Investors in ESG Mutual Funds*

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ABSTRACT

This paper analyzes a wide range of clients from a Portuguese bank who have held participation units in mutual funds over the past two decades, in order to understand the extent to which the SRI investor differs from the traditional investor. The analysis shows relevant differences between these investors, in terms of both demographics and trading experience. In general, SRI fund investors reside in large urban centers (Lisbon and Porto), have higher levels of education, financial literacy and numerical skills, and hold qualified positions. SRI investors have more trading experience in securities, they have carried out a higher number of mutual fund trades, and they have invested in a wider range of mutual funds than investors in domestic funds. The differences between investors in SRI funds and investors in foreign funds are more modest, except for stock, bond, derivative and range of mutual funds traded. These differences seem to point to increased dynamism, diversity and trading activity for SRI investors compared to the other investor groups. Ultimately, this search for diversity may explain the investment in socially responsible mutual funds.

THE PAST DECADE has witnessed a mounting interest in socially responsible mutual funds. In fact, socially responsible investment (SRI) has become quite popular, attracting increasing investment flows and moving from a niche market to a mainstream investment strategy. According to a survey by The Forum for Sustainable and Responsible Investment, the assets under management of SRI mutual funds increased by 1,000 percent between 1994 and 2013. Recent growth has also been relevant: between 2016 and 2018, the value of investments managed by professional asset managers increased 34 percent, with sustainable investment accounting for more than 50 percent of total professionally managed assets in Canada, Australia and New Zealand in early 2018, almost half in Europe, 26 percent in the United States and 18 percent in Japan (GSI, 2019).[1]

The main difference between SRI mutual funds and traditional mutual funds is related to the objective function of fund management. Contrary to what

* The opinions expressed in this article are those of the authors and do not necessarily reflect the official position of the CMVM. The original version of this paper (in Portuguese) has been accepted for publication in Cadernos do Mercado de Valores Mobiliários (forthcoming).

[1] Global Sustainable Investment Review (2019). Global Sustainable Investment Alliance. Available at: http://www.gsi-alliance.org/wp-content/uploads/2019/03/GSIR_Review2018.3.28.pdf.

happens with traditional funds, the management entity of the SRI funds decides the portfolio allocation not only in terms of risk and return, but also in terms of the performance of companies in the environmental, social and governance (ESG) domains.

There is limited information available regarding the sociodemographic characteristics of the individuals who invest their savings in SRI funds, and thus it is relevant to know the profile of the SRI investor. To understand the extent to which the SRI investor differs from the traditional investor, this paper analyzes a wide range of clients from a Portuguese bank who have held participation units (PU) in mutual funds over the past two decades.[2] The database used in this study includes the socio-professional characteristics of the bank's clients and the respective mutual fund trades (subscriptions and redemptions), as well as purchases and sales of securities, carried out between January 1997 and February 2017. We have identified investors who, in this 20-year period, held PUs of SRI mutual funds.

The purpose of our analysis focuses on identifying the main socio-professional characteristics and financial experience of SRI investors, namely those that distinguish them from investors in domestic and in foreign mutual funds. The analysis shows relevant differences between these investors, in terms of both demographics and trading experience. In general, SRI investors reside in large urban centers (Lisbon and Porto), they have higher levels of education, financial literacy, and numerical skills, and hold qualified positions. In terms of experience, SRI investors have more trading experience in securities, they have carried out a higher number of mutual fund trades and they have invested in a wider range of mutual funds than investors in domestic mutual funds.

Differences in relation to foreign fund investors, however, are more tenuous for most of the variables analyzed. For example, like SRI investors, investors in foreign mutual funds reside mostly in large urban centers. Despite the existence of a greater proportion of SRI investors with a university degree, no significant differences are detected in relation to occupation, financial literacy, and numerical skills. In terms of trading experience, no significant differences are found between the two types of investors with regard to the amounts traded in securities, despite the fact that investors in SRI funds are less likely to carry out derivative trades and have invested in a wider range of mutual funds.

The paper is structured as follows. Section 2 presents the database, the definition of variables and the methodology. The results of the statistical analysis are in section 3, and the main conclusions are outlined in section 4.

[2] Participation units are also referred to as mutual fund shares.

I. Sample, variable definition, and methodology

The database used in this study is from a Portuguese bank and comprises three different tables with the sociodemographic and professional characteristics of clients, trades in securities and in mutual funds. The sample includes security and mutual fund trades carried out between January 1997 and February 2017.

