The Education of Gender
The Gender of Education
Sociological Research in Italy

Maddalena Colombo
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Gender Gaps in Financial Education. The Italian Case

Luca Salmieri and Emanuela E. Rinaldi

INTRODUCTION

After the financial crisis of 2008, policymakers have been granting even further attention to financial education. The main reasons for this renewed concern stem from research demonstrating that individuals with greater financial literacy are more likely to perform better in terms of budgeting, saving money, and controlling expenditures (Perry, Morris, 2005; OECD, 2013); to do better at handling mortgages and other debt (Lusardi, Tufano, 2015); to plan for retirement (Lusardi, Mitchell, 2007, 2014); and to have greater financial resilience (Lusardi et al., 2020). Considering all these aspects, there has been increasing insistence on the importance of financial education over the last few years.

Nonetheless, levels of financial literacy remain low in many countries. As summarized by Preston and Wright (2019), research into financial literacy has developed along three main strands of inquiry: the effectiveness of financial literacy interventions and education programs (Fernandes et al., 2014), the determinants or correlates of financial literacy, and the effect of financial literacy on financial behaviours such as saving, retirement planning, and stock market participation.

Although many initiatives have been launched, there is no consensus on how to best implement financial education, and critiques have been raised about its efficacy as compared to other form of intervention (Willis, 2008). The outcomes of intervention vary widely depending on the characteristics of the target group. As Preston and Wright (2019) note, understanding the gender gap in financial literacy therefore constitutes a key research objective. It is central to the development of interventions to narrow the gender gap, improve the economic and financial security of women and support other social and economic outcomes linked to financial literacy.

Studies agree in finding women perform less well than men in financial literacy (Lusardi, Mitchell, 2008; Atkinson, Messy, 2012; Klapper et al.,

2015; Bongini et al., 2015; Bucher-Koenen et al., 2017; Hasler, Lusardi, 2017). Gender differences are found in all economies from developing countries to advanced economies, even if the gap in financial education appears to be narrowing (Grohmann, 2016; Lusardi, 2020).

However, few studies to date have attempted to explain why women are less financially literate than men (Fonseca et al., 2012; Cupák et al., 2018; Preston, Wright, 2019). Such limited attention is due in part to the relative lack of consensus about what constitutes financial literacy, with no global agreement yet reached on how to measure it. Indeed, defining financial literacy is a complex goal. Remund (2010: 284), reviewing how financial literacy has been interpreted and measured in research since 2000, defines financial literacy as «a measure of the degree to which one understands key financial concepts and possesses the ability and confidence to manage personal finances thorough appropriate, short-term decision making and sound, long-rage financial planning, while mindful of life events and changing economic conditions». While recognizing that this definition may encounter criticism and that other encompassing ones are valid as well (Frühauf, Retzmann, 2016; Warmath, Zimmerman, 2019), we rely on Remund's formulation because it is generally in line with the definitions underlying the OECD-PISA assessments whose data we have processed in this chapter on the Italian case.

Italy is a noteworthy case study as it still ranks low in international surveys on financial literacy and is shaped by a marked gender disparity among different demographic and socioeconomic groups: teenagers (OECD, 2014a, 2017, 2020a; Davis et al,, 2019) and adults (Di Salvatore et al., 2018; OECD, 2020b), but not preadolescents (Rinaldi, Todesco, 2012). Since individuals are currently called on to acquire the basics of financial knowledge at an early age and instruction is received only from parents or via interaction with others, this disparity may be particularly detrimental in creating social unbalances among social classes (Lusardi et al., 2010). We thus focus on Italian teenagers to explore the formation of a gender fap in financial literacy.

In the following analysis, we use data on financial literacy from the 2012, 2015 and 2018 Program for International Student Assessment (PISA) to compare the financial literacy skills of Italian 15-year-olds girls and boys. According to OECD (2020a: 43), financial literacy is «knowledge and understanding of financial concepts and risks, and the skills, motivation and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life». Before tackling the main topic of the chapter, the gender gap in financial literacy among 15-year-old Italian students, it is worth providing a brief overview of financial education in Italy.

1. FINANCIAL EDUCATION IN ITALY

Financial education is part of the school curriculum in many countries, even though such education continues to be limited (OECD, 2015). To minimize overload, teaching typically integrates financial literacy into other existing subjects and courses rather than introducing additional subjects into an already overburdened curriculum.

Before formally presenting key financial education content into the national curriculum, some educational systems have developed financial education pilot programs in a select number of schools to identify the most appropriate approach. For example, students can improve their financial competences by acquiring transversal skills such as problem solving and critical thinking in other subjects; at the same time, monetary-based problems can be used as real-life cases for teaching mathematics and other subjects. Few countries currently teach financial education in school through the official curriculum, and pilot and extracurricular programmes are still the norm in many countries. Recognising the importance of fostering financial literacy amongst young people and adults, a growing number of countries have developed, published and (sometimes) implemented nationally co-ordinated approaches to financial education, usually referred to as national strategies (OECD, 2014b).

