27	2,157.65
Income H share	55.10%	0.14
Equity H and/or W	17.97%	-
Equity H only	40.07%	-
Equity W only	20.23%	-
Equity H & W	39.70%	-
N	10,231	

Table 3: RT gender gap

	RT	RT H	RT W	RT gap
Panel A: Questionnaire administration				
Surveyed together	0.35 (0.51)	0.37 (0.52)	0.33 (0.49)	0.04*** (0.35)
Low RT		64.88%	68.37%	-3.49%***
Medium RT		33.16%	30.47%	2.69%***
High RT		1.96%	1.16%	0.80***
Surveyed separately	0.40 (0.54)	0.44 (0.56)	0.36 (0.51)	0.08*** (0.54)
Low RT		59.41%	65.96%	-6.55%***
Medium RT		37.33%	32.36%	4.97%***
High RT		3.26%	1.68%	1.58%***
Diff. (Surveyed together - Surveyed separately)	-0.05***	-0.07***	-0.03***	-0.04***

Table 3: RT gender gap (*continued*)

	RT	RT H	RT W	RT gap
Panel B (1): Equity investment				
Equity H and/or W = 1	0.71 (0.57)	0.76 (0.58)	0.67 (0.57)	0.09*** (0.52)
Low RT		31.81%	38.23%	-6.42%***
Medium RT		60.79%	56.93%	3.86%***
High RT		7.40%	4.84%	2.56%***
Equity H and/or W = 0	0.29 (0.47)	0.31 (0.49)	0.26 (0.45)	0.05*** (0.38)
Low RT		70.19%	74.11%	-3.93%***
Medium RT		28.59%	25.35%	3.24%***
High RT		1.22%	0.54%	0.69%***
Diff. Equity H and/or W (1) - (0)	0.42***	0.45***	0.40***	0.04***

Table 3: RT gender gap (*continued*)

	RT	RT H	RT W	RT gap
Panel B (2): Investing couples				
Equity H only	0.65 (0.59)	0.75 (0.60)	0.54 (0.56)	0.20***
Low RT		33.51%	49.25%	-15.74%***
Medium RT		58.21%	47.22%	10.99%***
High RT		8.28%	3.53%	4.75%***
Equity W only	0.60 (0.57)	0.58 (0.56)	0.62 (0.58)	-0.04
Low RT		45.43%	42.74%	2.69%
Medium RT		50.81%	52.42%	-1.61%
High RT		3.76%	4.84%	-1.08%
Equity H & W	0.83 (0.53)	0.85 (0.54)	0.81 (0.52)	0.04**
Low RT		23.15%	24.80%	-1.64%
Medium RT		68.49%	69.04%	-0.55%
High RT		8.36%	6.16%	2.19%***

Multivariate analyses

Size of the RT gender gap

- OLS Dep. variable: $|\Delta RT|$
- Independent variables:
 - Bargaining power variables: $|\Delta Age|$ and *Income H share*
 - Couple level variables (*Age couple*, $\ln(\text{Income couple})$, ...)
 - Questionnaire administration time (*Surveyed together*)
 - Equity investment
 - Year fixed effects

Direction of the RT gender gap

- MNL Dep. variable: 3 categories of RT gap
 - $RT H > RT W \Rightarrow$ positive (or classical) gap (9.88% of couples)
 - $RT H = RT W \Rightarrow$ no gap (85.07%)
 - $RT W > RT H \Rightarrow$ negative (or reversed) gap (5.05%)
- Same indep. variables, except for bargaining power (dummy = 1 if value of H > value of W)

Table 4: Size of the RT gender gap between spouses

Dependent variable: ΔRT_{gap}	Model 1	Model 2	Model 3	Model 4
ΔAge	0.0007 (0.0011)	0.0009 (0.0011)	0.0011 (0.0011)	0.0011 (0.0011)
Age couple	-0.0005** (0.0002)	-0.0005** (0.0002)	-0.0010*** (0.0002)	-0.0009*** (0.0002)
Intercultural	0.0093 (0.0123)	0.0069 (0.0122)	0.0079 (0.0121)	0.0069 (0.0121)
Self-employment H and/or W	0.0200** (0.0094)	0.0112 (0.0096)	0.0098 (0.0095)	0.0097 (0.0095)
Surveyed together	-0.1069*** (0.0137)	-0.1074*** (0.0137)	-0.1018*** (0.0137)	-0.1005*** (0.0136)
Income H share		0.1030*** (0.0318)	0.0986*** (0.0316)	0.0961*** (0.0314)
$\ln(\text{Income couple})$		0.0245*** (0.0058)	0.0168*** (0.0058)	0.0175*** (0.0058)
Equity H and/or W			0.0830*** (0.0119)	
Equity H only				0.1520*** (0.0195)
Equity W only				0.0659*** (0.0233)
Equity H & W				0.0192 (0.0154)

