

# Testing the gender gap in subjective financial literacy of spouses



Marie-Hélène BROIHANNE

LaRGE Research Center, EM Strasbourg Business School,  
University of Strasbourg, FRANCE

**Conseil scientifique de l'AMF**

02/02/2022



AUTORITÉ  
DES MARCHÉS FINANCIERS

# *Context of the paper*



- Retail clients' profiles in Europe
- Markets in Financial Instruments Directive
  - Since 2007: **MiFID I (2004/39/EC)**
  - Since January 2018: **MiFID II (2014/65/UE)**
- Under this Directive, investment service providers are required to build **clients' risk profile** and to in turn offer financial services suited to clients' financial situations and needs.
- MiFID questionnaires

# Introduction



- **Importance of financial literacy (FL)** for financial decision-making (Lusardi & Mitchell, 2014)
  - **Gender gap in financial literacy:** women exhibit a significantly lower financial literacy than men (Lusardi & Mitchell, 2008 ; Lusardi & Mitchell, 2011)
  - **Objective financial literacy** measures whether individuals can correctly answer questions (*The Big 3*; Lusardi & Mitchell, 2008, 2011).
  - In this paper, a **subjective FL measure** (**self-assessed** answers to **MiFID questionnaires**) is used to explore the **gender gap** in financial literacy for “matched” partners, i.e., **spouses**
    - **Spousal decision-making dynamics** instead of a dichotomous marital status variable
    - **Subjective financial literacy** is more important than **objective financial literacy** for spouses’ financial decision-making
- > The spouse who is perceived the more knowledgeable person about the household finances is more likely to be the “*Household CFO*”.

# Literature Review & Hypotheses



- **Gender gap** in financial literacy is well-documented.  
**Big 3** (Bucher-Koenen, Lusardi, Alessie, Van Rooij, 2017), **on a larger set of questions**, (Van Rooij, Lusardi and Alessie, 2011; Lusardi and Mitchell, 2009; Bucher-Koenen, 2011), using **different measures, either objective or subjective**, of FL (Hogarth and Hilgert, 2002; Almemberg and Dreber, 2015), on **specific cohorts** (e.g., alumnae of an elite female college; Mahdavi and Horton, 2014)
  - Women are also more likely to answer that **they do not know** to finance knowledge questions (Bucher-Koenen et al., 2017)
  - Self-confidence differences between men and women -> subjective FL
  - ***Theoretically, why women do not invest in financial knowledge acquisition?***
    - Costs vs. benefits (Lusardi, Michaud and Mitchell, 2017)
    - Household task division assumption (Becker, 1981, 1985; Hsu, 2016)
- Higher GG for individuals being part of a couple than for singles

***H1: The Gender Gap in subjective financial literacy is higher for individuals being part of a couple than for singles***

# Literature Review & Hypotheses



- -> To not confound financial responsibility and literacy, *we need to control for the pairing of husbands with their wives and study the gender gap of paired spouses.*

- **Intra-household decision-making models**

**Unitary models** (Becker, 1981, 1985)

Comparative advantage in decisions

Household task division assumption

**Bargaining models** (Manser & Brown, 1980, McElroy & Horney, 1981)

Power in the relationship

Individual resources, expertise, age, education, work status, ...

- **Intra-household decision-making responsibility over financial choices** show different dominance styles (Bertocchi et al., 2014) or different financial management styles (van Raaij et al., 2020):

Syncratic / Male-dominant / Female-dominant / Autonomous.

- ***H2: The heterogeneity in the intra-household Gender Gap in subjective financial literacy is related to the heterogeneity of financial dominance/management styles***

# Data



- Dataset combines **face-to-face** MiFID questionnaire answers and banking records of **83,738 retail clients** of a large French retail bank **over the period 2007-2015**.
- A **financial literacy score** is computed for **53,426 individuals** *“INITIAL SAMPLE”*
- Among them, **62.4% declare that they live as part of a couple**.
- We selected the **14,764 individuals (7,382 dual-income heterosexual couples \_ joint bank account, married or cohabiting)** for whom we gather the financial literacy score of both spouses *“SPOUSES’ SAMPLE”*
- Socio-demographic statistics are similar in the initial and spouses’ samples (and consistent with National statistics)