Italy is one of the seven countries that participated in all three financial literacy PISA assessments conducted in 2012, 2015 and 2018, the other six being Australia, Poland, Russia, the Slovak Republic, Spain, and the United States[11]. For our purposes, namely comparing Italy to other European countries and the United States, we have excluded Australia and Russia. We then added Bulgaria, Estonia, Finland, Latvia, Lithuania, Portugal, and Serbia in analysing data from the most recent, 2018 PISA assessment. Before discussing the results of the comparison, we provide a very brief outline of financial literacy teaching schemes in order to introduce our study of gender gaps in Italian performance when compared to other countries participating in the PISA financial literacy assessment (OECD, 2005, 2015; Grifoni, Messy, 2012; Kalmi, 2018).

Financial and entrepreneurship studies have been a cross-curricular theme in basic and upper secondary education in Finland for at least three decades. Nowadays, one of the goals of compulsory social studies/economics/ entrepreneurship education is to encourage students «to become independent societal and economic actors» and «to manage his or her personal finances». Topics in financial education are also included as part of «working life competence and entrepreneurship», a transversal skill woven into all subjects in Finnish basic education (Kalmi, 2018).

[11] Even if differences in test administration indicate for uncertainty in the comparison of student performance between 2015 and 2018, two-thirds of the test items in the 2018 assessment were also used in the 2012 and 2015 assessments, therefore assuring a minimum ratio for comparison.

Financial literacy topics are integrated into the general curriculum of both primary and secondary schools in Latvia and are taught mainly in economics classes. Financial education has been included as part of several mandatory school subjects, such as information science, mathematics, geography, and history, and recently teachers have been pushed to instill more extensive financial knowledge in students (Sarnovics et al., 2016). The Lithuanian school system likewise aims to develop students' financial literacy beginning in nursery and primary education. Financial literacy is taught through compulsory economics and entrepreneurship classes (OECD, 2015).

TABLE 1. *Financial literacy as educational content in national school systems (2015)*

Financial literacy as part of the national curriculum	Financial literacy integrated into other subjects	Financial literacy as *ad hoc* and pilot programmes
Finland (lower and upper secondary schools) Latvia (primary and secondary schools) Lithuania (primary and secondary schools) USA (in 5 states)	Estonia USA Portugal Poland Slovak Republic	Estonia Lithuania USA Portugal Italy Spain

Source: data processed by the authors.

Estonians schools have integrated financial literacy into civics studies in lower and upper secondary schools since 2010. Financial literacy is also a component of economics and entrepreneurship studies, but only as an optional subject. The Estonian school curriculum offers teachers a high degree of autonomy over teaching methods and contents (OECD, 2015, 2020a; Põder et al., 2020).

Since 2013, Portuguese state schools have enacted financial education by educational stage (kindergarten, basic school which is up to grade 9, and secondary up to 12). Financial literacy is taught only indirectly, however, via lessons on budgeting, the financial system, financial products, savings, credit, ethics, and the rights and duties of financial consumers. The teaching of *Education for citizenship* also includes basic financial education and this subject has been compulsory since 2008 (OECD, 2015).

Spain promotes financial literacy only by means of voluntary programmes in place since 2010. Several voluntary schemes address students at all educational levels, and financial education may also be part of the social sciences in primary school (OECD, 2015).

In the United States, financial skills education is provided in various ways at the state and district levels. In some states, district-level educational boards task schools with offering optional programmes in personal finance, while others opt for different subjects. In other states, personal finance content is inconsistently included in other courses, often economics or mathematics. In 2015, five states had middle schools teaching personal finance as a standalone course and high school students required to complete a set number of credits in this subject to graduate (Pelletier, 2015).

In both Poland and the Slovak Republic, financial education is a compulsory subject that is part of mathematics in lower secondary schools, although it features only very basic computational tasks related to money savings, loans and interest rates (Swiecka et al., 2020; Klieštiková et al., 2020).

Neither Bulgaria nor Serbia has an extensive education programme on financial literacy among state schools: financial skills may be incidentally connected to spontaneous teaching in mathematics and economics (OECD, 2015).

Financial education is not compulsory in Italy and it is not part of the national school curriculum. Although there have been several calls over the past few years for providing official courses which might develop pupils' skills in financial literacy, financial education is still not part of the official curricula in Italian primary or lower secondary schools (Rinaldi, 2015). Just recently, in 2017, the Italian government established a committee to plan and co-ordinate financial education in the country, both directly and in co-operation with public and private organisations and NGOs. In 2017 the committee formulated a *National strategy* targeting the entire Italian population with a specific section addressing youth. Nevertheless, the lack of either official curricular programs on a national scale or clear policy coordination from the committee probably explains the proliferation of numerous, heterogeneous ad hoc projects carried out extracurricularly by various actors (Rinaldi, 2019a). The lack of clear, specific educational goals for these initiatives along with the "one-size-fits-all" approach underlying many projects may have undermined both the efficacy and the efficiency of the entire strategy (Cervellati, 2017).