Mutual funds with SRI characteristics are identified in the database. All funds with these characteristics (14 equity funds and 3 bond funds) are foreign funds (i.e., not domiciled in Portugal). Next, three categories of clients are identified based on their trading history: i) SRI investors (that is, clients who during some period held PUs of SRI funds); ii) investors in foreign funds (clients who at some time held PUs of funds not domiciled in Portugal, excluding those who held SRI funds); and iii) investors in domestic funds (clients who at some time held PUs of mutual funds domiciled in Portugal, excluding those who held PUs of SRI funds or foreign funds). The number of SRI investors in the database is 752 (with an average of 3 trades in SRI funds), while the number of investors in foreign and domestic funds is 18,915 and 555,896, respectively.

Sociodemographic and professional variables are then computed, as well as variables that reflect the financial experience of the individuals. Regarding the former, age, marital status, place of residence, gender and financial assets held (at year end 2016) are considered. Variables are also created to measure the level of education and the occupation of investors. We consider individuals with completed higher (university) education, individuals with mandatory education (secondary education completed) and those who did not complete secondary education. Regarding occupation, clients with management positions, clients with qualified occupations, clients with specialized occupations, undifferentiated occupations and individuals without a specified occupation are distinguished.

Based on the level of education and occupation, two variables are also computed to measure individuals' financial literacy and numerical ability. Based on university degree and occupation, we consider that individuals with financial literacy are those with higher education, employed in the financial sector or areas that imply relevant knowledge in management, business or economics. Similarly, individuals with numerical ability are those with an occupation that requires advanced mathematical knowledge (such as engineering, natural sciences, economics and management).

With regard to the second group of variables, metrics of the trading activity in securities (shares and bonds), mutual funds and structured retail products/derivatives are considered, and we also distinguish whether securities are issued by domestic or by foreign issuers.

The analysis is performed using descriptive statistics and statistical inference based on tests of means and medians, and proportions. Results are also presented for multivariate analysis (estimation of *probit* models).

II. Results

A. Sociodemographic variables

About 85 percent of SRI fund investors are men. This proportion compares with 75 percent of investors in foreign funds and 64 percent in investors who exclusively held PU of domestic funds (Table 1). These differences are statistically significant and economically relevant. However, we must interpret this result with caution, insofar as univariate analysis does not allow the exclusion of the effect of variables correlated with gender and that simultaneously influence the propensity to become an SRI mutual fund investor (this issue will be explored in more depth using multivariate analysis). The investment in mutual funds per se also seems to generate greater interest from male investors, as on average these individuals exhibit a higher value of traded PUs and greater diversity in the mutual funds acquired.

The differences between groups of investors regarding marital status and age are materially small, although in some cases they are statistically significant. About 63 percent of SRI and foreign fund investors are married, values that compare with 67 percent for investors in funds domiciled in Portugal. The difference between the SRI investor group and the domestic fund investor group is statistically significant at 10 percent. As for the average age, it is 55 and 60 years old (SRI fund and foreign fund investors, respectively). Although not materially relevant, the age difference of the SRI investor group compared to the other investor groups is statistically significant.

In geographical terms, 52 percent of SRI fund investors have their bank account in Lisbon (and about 19 percent in Porto). This proportion compares with 50 percent (18 percent in Porto) for investors in non-SRI foreign funds and 21 percent (18 percent in Porto) for customers who only invest in domestic mutual funds. The proportion of SRI investors with a bank account in Lisbon is not statistically different from the proportion of investors in foreign funds with a bank account in Lisbon. However, if Lisbon and Porto are considered together, the difference is statistically significant. Regarding the comparison between SRI investors and those that only invest in funds domiciled in Portugal, both differences are statistically significant and economically relevant. In fact, investors in foreign funds (including those who invest in SRI funds) are mainly concentrated in the two largest urban centers in Portugal. Although statistically significant, the difference in the proportion of SRI investors and investors in foreign funds residing in Lisbon and Porto is not materially relevant.

Table 1
Sociodemographic Characteristics and Experience with Financial Products

The tables below show descriptive statistics (panel A) and respective statistical inference (panel B) for a set of sociodemographic variables and variables related to the investors' experience with financial products. Results are presented for three groups of mutual fund investors: investors in SRI funds; investors in foreign funds; and investors in domestic funds. As the analyzed variables are binary, statistical inference is performed through tests of proportions (Chi2 and Crammer-V). These tests compare SRI investors with investors in foreign (domestic) funds.