# Descriptive statistics

	Initial sample (53,426 retail clients)		Spouses' sample (14,764 retail clients)			
	Mean-% (Std.)		Mean-% (Std.)	Male	Female	M-F
<b>Panel A: Individual variables</b>						
Female	47.54%		50.00%			
Age	51.14		53.61	54.65	52.57	2.08***
Education	1.11		1.09	1.11	1.06	0.05***
- Primary school (0)	12.28%		11.60%	14.42%	8.43%	0.059***
- Secondary school (1)	64.37%		68.02%	60.29%	76.69%	-0.164***
- University degree (2)	23.35%		20.28%	25.28%	14.88%	0.104***
Self-employed	14.44%		13.64%	17.93%	9.33%	0.086***
Employee	55.43%		58.62%	57.09%	60.14%	-0.030***
Retired	18.52%		19.78%	23.43%	16.10%	0.073***
No occupation	11.61%		7.96%	1.52%	14.42%	-0.129***
Monthly income	2,852.39		3,537.76	3,819.86	3,255.65	564.21***
Native	86.38%		88.08%	88.20%	87.95%	0.002
Paris	12.67%		9.60%	9.64%	9.57%	0.007
Number of children	0.57		0.72	0.76	0.68	0.08***
Couple	62.46					
<b>Panel B: Within-couple variables</b>						
Intercultural			12.11%			
Same occupation category			64.11%			
Male's income share			54.69%			
Same quest. date			72.86%			
Separation regime			16.80%			

# Methodology and results



**1. SUBJECTIVE FINANCIAL LITERACY AT THE INDIVIDUAL LEVEL (INITIAL SAMPLE)**

**2. INTRA-HOUSEHOLD DIFFERENCES (SPOUSES' SAMPLE)**



# The subjective financial literacy score



## SUBJECTIVE FINANCIAL LITERACY

“Do you know the risk associated with

- **stocks** (1),
- **bonds** (1),
- **other** unusual financial products (1),

*i.e., warrants, deferred service settlements, convertible bonds, and other financial instruments?”*

“Do you understand financial **market** functioning?” (1),

*i.e., change of order execution delay or existence of different types of orders.*

*Subjective financial literacy* ranks from **0**, “**no financial knowledge**” to **4**, “**high level of self-assessed financial knowledge**”).

## Average subjective FL & GG (Men vs. Women)



	All Mean/% (Std.)	Men Mean/% (Std.)	Women Mean/% (Std.)	Subj. GG
<b>All individuals</b>	<b>1.96 (1.14)</b>	<b>2.05 (1.16)</b>	<b>1.87 (1.12)</b>	0.18***
<b>N</b>	53,426	28,025	25,401	
Stocks	87.13%	88.36%	85.77%	0.026***
Bonds	62.53%	64.79%	60.04%	0.048***
Markets	29.59%	31.61%	27.35%	0.043***
Others	17.03%	20.01%	13.75%	0.063***
.....				
Score=0	11.84%	10.73%	13.06%	-0.023***
Score=1	23.08%	21.79%	24.50%	-0.027***
Score=2	31.18%	30.45%	31.98%	-0.015***
Score=3	24.77%	26.01%	23.39%	0.026***
Score=4	9.13%	11.02%	7.07%	0.039***

Higher subjective FL in men than in women, for all FL components.  
Higher self-confidence in men than in women

## Average subjective FL & GG (Couples vs. Singles)

	Initial sample				Spouses' sample
	All Mean/% (Std.)	Couples Mean/% (Std.)	Singles Mean/% (Std.)	Difference (C-S)	Mean/% (Std.)
All individuals	1.96 (1.14)	2.04 (1.13)	1.82 (1.15)	0.22***	2.08 (1.11)
N	53,426	33,370	20,056		14,764
Stocks	87.13%	89.21%	83.66%	5.55%***	90.96%
Bonds	62.53%	65.54%	57.81%	7.73%***	66.92%
Markets	29.59%	31.33%	26.68%	4.65%***	32.79%
Others	17.03%	18.48%	26.68%	3.84%***	18.02%
0	11.84%	9.86%	15.13%	-5.27%***	8.24%
1	23.08%	22.25%	24.46%	-2.21%***	22.24%
2	31.18%	31.78%	30.17%	1.61%***	32.61%
3	24.77%	25.85%	22.96%	2.99%***	26.40%
4	9.13%	10.26%	7.28%	2.98%***	10.51%
Subjective gender gap	0.18***	0.20***	0.12***	0.08***	0.15***

- Higher subjective FL in couples than in singles, for all FL components.
- Spouses FL scores distribution stochastically dominates (SD) couples' one which also stochastically dominates singles' FL scores distribution.
- Higher subjective GG in couples than in singles (*H1 is validated*):
  - Household task division assumption
  - Higher self-confidence in couples than in singles