2. GENDER GAPS IN FINANCIAL EDUCATION IN ITALY

Based on the mean score of 15-year-olds students on the last PISA assessment of financial literacy skills, Italy occupies the lowest positions, eleventh among OECD countries and twelfth out of the total of twenty countries that participated in the 2018 assessment (Table 2). Boys performed much better than girls only in Italy, Poland and the USA (by 15, 7 and 6 score points, respectively), while girls outperformed boys in Bulgaria, Georgia and Indonesia (by between 12 and 20 points). There is no statistically significant difference in the other 14 participating countries[12]. Therefore, while the financial skills gap between boys and girls is generally not statistically significant or minimal in most countries, in Italy not only is the gap wide and at the expense of girls but it appears within an already lower PISA

[12] Gaps in terms of 2-5 score points are a small difference and does not reflect a notable disparity in the types of tasks that boys and girls are able to do. This is especially true given the large variation in performance observed amongst both boys and girls.

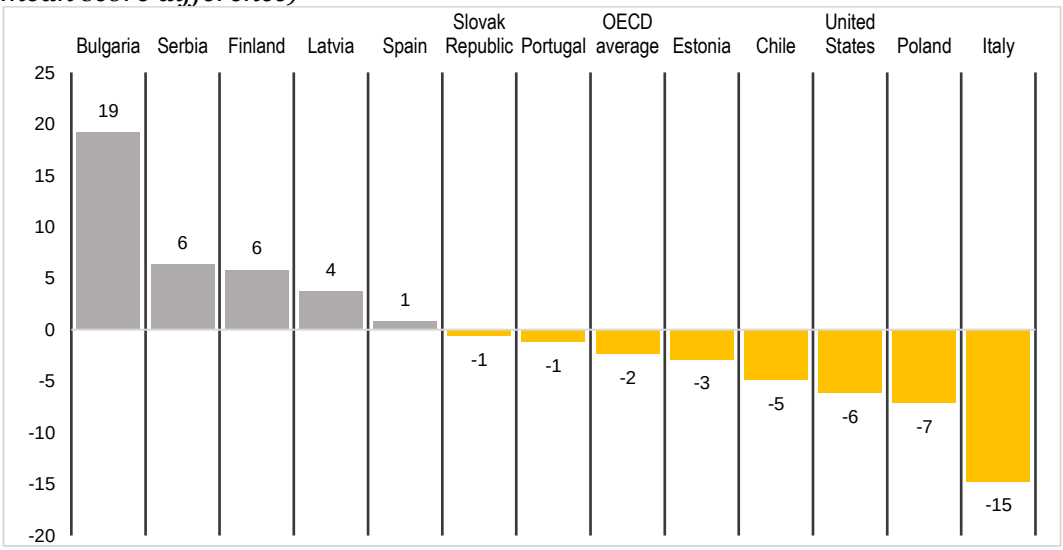
assessment score. The difference between Italian girls' and boys' performance in financial literacy in the last PISA assessment is the widest gender gap in terms of score points among the selected countries (Figure 1).

TABLE 2. *Financial literacy performance at the national level*

	Mean score	Range of ranks			
		OECD countries/economies		All countries/economies	
		Upper rank	Lower rank	Upper rank	Lower rank
Estonia	547	1	1	1	1
Finland	537	2	3	2	3
Canadian provinces	532	2	3	2	3
Poland	520	4	4	4	4
Australia	511	5	6	5	6
United States	506	5	8	5	8
Portugal	505	6	8	6	8
Latvia	501	7	9	7	9
Lithuania	498	8	9	8	10
Russia	495			9	11
Spain	492	10	10	10	11
Slovak Republic	481	11	12	12	13
Italy	476	11	12	12	13
Chile	451	13	13	14	14
Serbia	444			15	15
Bulgaria	432			16	16
Brazil	420			17	17
Peru	411			18	18
Georgia	403			19	19
Indonesia	388			20	20

Sources: processing of OECD 2020 (Volume IV), Table IV. B1.2.1.