PANEL A	**[1]**	**[2]**	**[3]**
	SRI (%)	**Foreign Fund Investors (%)**	**Domestic Fund Investors (%)**
Male	85	75	64
Married	63	63	67
Lisbon	52	50	21
Porto	19	18	18
Time deposit	38	36	30
Mortgage loan	3	3	3
Consumer loan	12	10	8
Financial literacy	21	19	8
Math skills	30	27	10
Derivatives	19	32	13
Securities	84	77	47

PANEL B	**[1]** *versus* **[2]**				**[1]** *versus* **[3]**			
	Chi2	***p*-value (%)**	**Crammer-V**	***p*-value (%)**	**Chi2**	***p*-value (%)**	**Crammer-V**	***p*-value (%)**
Male	44.4	0.0	0.048	0.0	151.5	0.0	0.028	0.0
Married	0.2	68.3	0.003	68.9	3.5	6.2	0.030	6.2
Lisbon	1.2	27.4	0.008	27.4	427.7	0.0	0.024	0.0
Porto	4.8	2.9	0.016	2.9	333.3	0.0	0.006	0.0
Time deposit	1.2	27.0	0.008	27.0	21.1	0.0	0.000	0.0
Mortgage loan	0.5	46.6	0.005	46.6	0.0	98.7	0.006	98.7
Consumer loan	2.0	16.1	0.010	16.1	19.9	0.0	0.016	0.0
Financial literacy	2.2	14.2	0.012	14.2	153.9	0.0	0.027	0.0
Math skills	3.4	6.5	0.015	6.5	283.2	0.0	0.008	0.0
Derivatives	42.6	0.0	0.052	0.0	19.1	0.0	0.027	0.0
Securities	22.8	0.0	0.034	0.0	412.2	0.0	0.028	0.0

Regarding education, the sample is split into three groups: investors without completed secondary education, investors with completed secondary education and investors with a university degree (higher education). 72.1 percent of SRI investors completed higher education, which compares with 64.2 percent and

22.6 percent for investors in foreign funds and investors in domestic funds, respectively (Table 2). It is also worth noting the high proportion of investors in domestic funds who have not completed secondary education: 57.4 percent. The statistical tests performed (Chi2 and Crammer-V) allow the identification of statistically significant differences in relation to education between SRI fund investors and the other groups of investors.

Table 2
Education and SRI Investment

The table below presents descriptive statistics and respective statistical inference for the level of education. Results are presented for three groups of fund investors: SRI investors; investors in foreign funds; and investors in domestic funds. Inference is performed using Chi2 and Crammer-V tests. These tests compare SRI investors with investors in foreign (domestic) funds.

	SRI (%)	**Foreign Funds (%)**	**Domestic Funds (%)**
Less than Secondary Level Education	18.5	24.4	57.4
Completed Secondary Education	9.3	11.4	20.0
Completed University	72.1	64.2	22.6
	SRI vs.	Foreign Funds	SRI vs. Domestic Funds
Chi2		16.4	853.4
p-value (%)		0	0
Crammer-V		0.031	0.047
p-value (%)		0	0

Concerning occupation, five categories are considered: management positions, specialized occupations, qualified positions (excluding management positions), undifferentiated workers and individuals without a specified occupation. The analysis in Table 3 shows residual differences between the SRI investor group and the non-SRI foreign fund investor group. In effect, the proportion of individuals with management or qualified positions is around 59 percent in the first case (57.2 percent in the second). For the group of investors in domestic funds, the proportion is less than 30 percent. The analysis does not result in statistically significant differences in terms of occupation between the groups of SRI investors and investors in foreign funds, but between these two groups and the group of investors in domestic funds the differences are economically and statistically significant.

Table 3
Occupation and SRI investment

The table below presents descriptive statistics and respective statistical inference for the occupation variable. Results are presented for three groups of fund investors: SRI investors; investors in foreign funds; and investors in domestic funds. Inference is performed using Chi2 and Crammer-V tests. These tests compare SRI investors with investors in foreign (domestic) funds.

	SRI (%)	**Foreign Funds (%)**	**Domestic Funds (%)**
Management	28.8	27.2	16.5
Specialized	6.2	6.2	7.5
Undifferentiated	31.2	30.4	47.4
Qualified	29.9	30.0	12.8
No Occupation	3.8	6.2	15.7
	SRI vs.	Foreign Funds	SRI vs. Domestic Funds
Chi2		6.1	290.3
p-value (%)		0.19	0
Crammer-V		0.02	0.03
p-value (%)		0.19	0

B. Financial Literacy and Numerical Capabilities

21 percent and 30 percent of SRI investors possess financial literacy and numerical skills, respectively (Table 1 – Panel A). In the case of investors in non-SRI foreign funds, the proportion of those with financial literacy (numerical skills) decreases to 19 percent (27 percent). However, the differences between the two groups of investors are not statistically significant.

