VIRTUAL MOBILITY (VM) GRANT REPORT

VM grant title: Gender differences in the knowledge and use of Fintech products: is there a role for transparency?

VM grant start and end date: 15/07/2022 to 15/09/2022

Grantee name: Alessandra Tanda

1. One paragraph presentation of your VMG

The project evaluates via surveys distributed online to European retail investors by Fin-AI Cost Action COST19130 (hereafter CA) members from 8 different CA countries: 1. gender differences in knowledge of Fintech innovations, including robo-advisors and the underlying ETFs, peer-to-peer and crowdfunding platforms, and knowledge of Fintech technologies, such as blockchain, machine learning, AI and NLP; 2. whether previous investment experience in traditional and Fintech products are influenced by gender per se or via the moderator effect of degree in STEM, mathematical or scientific aptitude. 3. whether transparency can reduce gender gaps. To this end we will collect information on past performance and transparency of ETF from the KIIDs publicly available on the European stock exchanges websites and test if this information can drive the investment decision of investors, and any gender differences in this process.

2. Main activities performed

The research team, made up by Prof. Alessandra Tanda (Unipv, IT), Prof Claudia Tarantola (Unipv, IT), Prof Maria Iannario (Napoli FII, IT) and involved other countries members for distributing the questionnaire in different countries including C. Mare (RO); B. Marques (PT); A. Paccagnini (IE); G. Pisoni (FR); R. Perri (AL); B. Ozturkkal (TR); A. Shala (XK) and other COST FinAI members. These activities were performed:

- Finalisation of survey submitted through Google Forms to the network to households and investors through personal and Cost FinAI contacts, advertised through LinkedIn (see fig. 1 and fig. 2).

Figure 1: Google form (extract)	Figure 2: LinkedIn post

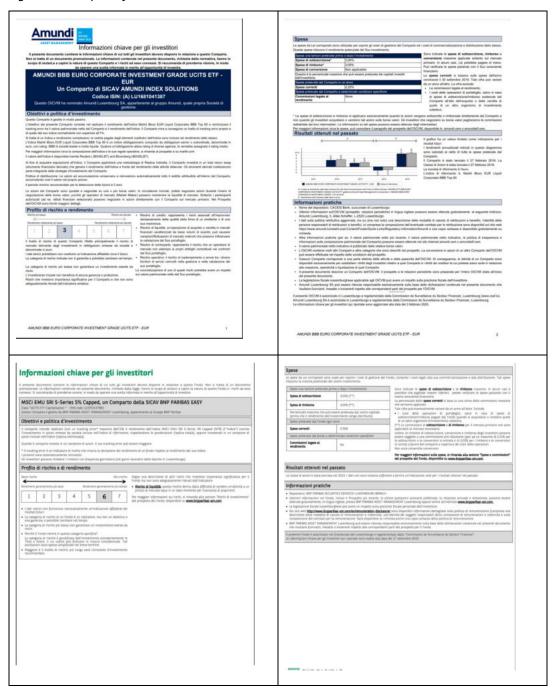Figure 1: Google form (extract)

Figure 2: LinkedIn post

- Manual collection of information on ETF listed in Italy and Europe: a sample of ETF with ESG focus and a selection of "Traditional" ETF through KIIDs available on stock exchange websites (Fig. 3).

Figure 3: examples of KIIDs

3. Main results/outcomes obtained (also please explain how each has contributed to the Cost Action Objectives) * also touch on the points below

1. Survey: The survey includes main questions related to demographic aspects (eg age, gender, nationality, etc) and basic perceived knowledge of Fintech innovations and of STEM and mathematical aptitude. See Attachment 1.

The responses received on GForms are currently 29. Despite the low number of responses, probably also due to the summer period, we have produced the following descriptive statistics for the main variables of interest. A selection is reported in tables 1-10 and Figures 4-5.

Tab. 1. Gender and age of respondents

	number of respondents	average age
male	16	36.63
female	13	43.62
tot	29	39.76

Tab. 2. Number of family members

	1 person	**2**	**3**	**4 or more**	total
female	3	4	3	3	13
male	3	5	6	2	16
total	6	9	9	5	29

Tab. 3. Family structure

	I live alone	**I live with my parents**	**I live with older children (>18 years)**	**I live with young children (<18 years)**	**with partner**	**other**	**total**
female	2	1	1	5	3	1	13
male	2	2		5	6	1	16
total	4	3	1	10	9	2	29