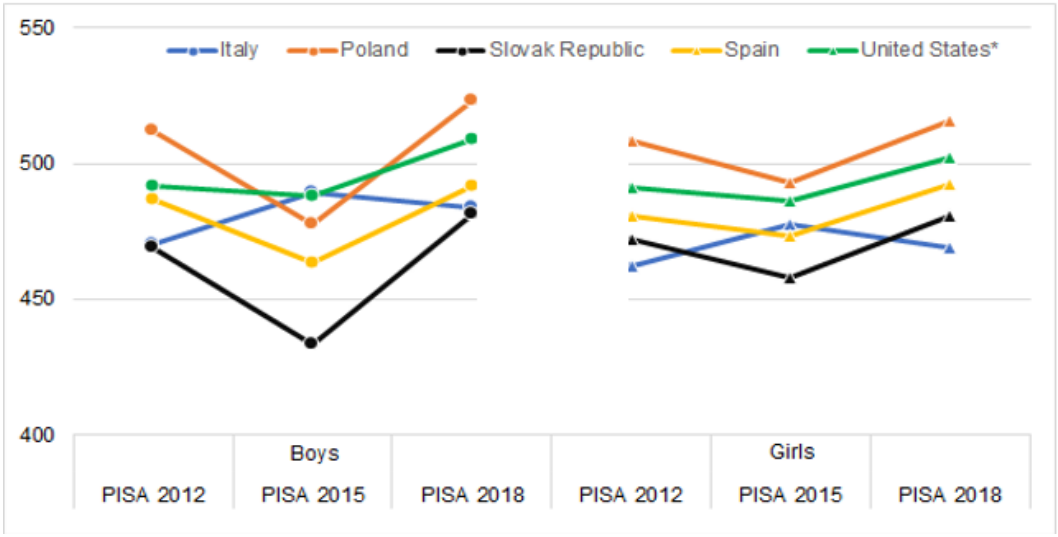
FIGURE 1. *Gender differences in financial literacy performance (girls/boys mean score difference)*



Sources: processing of OECD 2020 data (Volume IV), Tables IV. B1.3.4, IV. B1.3.10 and IV.B1.3.22

Italian boys' and girls' performances show a similar trend over the three assessments: scores increase from 2012 to 2015 while decreasing in 2018 (Figure 2).

FIGURE 2. *Change over time in mean financial literacy scores, by gender.*



Source: processing of OECD 2020 data, Table IV. B1.3.8. *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable

The trend in Italy's data runs counter to the other countries, as they instead show improving results for both boys and girls. Likewise, the share of students with the highest financial literacy scores have been decreasing over time in Italy and increasing in other countries: the percentage of Italian boys scoring a level 5 proficiency increased from 3.2% in 2012 to 8% in 2015, to then fall to 5.9% in the latest 2018 assessment. Top performing girls made up 3.1% in 2018 after having been 5% in 2015 and only 1% in 2012 (Table 3).

TABLE 3. *Change over time in the proportion of top performers in financial literacy, by gender*

	Boys proficiency level 5			Girls proficiency level 5		
	PISA 2012	PISA 2015	PISA 2018	PISA 2012	PISA 2015	PISA 2018
Italy	3.2	8.0	5.9	1.0	5.0	3.1
Poland	9.9	8.0	14.7	4.7	8.0	9.0
Slovak Republic	6.5	5.8	7.8	4.7	6.9	6.5
Spain	4.5	5.9	6.3	3.0	5.3	5.2
United States*	10.1	11.4	14.3	8.8	9.1	10.4

Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1.3.9 *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable.

One Italian girl out of five was a low performer[13] in 2012, and the same in 2015 and 2018. The same proportion and trend can be observed for Italian

[13] Below Level 1=below 325.57 score points; Level 1= from 325.57 to less than 400.33 score points; Level 2= from 400.33 to less than 475.10 score points; Level 3= from 475.10 to less than 549.86 score points; Level 4= from 549.86 to less than 624.63 score points; Level 5= at or above 624.63 score points.

boys – except for a very slight improvement occurring in 2015 – meaning that the gender gap widens as we move up the financial proficiencies grading (Table 4).

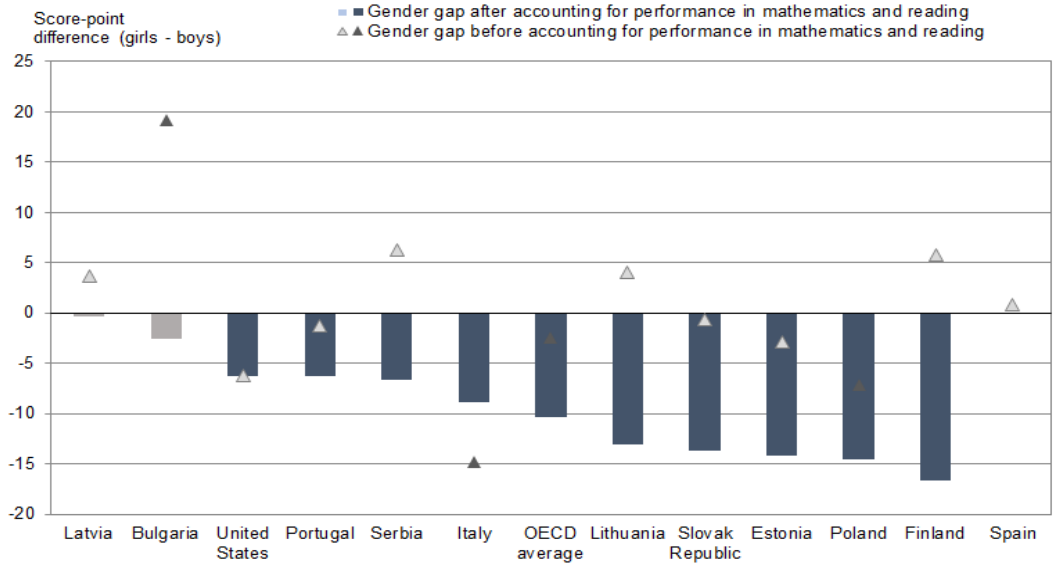
TABLE 4. *Change over time in the share of low performers in financial literacy, by gender*