The proportion of investors in domestic funds with financial literacy (numerical skills) is 8 percent (10 percent). In this case, the differences are material and statistically significant, with SRI investors (and investors in foreign funds) denoting higher financial literacy and numerical capabilities compared to investors in domestic funds (Table 1 – Panel B).

C. Experience with financial products

With regard to banking products, 38 percent, 3 percent and 12 percent of SRI investors hold time deposits, consumer loans and mortgage loans, respectively. The differences in proportions are modest (and not statistically significant) compared to the group of foreign fund investors. Nevertheless, the differences from investors in domestic funds are relevant with regard to time deposits and mortgage loans, but they are not statistically significant for consumer loans. On average, SRI investors hold more banking products than the investors in funds domiciled in Portugal, but there are no substantive differences in relation to the investors in foreign funds.

Table 4
Sociodemographic Characteristics and Experience in Financial Products (Continuous Variables)

The tables below show descriptive statistics (panel A) and respective statistical inference (panel B) for a set of sociodemographic variables and variables related to the customers' experience with financial products. Results are presented for three groups of mutual fund investors: SRI investors; investors in foreign funds; and investors in domestic funds. Statistical inference is performed through tests of means (t-stat) assuming different variances for the groups analyzed. These tests compare the group of SRI investors SRI with the group of investors in foreign (domestic) funds.

PANEL A	SRI				Foreign Fund Investors			
		Percentile				Percentile		
	Mean	25	50	75	Mean	25	50	75
Age	55,4	65	53	46	56,94	69	55	45
Value of financial assets	115145	3205	34616	119596	215697	2829	34120	135787
# SRI fund trades	3	2	2	3				
# foreign fund trades	137	22	50	109	20	2	6	18
# domestic fund trades	176	31	74	149	41	7	18	43
Value traded (domestic stocks)	764311199	5553	253700	5448195	469592640	0	60092	1726386
# trades (domestic stocks)	67	2	13	45	41	0	6	25
Value traded (domestic bonds)	8908034	0	1040	178942	6525686	0	0	93188
# trades (domestic bonds)	3	0	1	3	2	0	0	2
Value traded (foreign stocks)	220379848	0	0	18161	89455603	0	0	0
# trades (foreign stocks)	22	0	0	1	6	0	0	0
Value traded (foreign bonds)	4472619	0	0	0	2637115	0	0	0
# trades (foreign bonds)	0	0	0	0	0	0	0	0
Value traded (mutual funds)	985333	69635	220977	656559	442396	12002	40000	145055
# different mutual funds	28	9	18	36	6	1	3	7

PANEL A	Domestic Fund Investors			
		Percentile		
	Mean	25	50	75
Age	59,41	77	64	50
Value of financial assets	32502	0	2311	24648
# SRI fund trades				
# foreign fund trades				
# domestic fund trades	11	2	5	10
Value traded (domestic stocks)	36601322	0	0	4908
# trades (domestic stocks)	5	0	0	2
Value traded (domestic bonds)	289783	0	0	4725
# trades (domestic bonds)	1	0	0	1
Value traded (foreign stocks)	6466403	0	0	0
# trades (foreign stocks)	0	0	0	0
Value traded (foreign bonds)	5873	0	0	0
# trades (foreign bonds)	0	0	0	0
Value traded (mutual funds)	969368	8142	25329	101090
# different mutual funds	2	1	2	3

PANEL B	**SRI vs. Foreign Funds**		**SRI vs. Domestic Funds**	
	t	**Sig. (2-sided)**	***T***	**Sig. (2-sided)**
Age	-3.11	0 percent	-7.45	0 percent
Value financial assets	8.14	0 percent	-9.90	0 percent
# trades (foreign funds)	-6.99	0 percent		
# trades (mutual funds)	-6.92	0 percent	-8.45	0 percent
Value traded (domestic stocks)	-0.69	49 percent	-1.74	8 percent
# trades (domestic stocks)	-3.10	0 percent	-7.46	0 percent
Value traded (domestic bonds)	-0.41	68 percent	-1.63	10 percent
# trades (domestic bonds)	-2.52	1 percent	-5.42	0 percent
Value traded (foreign stocks)	-1.07	29 percent	-1.78	8 percent
# trades (foreign stocks)	-2.08	4 percent	-2.83	1 percent
Value traded (foreign bonds)	-0.43	67 percent	-1.06	29 percent
# trades (foreign bonds)	1.75	8 percent	-1.80	7 percent
Value traded (mutual funds)	-2.45	2 percent	-4.16	0 percent
# different funds	-16.58	0 percent	-21.73	0 percent