- In general, men show greater RT than women and equity investment drives RT positively
- **Is the RT gender gap mostly associated with gender itself, or with equity investment differences between husbands and wives?**
 - MNL Dep. variable with 3 RT levels **at the individual level**
 - **Gender** is controlled for to identify which factor is strongly associated with individual RT

Table 5: Individual RT in spouses

Dependent variable: RT	Medium RT	High RT
Male	-0.0123 (0.0325)	0.3275*** (0.1146)
Age	0.0089*** (0.0010)	0.0114*** (0.0037)
Native	0.1862*** (0.0480)	-0.0332 (0.1607)
Self-employment	0.1764*** (0.0482)	-0.0443 (0.1572)
ln(Income)	0.4912*** (0.0232)	1.0502*** (0.0939)
Equity	1.4214*** (0.0493)	2.3858*** (0.1166)
Constant	-4.7842*** (0.3258)	-12.5079*** (1.0680)
Year fixed effects	YES	
N	20,462	
Pseudo-R ²	0.0979	

- **Reversed causality issue: RT/equity investment**
- **Instrumental variable (IV) approach for equity investment.**
- Instrument: *# of administered questionnaires*
 - MiFID questionnaires are compulsory for retail clients who hold or wish to hold risky assets
 - *Proxy for familiarity with equity investment*
 - On average, the questionnaire was completed at least 1.51 times (Std. Dev. = 0.70) within the household
 - Equity H and/or W is an endogenous variable at the 1% level (Durbin and Wu-Hausman statistics)

Table 6: Direction of the RT gender gap between spouses

Direction of the gap	Positive gap		Negative gap	
	Coef.	RRRs	Coef.	RRRs
Age H > Age W	-0.1190*	0.8878	0.0371	1.0378
	(0.0718)		(0.0981)	
Age couple	-0.0132***	0.9869	0.0050*	1.0051
	(0.0024)		(0.0031)	
Native H	0.1128	1.1194	-0.3870*	0.6791
	(0.1320)		(0.2219)	
Self-employment H	0.0162	1.0163	0.0563	1.0580
	(0.1010)		(0.1393)	
Surveyed together	-0.6050***	0.5461	-1.0356***	0.3550
	(0.1039)		(0.1295)	
Income H > Income W	0.5183***	1.6792	0.0794	1.0827
	(0.0721)		(0.1018)	
ln(Income couple)	0.1932***	1.2131	0.0533	1.0547
	(0.0570)		(0.0704)	
Equity H only	1.0537***	2.8682	0.1603	1.1738
	(0.1042)		(0.1755)	
Equity W only	0.0047	1.0047	0.8450***	2.3281
	(0.1969)		(0.1756)	
Equity H & W	0.1333	1.1425	0.1331	1.1424
	(0.1410)		(0.1736)	

Additional analyses and robustness checks

Our baseline findings still hold across different specifications

Additional analyses

- Educational attainment ($N = 7,009$)
- Financial literacy ($N = 7,246$)
- Family background
 - Children ($N = 10,231$)
 - Separation regime ($N = 10,213$)

Robustness checks

- Net wealth ($N = 10,228$)
- Couple age cohorts
 - Without retired ($N = 6,816$)
 - Young couples [Q1] ($N = 2,618$)
- Investing couples ($N = 1,839$)

Conclusion

- In this paper, we combined the **self-assessed RT and banking records of 10,231 couples of retail bank clients** to examine the **RT gender gap at the intra-household level**.
- Our findings have important implications for both academics and investment service providers:
 - **Academics:** new insights into the spousal RT gap while controlling for a wide set of variables
 - **Investment service providers:** important to assess the RT of both spouses when establishing their risk profile, that will have consequences on the finally selected financial product
- Some limits:
 - Is spousal similarity in RT mostly explained by assimilation or by assortative mating? An investigation into panel data is necessary.
 - Any change in the case of online banking?
 - Does the gender of the financial advisor matter?
 - Identifying the spouse who usually trades in the case of joint-trading accounts.

Thank you for your attention!