	Boys proficiency level 1			Girls proficiency level 1		
	PISA 2012	PISA 2015	PISA 2018	PISA 2012	PISA 2015	PISA 2018
Italy	22.0	19.2	19.8	21.4	20.5	22.0
Poland	10.9	23.4	10.6	8.7	16.6	8.5
Slovak Republic	25.3	39.3	21.8	20.3	29.7	20.6
Spain	16.5	27.2	16.3	16.5	22.3	13.7
United States*	19.0	22.5	16.7	16.8	20.7	15.2

Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1.3.9 *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable

Globally, girls perform better in reading, and boys show a very slight advantage in mathematics. Since mathematics performance is strongly correlated with financial literacy proficiency, part of the tenuous, minor gap in this latter skill might be partially explained via mathematics. Nonetheless, reading scores are likewise strongly correlated with financial literacy proficiency.

FIGURE 3. *Gender differences in financial literacy performance after and before accounting for performance in mathematics and reading*

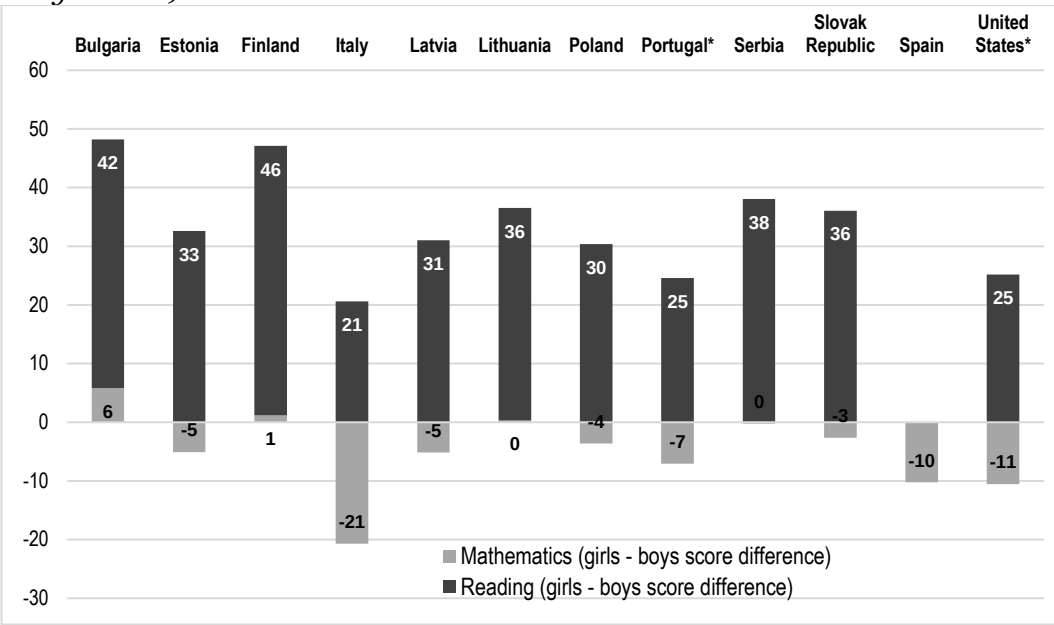


Sources: processing of OECD data, PISA 2018 Database - OECD 2020

Across participating PISA 2018 assessment countries, the correlation between financial literacy and mathematics performance averaged 0.87 and that between financial literacy and reading performance averaged 0.83. Therefore, there is a very slim difference in the way mathematics might influence financial literacy scores as compared to reading, also because the correlation between mathematics and reading performance is 0.81,

meaning that the strong correlation observed among the three skill types is mutual, reciprocal and triangular. Considering all the participating countries, an average of 20% of the variation in financial literacy performance is independent of performance in mathematics and reading. That means 20% of the difference in how students perform in financial literacy is independent of how they perform in both mathematics and reading. Yet for Italy, even controlling for the effect of the influence of mathematics and reading proficiency (Figure 4), the gender gap in financial literacy is almost 10 in mean scores.