Another aspect of interest relates to the holding of securities (shares or bonds). The proportion of SRI investors that traded securities during the period under analysis amounts to 84 percent, a percentage that compares with 77 percent and 47 percent for investors in foreign funds and investors in domestic funds, respectively. These differences are statistically significant.

The trading of derivatives (even when embedded in structured retail financial products – SRPs) is usually associated with higher investor sophistication and/or higher propensity for risk taking. In our sample, 19 percent of SRI investors traded derivatives/SRPs, a proportion substantially lower than that evidenced by investors in foreign funds (32 percent), but higher than that verified for investors in domestic funds. The differences are statistically significant in both cases.

The value of financial assets in the bank (at year-end 2016) was, on average, 115.1 thousand euros, 215.7 thousand euros and 32.5 thousand euros for SRI investors, foreign fund investors and domestic fund investors, respectively (Table 4 – Panel A). The differences between the SRI group and the other groups are statistically and economically significant.

Table 4

Sociodemographic Characteristics and Experience in Financial Products (Continuous Variables)

The tables below show descriptive statistics (panel A) and respective statistical inference (panel B) for a set of sociodemographic variables and variables related to the customers' experience with financial products. Results are presented for three groups of mutual fund investors: SRI investors; investors in foreign funds; and investors in domestic funds. Statistical inference is performed through tests of means (t-stat) assuming different variances for the groups analyzed. These tests compare the group of SRI investors SRI with the group of investors in foreign (domestic) funds.

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Value traded (foreign stocks)	220379848	0	0	18161	89455603	0	0	0
# trades (foreign stocks)	22	0	0	1	6	0	0	0
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# different mutual funds	2	1	2	3

PANEL B	SRI vs. Foreign Funds		SRI vs. Domestic Funds	
	t	Sig. (2-sided) (%)	T	Sig. (2-sided) (%)
Age	-3.11	0	-7.45	0
Value financial assets	8.14	0	-9.90	0
# trades (foreign funds)	-6.99	0		
# trades (mutual funds)	-6.92	0	-8.45	0
Value traded (domestic stocks)	-0.69	49	-1.74	8
# trades (domestic stocks)	-3.10	0	-7.46	0
Value traded (domestic bonds)	-0.41	68	-1.63	10
# trades (domestic bonds)	-2.52	1	-5.42	0
Value traded (foreign stocks)	-1.07	29	-1.78	8
# trades (foreign stocks)	-2.08	4	-2.83	1
Value traded (foreign bonds)	-0.43	67	-1.06	29
# trades (foreign bonds)	1.75	8	-1.80	7
Value traded (mutual funds)	-2.45	2	-4.16	0
# different funds	-16.58	0	-21.73	0

With respect to mutual fund trades, SRI investors, on average, held around 28 different funds during the sample period. This figure compares with 6 and 2 for foreign fund investors and investors in domestic funds, respectively. The average number of mutual fund trades (subscriptions and redemptions) varies between 176 (SRI investors) and 11 (domestic fund investors). The median amount traded is 220,997 euros, 40,000 euros and 25,329 euros for investors in SRI, foreign and domestic funds, respectively. The differences between the SRI group and the other groups are statistically significant in all cases (Table 4 – Panel B).

The activity of the different types of investors in the secondary stock and bond market is also studied (securities domiciled in Portugal and abroad are considered separately). The analysis of the value of the Portuguese shares traded and the respective number of trades reveals SRI investors' increased interest in activity in the secondary market. In fact, the median value of trades reaches 253,700 euros for SRI investors (13 trades), which contrasts with about 60,000 euros for foreign fund investors (6 trades). Regarding the trading of foreign securities, the data suggest the presence of extreme values in the sample. Still, the trading activity appears to be higher for SRI mutual fund investors.