# Financial literacy determinants

Subjective FL score	Initial sample		Spouses' sample
	(1)	(2)	(3)
Female	-0.180*** (.016)	-0.177*** (.016)	-0.065** (.031)
Age1 (age<32 yrs)	-0.962*** (.035)	-0.926*** (.036)	-0.723*** (.076)
Age2 (32<age<42 yrs)	-0.613*** (.033)	-0.615*** (.033)	-0.669*** (.059)
Age3 (42<age<52 yrs)	-0.485*** (.032)	-0.487*** (.032)	-0.596*** (.058)
Age4 (52<age<65 yrs)	-0.232*** (.029)	-0.232*** (.029)	-0.323*** (.052)
Native	0.350*** (.024)	0.355*** (.024)	0.262*** (.048)
Paris	0.343*** (.024)	0.354*** (.024)	0.287*** (.052)
Ln Income	0.193*** (.005)	0.187*** (.005)	0.591*** (.022)
Education1	0.260*** (.025)	0.261*** (.025)	0.078 (.031)
Education2	0.714*** (.026)	0.718*** (.026)	0.452*** (.057)
Self-employed	0.230*** (.025)	0.231*** (.025)	0.178*** (.048)
Retired	0.084*** (.034)	0.100*** (.034)	0.093 (.064)
No occupation	0.112*** (.034)	0.117*** (.034)	0.221*** (.075)
Couple		0.136*** (.017)	
.....			
N	51,806	51,806	14,428
Loglik.	-76,007.92	-75,976.65	-20,805.89
LR-Chi2	5,114.07***	5,176.62***	1,469.76***
Pseudo $R^2$	0.0325	0.0329	0.0341

# Intra-Household differences



## **SPOUSES' SAMPLE**

- **SAME QUESTIONNAIRE DATE FOR SPOUSES**
- **PROPENSITY SCORE MATCHING COUPLES VS. SINGLES**
- **HETEROGENEITY OF INTRA-HOUSEHOLD GENDER GAP AND FINANCIAL MANAGEMENT STYLES (1 COUPLE=1 OBS.)**

# Subjective FL score difference by quest. date

	Same quest. date N=10,758	Different quest. date N=4,006	Difference
	Mean/% (Std.)	Mean/% (Std.)	(D-S)
All individuals	2.06 (1.11)	2.15 (1.09)	0.09***
0	8.99%	6.24%	-2.75***
1	21.94%	23.02%	1.08%
2	32.74%	32.25%	-0.49%
3	26.43%	26.33%	-0.1%
4	9.90%	12.16%	2.26%***
Women	1.99 (1.10)	2.05 (1.08)	0.06***
Men	2.13 (1.11)	2.24 (1.10)	0.11***
Subjective gender gap	0.14	0.19	0.05***

-> less **consensus (compromise)** when spouses answer separately  
(Different quest. date distribution of scores SD Singles' one)

# Propensity score matching



- Is the subjective FL score of women (men) living as part of a couple **and answering the questionnaire without their husband (wife)** higher than the one of single women (men) who share common socio-demographic and economic characteristics with married or co-habited women (men)?
- *Propensity scores* computed through logit regressions:
- $\text{Prob}(\text{Individual } \_ \text{man/woman\_ lives as part of a couple}) = f(\text{Determinants})$ .

MEN average subj. FL scores		
SINGLE (matched)	COUPLE	Diff. (C-S)
2.221	2.233	0.012
N=1,948	N=1,948	

WOMEN average subj. FL scores		
SINGLE (matched)	COUPLE	Diff. (C-S)
1.973	2.054	0.081***
N=1,946	N=1,946	

- Living as part of a couple has a positive effect on the subjective financial literacy of individuals but its is significant only for women.