FIGURE 4. *Gender differences in mathematics and reading performances (girls - boys scores)*



Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1.3.5

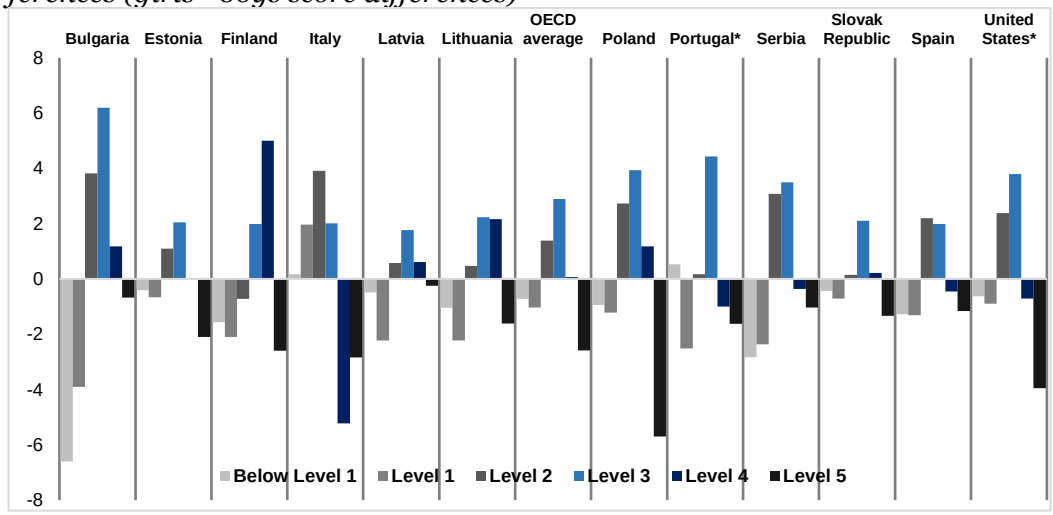
Furthermore, it must be stressed that Italian girls' advantage over boys in reading is lower than in other countries, and boys' advantage over girls in mathematics is the highest among all selected countries, meaning that girls' lower financial literacy performance compared to that of boys might depend more directly on the mathematics gender gap in Italy than in other countries.

The significance of Italian gender gaps in financial literacy is more evident when controlling for students' distribution along each proficiency level. The proportion of Italian girls scoring in the low proficiency level in financial literacy is the highest amongst the countries considered in the analysis of change over time. Italian 15-year-old girls outnumber 15-year-old boys in low and medium proficiency levels, while they are outnumbered by boys in top levels 4 and 5 (Table 3 and 4). It is true that similar patterns appear in almost all the other countries, but it is equally true that Italian boys' outnumbering of girls in levels 4 and 5 is the most substantial among the selected cases (Figure 5).

While on average across selected countries there are more top-performing boys than top-performing girls (12% compared to 9%) and, on the other

hand, there are more low-achieving boys than low-achieving girls (16% compared to 14%), the Italian case is different: 5.9% of boys are top-performing compared to a meagre 3.1% of top-performing girls.

FIGURE 5. *Students at each proficiency level in financial literacy, by gender differences (girls - boys score differences)*



Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1.3.6.

TABLE 5. *Students' sources of information about money matters, by gender (girls - boys %)*

	Parents, guardians or other adult relations	Television or radio	The Internet	Teachers	Magazines	Friends
Bulgaria	4.6	-0.7	-1.5	-2.0	-5.1	-5.6
Estonia	3.3	0.2	1.3	-2.3	-4.8	-1.6
Finland	3.6	-8.5	0.5	5.6	-8.9	-3.9
Italy	5.0	1.7	2.6	3.4	-4.5	-12.5
Latvia	3.4	2.7	1.9	1.3	-1.5	-4.0
Lithuania	4.6	2.8	1.7	0.3	-0.1	-4.3
Poland	4.2	3.0	-0.4	-1.9	-0.2	-0.4
Portugal*	1.9	3.2	-1.0	-0.3	1.3	-7.0
Serbia	2.6	-1.3	1.0	-2.3	-4.4	-5.8
Slovak Republic	5.3	1.9	1.1	0.2	-1.2	-1.7
Spain	3.6	-2.6	-1.2	6.1	-2.4	-5.2
United States*	1.6	-2.5	-2.3	-4.1	-3.1	-8.4

Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1.4.2. *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable

Multiple elements may contribute to the gap between boys and girls in financial literacy. Unexpectedly, across the selected countries girls are more likely than boys to declare that they receive information about money matters from their parents (96% of girls versus 93% of boys). In every selected country, the parents-daughter relationship is found to be more statistically sensitive as a source of information on money issues than is the media. It is noteworthy that, once again, Italy has the widest gender gap in the parents-