Tab. 4. Educational background

	Business	Economics	Finance	other (humanistic, health, social area)	STEM	total
female	1	2	3	3	4	13
Bachelor degree or equivalent		1		1		2
Master				1	1	2
Post-degree	1	1	3	1	3	9
male	1	4	2	5	4	16
Bachelor degree or equivalent		1				1
Master	1	1	1	3	1	7
Post-degree			1	1	3	5
Upper secondary school		2		1		3
total	2	6	5	8	8	29

Tab. 5. Knowledge of P2P platforms

What is your level of knowledge of the following services/instruments (0=I don't know; 5=I know them perfectly)			
Peer to peer lending platforms			
	female	**male**	total
0	0	0	0
1	3	5	8
2	6	2	8
3	6	6	12
5	10	20	30
total	25	33	58

Tab. 6. Use of P2P platforms

Have you used any of these [Peer to peer lending platforms]			
	female	**male**	**total**
no, never	12	13	25
yes, sometimes	1	3	4
total	13	16	29

Tab. 7. Perception of skills

How good are you at working with fractions? (1 = not at all good, 6 = extremely good)			
	female	**male**	total
1		1	1
2	2		2
3	2	2	4
4	2	1	3
5	2	6	8
6	5	6	11
total	13	16	29

Tab. 8. Aptitude towards numbers

When you hear a weather forecast, do you prefer predictions using percentages (e.g., ''there will be a 20% chance of rain today'') or predictions using only words (e.g., ''there is a small chance of rain today'')? (1 = always prefer percentages, 6 = always prefer words)			
	female	**male**	total
1	7	8	15
2	1	4	5
3	3	2	5
5			
4		1	1
6	2	1	3
total	13	16	29

Tab. 9. Preference of numerical information

How often do you find numerical information to be useful? (1 = never, 6 = very often)			
	female	**male**	total
1			
2			
3		1	1
4	2	3	5
5		3	3
6	11	9	20
total	13	16	29

Tab. 10. Numerical skills

Out of 1,000 people in a small town 500 are members of a choir. Out of these 500 members in the choir 100 are men. Out of the 500 inhabitants that are not in the choir 300 are men. What is the probability that a randomly drawn man is a member of the choir? Please indicate the probability in percent (bold responses are correct)

	female	**male**	**total**
10%	3	2	5
25%	**6**	**8**	**14**
40%		2	2
None of the above	3	3	6
total	12	15	27

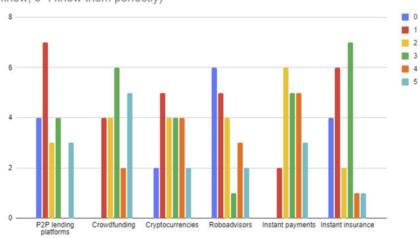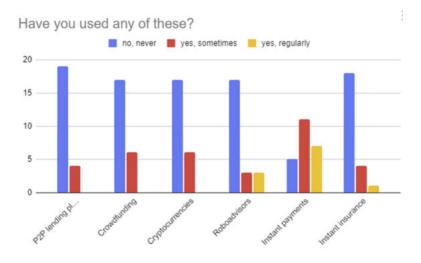*Figure 4: knowledge of main Fintech services/products*

Figure 5: usage of main Fintech services/products

2. ETF database made of public information. The selection of ETF to be included started from the inclusion of ETF listed in Italy with ESG focus and then included the largest ETF traded in Europe according to the asset under management. The information was retrieved from the morning star website and from the relevant stock exchanges. Below I show the information collected, when available, for each instrument from the Key Investor Information Document (KIID).

- ISIN code
- ETF name
- benchmark or Index
- investment criteria
    o includes
    o excludes
    o other
- Fees
    o Entry load
    o Exit load
    o Management fee
    o Performance fee
- ETF performance, years 2017-2021
- Benchmark performance, years 2017-2021

Information was retrieved for a total of 21 ETFs.

Here are some preliminary summary statistics:

Table 1- Fee structure

	Entry load	Exit load	management fee	performance fee
N ETFs with no fees	13	14	0	21
N ETFs with fee	8	7	21	0
Average of fees	3.14%	2.71%	0.19%	n.a.

Table 2- Average ETF and benchmark performance

	2017	2018	2019	2020	2021
ETF performance	21.71%	-3.80%	32.56%	12.91%	28.20%
Benchmark performance	21.68%	-3.80%	32.36%	12.89%	28.05%

Progress towards the Action objectives and deliverables.

Activities of this VMG contributed to CA 19130 objectives. The collected information through the survey will be merged into a single dataset than made freely accessible to all CA members.

The information on ETF performance and fee schemes contributes to the following CA objectives: Disseminate to the public and share with regulators the results on investment product performance evaluation and GP2 objective "reach out to and include researchers from sustainable investments into WG3".