# Heterogeneity of the GG between spouses



- Intra-household, we consider 3 categories of gender gap in subjective FL between spouses (7,382 couples):
  - Category 0 (70.52% of couples), average identical score of **2.058**,  
**No Gender Gap**
  - Category 1 (**19.79%** of couples), **husband score, 2.87 > wife score, 1.45**,  
**average GG=1.42 – Classical Gender Gap**
  - Category 2 (9.69% of couples), **wife score, 2.79 > husband score, 1.47**,  
**average GG=-1.32**
- Multinomial logistic regression:
  - Probability for a couple to belong to each category
  - Independent variables:
    - **Financial management styles determinants** (van Raaij *et al.*, 2020)
    - **Consensus** (joint questionnaire dummy)
    - **Within-couple determinants of spouses' relative bargaining**



# Financial management styles determinants



○ van Raaij *et al.*, 2020 financial management styles:

- **Syncratic/joint**

Joint bank account, most financial decisions are made together

- **Male-dominant**

- **Female-dominant**

One partner (husband or wife) makes the main financial decisions

- **Autonomous**

Both partners have their own bank accounts and make their own decisions

# Financial management styles determinants



○ van Raaij *et al.*, 2020 financial management styles:

**Cat. 0: no GG**

- **Syncratic/joint**

Joint bank account, most financial decisions are made together

- **Male-dominant**

**Cat. 1: classical GG**

- **Female-dominant**

**Cat. 2**

One partner (husband or wife) makes the main financial decisions

- **Autonomous**

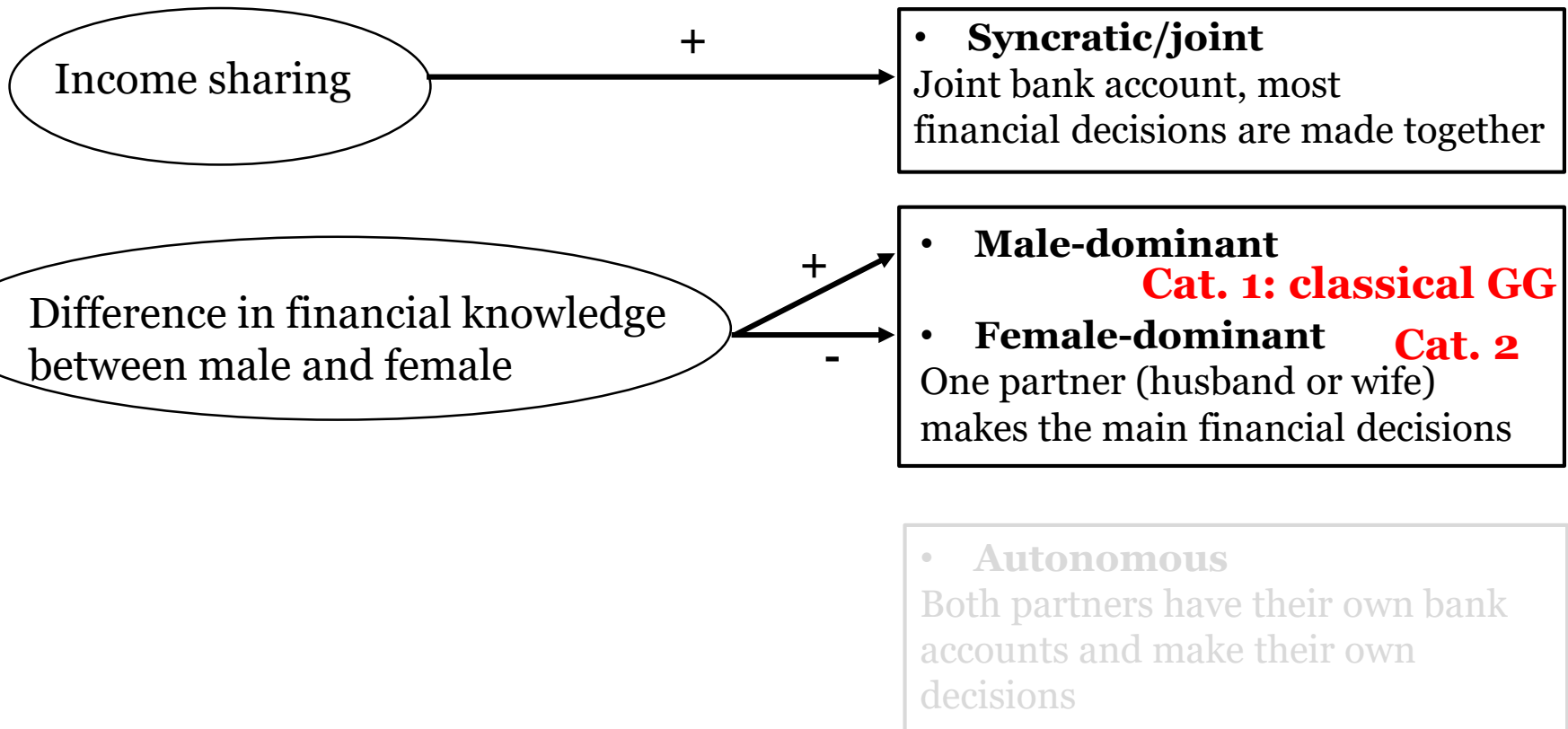
Both partners have their own bank accounts and make their own decisions