D. Multivariate analysis

The previous analysis is complemented with the estimation of probit models. The models used combine the different sociodemographic characteristics of investors to establish the extent to which these characteristics determine the participation of individuals in the SRI mutual fund market (that is, to know which characteristics determine the individual's probability of being an investor in SRI mutual funds). In our models, the dependent variable takes the value 1 if the individual is an investor in SRI mutual funds, and zero if she/he is an investor in non-SRI funds domiciled abroad (or, alternatively, if he/she is an investor in mutual funds domiciled in Portugal).

In column [1] of Table 5, we tabulate the results for the base model, in which the explanatory variables are the investor's residence (distinguishing those who

Table 5

Probit Model – SRI Investors versus Investors in Domestic Funds

This table shows the results of a *probit* model. The dependent variable is a binary variable indicative of whether the investor is an SRI investor (an investor in funds domiciled in Portugal). The model is estimated by maximum likelihood, using the Huber-White method.

	SRI *versus* Domestic Funds					
	[1]	[2]	[3]	[4]	[5]	[6]
Const.	-1633.69 ***	-1643.15 ***	-1502.00 ***	-1381.00 ***	-1290.56 ***	-873.17 ***
	-6.66	*-6.65*	*-5.71*	*-5.21*	*-4.84*	*-3.42*
Lisbon	0.364 ***	0.362 ***	0.358 ***	0.351 ***	0.352 ***	0.331 ***
	10.99	*10.91*	*10.58*	*10.33*	*9.45*	*8.67*
Porto	0.153 ***	0.153 ***	0.151 ***	0.144 ***	0.161 ***	0.152 ***
	3.92	*3.92*	*3.78*	*3.59*	*3.81*	*3.52*
Foreign country	-0.365 ***	-0.366 ***	-0.411 ***	-0.376 ***	-0.334 ***	-0.295 **
	-2.91	*-2.91*	*-3.21*	*-2.89*	*-2.59*	*-2.27*
Married	0.007	0.006	-0.023	-0.021	-0.016	-0.011
	0.22	*0.19*	*-0.69*	*-0.64*	*-0.45*	*-0.29*
Age	1.657 ***	1.656 ***	1.521 ***	1.396 ***	1.303 ***	0.869 ***
	6.63	*6.62*	*5.67*	*5.17*	*4.79*	*3.35*
Age x Age	-0.001 ***	-0.001 ***	-0.001 ***	-0.001 ***	-0.001 ***	-0.001 ***
	-6.61	*-6.59*	*-5.65*	*-5.14*	*-4.76*	*-3.29*
Male	-0.502 ***	-0.499 ***	-0.522 ***	-0.495 ***	-0.473 ***	-0.448 ***
	-12.77	*-12.69*	*-13.01*	*-12.21*	*-10.95*	*-10.11*
Completed secondary	0.054	0.056	0.059	0.055	0.063	0.043
	1.08	*1.12*	*1.17*	*1.08*	*1.21*	*0.79*
Completed university	0.621 ***	0.619 ***	0.575 ***	0.541 ***	0.516 ***	0.474 ***
	15.66	*15.61*	*14.07*	*13.22*	*12.14*	*11.11*
Management	0.252 ***	0.183 **	0.154 *	0.125	0.132	0.091
	2.96	*2.07*	*1.72*	*1.38*	*1.41*	*0.94*
Specialized	0.069	0.069	0.065	0.064	0.073	0.075
	0.69	*0.69*	*0.65*	*0.63*	*0.71*	*0.69*
Undifferentiated	0.147 *	0.148 *	0.139 *	0.138	0.128	0.145
	1.77	*1.77*	*1.65*	*1.62*	*1.45*	*1.60*
Qualified	0.148 *	0.126	0.111	0.101	0.073	0.063
	1.72	*1.45*	*1.27*	*1.14*	*0.79*	*0.67*
Financial literacy		0.163 ***	0.162 ***	0.156 ***	0.140 ***	0.138 ***
		3.58	*3.51*	*3.38*	*2.89*	*2.78*
Log(1+Financial assets)			0.055 ***	0.042 ***	0.037 ***	0.019 **
			5.96	*4.46*	*3.87*	*2.23*
Time deposit			-0.026	-0.018	-0.006	0.024
			-0.86	*-0.59*	*-0.18*	*0.71*
Consumer loan			-0.095	-0.111	-0.136 *	-0.112
			-1.37	*-1.56*	*-1.79*	*-1.47*
Mortgage loan			-0.085 **	-0.111 **	-0.149 ***	-0.139 ***
			-1.98	*-2.57*	*-3.08*	*-2.84*
Derivatives				0.107 ***	0.021	-0.022
				2.77	*0.48*	*-0.51*
Securities				0.381 ***	0.351 ***	0.261 ***
				9.63	*8.51*	*6.14*
# trades domestic funds					0.003 ***	0.003 ***
					4.49	*4.24*
Log(1+valor traded funds)						0.108 ***
						18.11
McFadden R2	12.9%	13.1%	15.1%	16.5%	25.3%	28.0%
LR stat	1174	1187	1369	1498	2298	2547
Prob.	0.000	0.000	0.000	0.000	0.000	0.000
# obs. with Y=0	387377	387377	387374	387374	387374	387374
# obs. with Y=1	610	610	610	610	610	610