Presentation of the VMG and preliminary results at Women in Fintech II held in Tirana on 21st and 22nd of September, contributing to "disseminate the results of the Action's activities to the scientific community, European institutions and to the general public" and GP2 objective "Ensure high quality events and discussions around diversity".

Finally, research spurring from this work will contribute to the goal "Significantly improve the gender equality in the fields of the Action" and GP2 objective to "Actively seek, encourage and promote research from researchers at different stage of their carriers and females".

COST Excellence and inclusiveness Policy, especially towards the support of researchers in COST Inclusiveness Target Countries

In terms of **Excellence**, the research sets the basis for a publication in an international open access journal, well ranked in the journal rankings, with acknowledgement of the Cost Action 19130 support. The research stems from the diversity group of the FinAi Cost Action and aims at increasing inclusiveness of women, young (ECI) and researchers coming from ITC.

Stakeholder engagement and promoting participation of researchers from NNC and IPC (COST Global Networking)

The questionnaire has been distributed through personal and COST network to include also NNCs and IPCs members. The report will be provided to authorities and the industry stakeholders interested in the Action.

4. What else do you expect to achieve until the end of the VMG?

Given the VMG has ended, nothing more can be done before the end of the VMG, but the research will nevertheless continue to collect additional responses.

5. Activities and results checklist

Activity/Result according to VMG accepted proposal	Completion level
Online database	Survey Completed ETF to be uploaded
Presentation of results at CA event Women in Fintech II	Completed
Presentation at WG3 FinAI online meeting	To be performed during next meeting
Survey report to be submitted to relevant stakeholders (e.g., policy makers, academia, general public) and joint paper between Participants to be submitted to an open access journal	Need additional responses to make results more significant from a statistical and economic point of view

**Also, include in this section the successful practices and the most important lessons learned

This VMG has allowed discussion between members of different countries, overcoming physical barriers that translates into increased costs and difficulties for researchers to work together. Additionally, the distribution of the questionnaire drafted within this VMG took place online, thus enabling to reach many people with low effort. I had the chance to cooperate online with new colleagues within the Action and then reinforce the relationship in person when presenting the results. Additional hints for further research emerged during the presentation of this VMG.

Questionnaire

Knowledge and use of Fintech products

This questionnaire is submitted as part of the VMG project "Gender differences in the knowledge and use of Fintech products: is there a role for transparency?" within the European CA19130 project Fintech and Artificial intelligence in Finance.
We thank you for your participation in the success of the study. For any information, please contact alessandra.tanda@unipv.it
For more information on the CA19130 project, you can view the link https://fin-ai.eu/
The information provided will be used in an aggregate and anonymous manner. The answers must be given by referring to your cohabiting family unit, unless otherwise specified. When referring to the respondent, it refers to the main income earner within the family unit, or the representative member of the family (e.g. parent, guardian ...).

Filling in the questionnaire is optional and can be stopped at any time.
The answers will be collected and processed by the University of Pavia anonymously, for research and statistical analysis purposes on aggregate or anonymous data, without the possibility of identifying the User.
The Google module is included in the Google Apps for Education under the contract with the University and acts as an external manager pursuant to art. 28 of EU Regulation 2016/679.
There is no profiling activity.

*Campo obbligatorio

1. Gender of the respondent (representative family member, e.g. parent) *

   Contrassegna solo un ovale.

   ◯ male

   ◯ female

   ◯ non binary

   ◯ other/prefer not to respond

2. age of the respondent *

   _____

3. Family unit (select number of family members including respondent) *

Contrassegna solo un ovale.

◯ 1 person

◯ 2

◯ 3

◯ 4 or more

4. Can you indicate which of the following situations corresponds to yours? *

Contrassegna solo un ovale.

◯ I live alone

◯ with partner

◯ I live with young children (<18 years)

◯ I live with older children (>18 years)

◯ I live with my parents

◯ other

5. country of residence *

Contrassegna solo un ovale.

- Albania
- Andorra
- Austria
- Belarus
- Belgium
- Bosnia and Herzegovina
- Bulgaria
- Croatia
- Czech Republic (Czechia)
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Holy See
- Hungary
- Iceland

[omissis]

6. Postal code *

_____

7. Macro area (eg. north, east, south)

_____

8. Educational level of the respondent? *

Contrassegna solo un ovale.

- ◯ Post-degree
- ◯ Master
- ◯ Bachelor degree or equivalent
- ◯ Upper secondary school
- ◯ Junior secondary school
- ◯ Elementary
- ◯ None

9. Area of education

Contrassegna solo un ovale.