# Financial management styles determinants

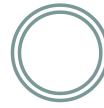


○ van Raaij *et al.*, 2020 financial management styles:

**Cat. 0: no GG**



# Financial management styles determinants



○ van Raaij *et al.*, 2020 financial management styles:

**Cat. 0: no GG**

Income sharing

**Couple Income**  
**Male's income share**

+

- **Syncratic/joint**

Joint bank account, most financial decisions are made together

Difference in financial knowledge between male and female

**Couple Education**  
**Education difference**

+

- **Male-dominant**

**Cat. 1: classical GG**

- **Female-dominant**

**Cat. 2**

One partner (husband or wife) makes the main financial decisions

- **Autonomous**

Both partners have their own bank accounts and make their own decisions

# Probability of a couple to belong to each GG category

	GG>0	GG<0
	Category 1 (FL man>FL wom.)	Category 2 (FL wom.>FL man)...
	Coeffs.	Coeffs.
Ln couple income	-0.053 (0.069)	-0.211** (0.089)
Male's income share	1.453*** (0.275)	-0.319 (0.364)
Couple education	0.343*** (0.093)	0.228* (0.122)
Education difference	0.094 (0.065)	-0.173** (0.087)
Couple Age	0.006* (0.003)	0.002 (0.004)
Age difference	0.015* (0.008)	0.014 (0.011)
Paris	0.328*** (0.117)	0.193 (0.161)
Intercultural	0.072 (0.114)	-0.176 (0.162)
Separation regime	0.171* (0.097)	0.219* (0.129)
Same occupation category	-0.256*** (0.087)	-0.182 (0.116)
Same quest. date	-0.854*** (0.079)	-1.194*** (0.100)
Intercept	-1.606** (0.633)	0.573 (0.799)
N	4,920	
Loglik.	-3747.57	
LR-Chi2	350.69***	
Pseudo R <sup>2</sup>	0.044	

## Probability of a couple to belong to each GG category

Controlling for consensus, the sign of the GG is determined by each spouse income relative contribution and education

-> *H2 is validated*

	GG>0	GG<0
	Category 1 (FL man>FL wom.)	Category 2 (FL wom.>FL man)...
	Coeffs.	Coeffs.
Ln couple income	-0.053 (0.069)	-0.211** (0.089)
Male's income share	1.453*** (0.275)	-0.319 (0.364)
Couple education	0.343*** (0.093)	0.228* (0.122)
Education difference	0.094 (0.065)	-0.173** (0.087)
Couple Age	0.006* (0.003)	0.002 (0.004)
Age difference	0.015* (0.008)	0.014 (0.011)
Paris	0.328*** (0.117)	0.193 (0.161)
Intercultural	0.072 (0.114)	-0.176 (0.162)
Separation regime	0.171* (0.097)	0.219* (0.129)
Same occupation category	-0.256*** (0.087)	-0.182 (0.116)
Same quest. date	-0.854*** (0.079)	-1.194*** (0.100)
Intercept	-1.606** (0.633)	0.573 (0.799)
N	4,920	
Loglik.	-3747.57	
LR-Chi2	350.69***	
Pseudo R <sup>2</sup>	0.044	

# Summary



- MiFID questionnaires are relevant and therefore deserve more attention from both academics and professionals.
- Identifying the household CFO through MiFID questionnaires has consequences on intra-household financial decision-making.
  - Subjective FL scores of spouses are more **consensus-based** when they answer the questionnaire at the same date.
  - Controlling for couple consensus and other within-couple determinants of bargaining power, **the sign and determinants of the GG in subjective FL are related to financial management/dominance styles.**
- Managerial implications
  - 1/ Observing the GG provides insights into the financial management style of spouses.
  - 2/ When spouses answer separately, they exhibit, on the average, higher subjective financial literacy than when they answer together
  - Since, we do not know their “true” financial literacy, financial advisors might take that into account with couples’ risk-profiling answers
- Work to be done/ Limits:
- Do categories of subj. GG (i.e., dominance styles) explain couples’ financial outcomes (savings, investment)?
- Conduct an experiment/ interviews (missing psychological factors, couple length...)
- THANK YOU FOR YOUR ATTENTION!