reside in Lisbon, Porto and abroad from residents in other districts of Portugal), marital status (married), investor's age (non-linearly), gender (male), highest level of education completed (distinguishing investors who have completed secondary education and those who have completed higher education) and occupation (distinguishing individuals with management positions, specialized workers, qualified workers and those that have undifferentiated occupations).

In columns [2] to [6] of Table 5, we tabulate the results of the estimation of the base model, expanded with the inclusion of other explanatory variables: financial literacy (column [2]), assets and liabilities (column [3]), derivatives or other securities traded (column [4]), experience with domestic funds (column [5]), and the value traded in mutual funds (column [6]).

The results allow us to conclude that, compared to individuals who invest in domestic funds, residing in Lisbon or Porto increases the likelihood of investment in SRI mutual funds. This finding is consistent with Nilsson (2008) and Pérez--Gladish et al. (2012), who claim that SR investing is predominantly relevant for inhabitants of larger cities. However, contrary to expectations, residence abroad reduces this probability.[3] Likewise, general literacy (completion of university education) and financial literacy[4] also increase that likelihood, but neither occupation nor marital status[5] makes it possible to differentiate those groups of investors. Among the sociodemographic characteristics, it is worth mentioning the fact that age has a non-linear effect, while men are less likely to invest in SRI funds. These results are aligned with Junkus and Berry (2010), among others, who find that SRI investors tend to be younger and female, and with Nilsson (2008), Cheal et al. (2011) and Gutsche and Zwergel (2020), who find a positive link between educational degree or financial literacy and involvement in SR investing.

As for financial assets, there is a positive association with the probability of investment in SRI funds,[6] but holding bank liabilities (i.e., mortgage loans) is negatively associated with the probability of investment in SRI funds. Finally, the experience of trading derivatives has a negligible effect, but trading securities increases the likelihood of investment in SRI funds, while experience with domestic funds (both in terms of the number and the value of trades) helps to distinguish SRI investors from investors in domestic funds.[7]

The differences between investors in foreign funds and in SRI funds are less noticeable (Table 6), since residence in Lisbon or Porto is no longer statistically significant. Financial literacy also ceases to have statistical significance, although only in the last estimated model.

[3] It should be noted that the SRI funds in the sample are all domiciled abroad, which is why it was expected that such funds might have greater notoriety among non-residents.

[4] The results are similar if mathematical skills are used instead of financial literacy.

[5] Pérez-Gladish et al. (2012) also report no effect between the marital status and the level of SR fund investment, but Wins and Zwergel (2016) find that SRI fund investors are more likely to be married.

[6] Riedl and Smeets (2017) also find that investors with larger portfolios are more likely to hold SRI funds.

[7] Results (not reported) are similar if outliers are omitted from the estimation.

Table 6

Probit Model – SRI Investors *versus* Investors in Foreign Funds

This table shows the results of a *probit* model. The dependent variable is a binary variable indicative of whether the investor is an SRI investor (an investor in foreign mutual funds). The model is estimated by maximum likelihood, using the Huber-White method.