- ◯ Economics
- ◯ Business
- ◯ Finance
- ◯ STEM
- ◯ other (humanistic, health, social area)

10. How much is your family monthly income:

Contrassegna solo un ovale.

- ◯ below 600 euros
- ◯ between 600 euros and 1500 euros
- ◯ between 1500 euros and 3000 euros
- ◯ between 3000 euros and 5000 euros
- ◯ over 5000 euros

11. What is your current job?

Contrassegna solo un ovale.

◯ Student

◯ Houseperson

◯ Retired

◯ Unemployed

◯ Manager / officer / middle manager

◯ Office worker / teacher / military

◯ Worker / clerk / apprentice

◯ Entrepreneur / freelancer / selfemployed

◯ Merchant / craftsman / farmer

◯ Other.

12. Area of job:

Contrassegna solo un ovale.

◯ economics/business/finance

◯ STEM

◯ other (humanistic, health, social area)

13. What is your level of knowledge of the following services/instruments (0=I don't know; 5=I know them perfectly)

Contrassegna solo un ovale per riga.

	0	1	2	3	4	5
Peer to peer lending platforms	○	○	○	○	○	○
Crowdfunding	○	○	○	○	○	○
Cryptocurrencies	○	○	○	○	○	○
Roboadvisors	○	○	○	○	○	○
Instant payments	○	○	○	○	○	○
Instant insurance	○	○	○	○	○	○

14. Have you used any of these

Contrassegna solo un ovale per riga.

	yes, regularly	yes, sometimes	no, never
Peer to peer lending platforms	○	○	○
Crowdfunding	○	○	○
Cryptocurrencies	○	○	○
Roboadvisors	○	○	○
Instant payments	○	○	○
Instant insurance	○	○	○

15. What is your level of knowledge of the following technology (0=I don't know/never heard of; 5=I know them perfectly)

Contrassegna solo un ovale per riga.

	0	1	2	3	4	5
Machine learning	○	○	○	○	○	○
Artificial intelligence	○	○	○	○	○	○
Internet of Things	○	○	○	○	○	○
Biometric recognition	○	○	○	○	○	○
DLT/blockchain	○	○	○	○	○	○
Cloud computing	○	○	○	○	○	○

16. What is your level of knowledge of the following items (0=I don't know/never heard of; 5=I know them perfectly)

Contrassegna solo un ovale per riga.

	0	1	2	3	4	5
Exchange traded funds	○	○	○	○	○	○
Investment fund	○	○	○	○	○	○
Equity	○	○	○	○	○	○
Bonds	○	○	○	○	○	○
Benchmark	○	○	○	○	○	○
Stock indexes	○	○	○	○	○	○
Key investor information Document	○	○	○	○	○	○
Mifid	○	○	○	○	○	○
Suitability assessment questionnaire	○	○	○	○	○	○

17. Consider you want to invest in an ETF (investment fund). What information would you like to have before taking decisions (0=not important at all/ 5 =extremely important/ I don't know)

Contrassegna solo un ovale per riga.

	0	1	2	3	4	5	I don't know
Past performance	◯	◯	◯	◯	◯	◯	◯
Benchmark past performance	◯	◯	◯	◯	◯	◯	◯
Volatility	◯	◯	◯	◯	◯	◯	◯
Summary indication of risk class	◯	◯	◯	◯	◯	◯	◯
Extensive description of asset included	◯	◯	◯	◯	◯	◯	◯
Annual fee	◯	◯	◯	◯	◯	◯	◯
Other types of fees	◯	◯	◯	◯	◯	◯	◯

18. Imagine that you have a debt of 1,000 euros on your credit card and that the interest rate applied is 20% (compound annual rate). If you pay nothing, at this interest rate, how many years would it take to double the amount owed?

Contrassegna solo un ovale.

◯ 2 years
◯ Between 2 and 5 years
◯ 5-10 years
◯ Don't know

19. You buy a product that costs 1,000 euros. To pay, you have the following two options: a) pay 12 monthly instalments, each of 100 euros; b) borrow at an annual interest rate of 20% and pay back 1,200 euros in a year. Which option is more advantageous?

Contrassegna solo un ovale.

◯ Option a

◯ Option b

◯ Indifferent

◯ Don't know

20. What is your level of knowledge of the following items (0=I don't know/never heard of; 5=I know them perfectly)

Contrassegna solo un ovale per riga.