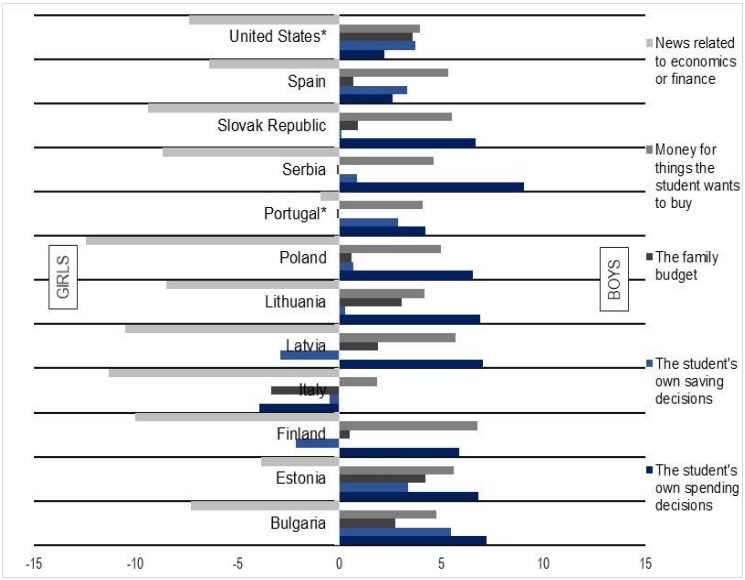
children information flow about money matters (5% more girls than boys report parents as an information source, as shown in Table 5). This gender gap is noteworthy because there is no difference between Italian girls and boys in the index of parental involvement in matters of financial literacy (Figure 6).

FIGURE 6. *Students discussing money matters with parents, by gender*

Index of parental involvement in matters of financial literacy (difference girls - boys)

Bulgaria	0.21
Estonia	0.16
Finland	0.07
Italy	-0.03
Latvia	0.07
Lithuania	0.12
Poland	0.05
Portugal*	0.15
Serbia	0.19
Slovak Republic	0.13
Spain	0.11
United States*	0.11

Percentage of students who discuss the following topics with their parents at least once a month, by gender (difference girls - boys in %)



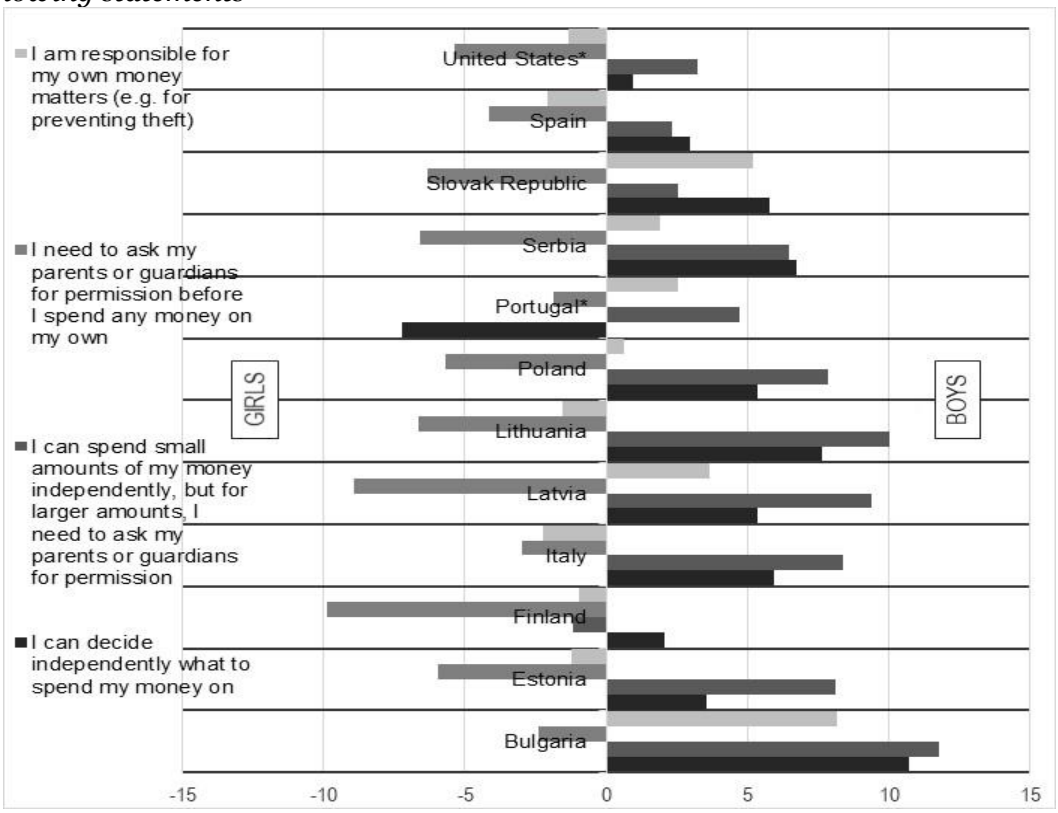
Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1.4.7. *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable

Nonetheless, the most striking finding for Italy is the gender gap in friends as a source of information: 12% more Italian boys report gaining information about financial matters from friends than do Italian girls. No selected country except for Italy reported a two-digit percentage gender gap in this area. Perhaps this is a sign of how widely interests vary between male and female peer groups in Italy and how, more than in other settings, cultural differences in gender stereotypes affect the topics of discussion within peer groups.