	SRI *versus* Foreign Funds					
	[1]	[2]	[3]	[4]	[5]	[6]
Const.	-1954.95 ***	-1954.22 ***	-1966.11 ***	-1844.86 ***	-1719.88 ***	-1214.72 ***
	-5.75	*-5.75*	*-5.77*	*-5.47*	*-5.03*	*-3.53*
Lisbon	0.059	0.059	0.062	0.049	0.034	-0.019
	1.34	*1.33*	*1.39*	*1.09*	*0.76*	*-0.41*
Porto	0.069	0.070	0.074	0.071	0.071	0.033
	1.26	*1.27*	*1.34*	*1.29*	*1.27*	*0.57*
Foreign country	-0.523 ***	-0.523 ***	-0.519 ***	-0.470 ***	-0.451 ***	-0.511 ***
	-3.02	*-3.02*	*-2.99*	*-2.68*	*-2.58*	*-2.76*
Married	-0.026	-0.026	-0.025	-0.029	-0.028	-0.031
	-0.62	*-0.62*	*-0.61*	*-0.69*	*-0.67*	*-0.68*
Age	1.991 ***	1.990 ***	2.004 ***	1.879 ***	1.752 ***	1.227 ***
	5.74	*5.74*	*5.76*	*5.46*	*5.02*	*3.49*
Age x Age	-0.001 ***	-0.001 ***	-0.001 ***	-0.001 ***	-0.001 ***	-0.001 ***
	-5.74	*-5.74*	*-5.76*	*-5.47*	*-5.02*	*-3.48*
Male	0.325 ***	0.324 ***	0.324 ***	0.315 ***	0.296 ***	0.251 ***
	6.21	*6.20*	*6.15*	*5.93*	*5.49*	*4.46*
Completed secondary	0.028	0.029	0.031	0.038	0.064	0.033
	0.39	*0.40*	*0.43*	*0.53*	*0.89*	*0.43*
Completed university	0.118 **	0.118 **	0.125 **	0.122 **	0.133 ***	0.054
	2.35	*2.35*	*2.51*	*2.43*	*2.58*	*1.00*
Management	0.008	-0.004	-0.007	-0.024	-0.013	-0.141
	0.07	*-0.03*	*-0.06*	*-0.21*	*-0.11*	*-1.11*
Specialized	-0.009	-0.009	-0.023	-0.029	-0.011	-0.012
	-0.06	*-0.06*	*-0.17*	*-0.22*	*-0.08*	*-0.09*
Undifferentiated	0.036	0.036	0.021	0.011	0.008	-0.006
	0.32	*0.32*	*0.19*	*0.09*	*0.07*	*-0.05*
Qualified	-0.047	-0.051	-0.058	-0.070	-0.071	-0.118
	-0.41	*-0.44*	*-0.49*	*-0.59*	*-0.61*	*-0.95*
Financial literacy		0.025	0.027	0.023	0.013	-0.035
		0.43	*0.47*	*0.39*	*0.23*	*-0.57*
Log(1+Financial assets)			-0.019 **	-0.018 **	-0.021 **	-0.056 ***
			-2.47	*-2.25*	*-2.55*	*-7.49*
Time deposit			0.089 **	0.093 **	0.098 **	0.199 ***
			2.19	*2.25*	*2.34*	*4.45*
Consumer loan			0.033	0.035	0.051	0.154
			0.34	*0.36*	*0.53*	*1.53*
Mortgage loan			-0.002	-0.015	-0.024	0.045
			-0.04	*-0.25*	*-0.41*	*0.75*
Derivatives				-0.184 ***	-0.233 ***	-0.249 ***
				-4.04	*-4.93*	*-5.06*
Securities				0.254 ***	0.241 ***	0.145 **
				4.71	*4.41*	*2.52*
# trades domestic funds					0.001 ***	0.001 ***
					3.19	*2.94*
Log(1+valor traded funds)						0.213 ***
						17.84
McFadden R2	2.4%	2.4%	2.6%	3.3%	6.2%	12.8%
LR stat	125	125	136	172	327	671
Prob.	0.000	0.000	0.000	0.000	0.000	0.000
# obs. with Y=0	16353	16353	16353	16353	16353	16353
# obs. with Y=1	610	610	610	610	610	610

A significant difference occurs regarding gender: among investors in foreign funds, the likelihood of being a male investor in SRI funds is higher. Columns (4) to (6) show that investors in foreign funds have more experience with derivatives and are wealthier, but less experience with securities (shares and bonds) in the secondary market. Experience in trading non-SRI funds also increases the likelihood of investment in SRI funds.[8]

III. Conclusion

The results of the statistical analysis conducted in this study suggest the existence of substantive differences in sociodemographic variables and financial experience between SRI mutual fund investors and investors in funds domiciled in Portugal. However, the differences between investors in SRI funds and investors in foreign funds are more modest, except for stocks, bonds, derivatives, and the range of mutual funds traded. These differences seem to point to increased dynamism, diversity and trading activity for SRI investors compared to the other investor groups. Ultimately, this search for diversity may explain the acquisition of socially responsible mutual funds.

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[8] Since the SRI funds in the sample are all domiciled abroad, it is expected that, if left 'to chance', the increased trading of foreign funds will lead to the introduction of SRI funds in the investor's portfolio.