	0	1	2	3	4	5
Relationship between risks and returns on financial investments	◯	◯	◯	◯	◯	◯
Relationship between monetary policy and interest rates	◯	◯	◯	◯	◯	◯
Risk related to financial debt instruments	◯	◯	◯	◯	◯	◯
Opportunity of investment and financing related to crowdfunding	◯	◯	◯	◯	◯	◯
Opportunity of investment and financing related to financial sector	◯	◯	◯	◯	◯	◯

21. What is your level of knowledge of the following items (0=I don't know; 5=I know them perfectly)

Contrassegna solo un ovale per riga.

	0	1	2	3	4	5
Gross domestic product	⬭	⬭	⬭	⬭	⬭	⬭
Inflation rate and purchasing power	⬭	⬭	⬭	⬭	⬭	⬭
Spread	⬭	⬭	⬭	⬭	⬭	⬭
Quantitative easing	⬭	⬭	⬭	⬭	⬭	⬭
Rating	⬭	⬭	⬭	⬭	⬭	⬭
Green finance	⬭	⬭	⬭	⬭	⬭	⬭
Financial crisis	⬭	⬭	⬭	⬭	⬭	⬭

22. Indicate which of the following situations corresponds to yours (0=I agree of; 5=I don't agree)

Contrassegna solo un ovale per riga.

	0	1	2	3	4	5
It is very difficult for me understand financial language	⬭	⬭	⬭	⬭	⬭	⬭
My education level on financial and technological instruments is not satisfactory	⬭	⬭	⬭	⬭	⬭	⬭
I 'm very stressed in relation to financial decisions	⬭	⬭	⬭	⬭	⬭	⬭
It is very difficult for me to make correct financial choices in everyday life	⬭	⬭	⬭	⬭	⬭	⬭
It is very difficult for me to make correct long term financial choices	⬭	⬭	⬭	⬭	⬭	⬭
Real Estate is the best investment solution	⬭	⬭	⬭	⬭	⬭	⬭

23. How good are you at (1 = not at all good, 6 = extremely good)

Contrassegna solo un ovale per riga.

	1	2	3	4	5	6
How good are you at working with fractions?	◯	◯	◯	◯	◯	◯
How good are you at working with percentages?	◯	◯	◯	◯	◯	◯
How good are you at calculating a 15% tip?	◯	◯	◯	◯	◯	◯
How good are you at figuring out how much a shirt will cost if it is 25% off?	◯	◯	◯	◯	◯	◯

24. When you hear a weather forecast, do you prefer predictions using percentages (e.g., "there will be a 20% chance of rain today") or predictions using only words (e.g., "there is a small chance of rain today")? (1 = always prefer percentages, 6 = always prefer words)

Contrassegna solo un ovale.

	1	2	3	4	5	6
	◯	◯	◯	◯	◯	◯

25. When people tell you the chance of something happening, do you prefer that they use words ("it rarely happens") or numbers ("there's a 1% chance")? (1 = always prefer words, 6 = always prefer numbers)

Contrassegna solo un ovale.

	1	2	3	4	5	6
	◯	◯	◯	◯	◯	◯

26. How often do you find numerical information to be useful? (1 = never, 6 = very often)

Contrassegna solo un ovale.

	1	2	3	4	5	6
	◯	◯	◯	◯	◯	◯

27. Please answer the questions below. Do not use a calculator but feel free to use the space available for notes (i.e., scratch paper).

Imagine we are throwing a five-sided dice 50 times. On average, out of these 50 throws how many times would this five-sided dice show an odd number (1, 3 or 5)

Contrassegna solo un ovale.

◯ 5 out of 50 throws

◯ 25 out of 50 throws

◯ 30 out of 50 throws

◯ None of the above

28. Out of 1,000 people in a small town 500 are members of a choir. Out of these 500 members in the choir 100 are men. Out of the 500 inhabitants that are not in the choir 300 are men. What is the probability that a randomly drawn man is a member of the choir? Please indicate the probability in percent

Contrassegna solo un ovale.

- ⬭ 10%
- ⬭ 25%
- ⬭ 40%
- ⬭ None of the above

29. Imagine we are throwing a loaded dice (6 sides). The probability that the die shows a 6 is twice as high as the probability of each of the other numbers. On average, out of these 70 throws, about how many times would the die show the number 6?

Contrassegna solo un ovale.

- ⬭ 20 out of 70 throws
- ⬭ 23 out of 70 throws
- ⬭ 35 out of 70 throws
- ⬭ None of the above

30. In a forest 20% of mushrooms are red, 50% brown and 30% white. A red mushroom is poisonous with a probability of 20%. A mushroom that is not red is poisonous with a probability of 5%. What is the probability that a poisonous mushroom in the forest is red?

Contrassegna solo un ovale.

- ⬭ 4 %
- ⬭ 20 %
- ⬭ 50 %
- ⬭ None of the above

End Annex 1