In Italy, the proportion of 15-year-old girls accustomed to discussing economics- or finance-related news with their parents at least once a month is much lower than boys. While this type of gender gap is (relatively) prominent across the other countries as well, Italy stands almost alone as a context where boys outnumber girls in discussing the family budget, their own saving, and spending decisions with parents. It is only in relation to money for things students want to buy that Italian girls are more numerous than boys in engaging with parents (Figure 6). Yet, a figure that might reduce the gap in using financial information is that girls seem to marginally outnumber boys in turning to the internet as a source of information about money matters (Table 5).

On average across the PISA 2018 countries, girls reported having more autonomy than boys in their spending decisions, with a percentage of Italian girls consistently higher than boys declaring they can decide independently about their money (Figure 7). Of course, independent money management at 15 years of age does not automatically mean to possess a strong financial proficiency[14]. However, girls on average seem to be less familiar with money-related terms, familiarity with financial concepts being the total number of concepts that the student had both learned at school and knew how to define. This score ranges from 0 to 18 and the Italian female index is one of the lowest (6.07) among the selected countries.

FIGURE 7. *Students' autonomy in handling money, by gender. Girls-boys difference in the percentage of students who agreed/strongly agreed with the following statements*



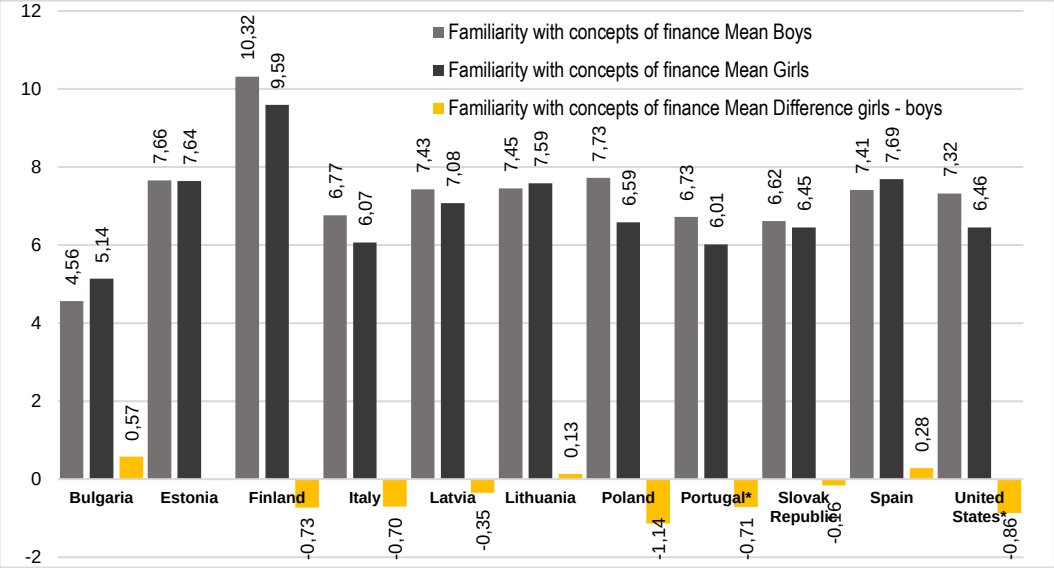
Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1.4.12. *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable

Considering the average of all selected countries, 15-year-old girls are falling behind boys in the number of complex financial terms for which they know the correct meaning. In this respect, however, the Italian gender gap is not much wider than that found for other countries (Figure 8). Obviously, in

[14] A classic example could be that girls are autonomous in spending money, but not free in earning it. For instance, some Italian parents forbid their daughter from working as waitresses, as they consider it an occupation "not appropriate" for teenage girls (Rinaldi et al., 2003). Indeed, in Italy work experience during the teenage years is less widespread among girls than boys (ISTAT, 2019).

most cases boys and girls in all countries are taught in gender-mixed classrooms and consequently follow the same curriculum and teaching programmes. Therefore, girls and boys might be expected to participate to the same degree in financial education lessons, programmes, and contents. Still, the results show girls reported having less experience in financial education programs and initiatives than boys. As a personal and subjective recollection of the past, girls might well tend to forget occasions of financial education more than boys, perhaps because such teaching took place in the context of other subjects or because selective memory focuses more on the lessons that aroused the most interest. In any case, however, this data indicates boys' and girls' divergent relationship with financial education in socialization outside of school (Bowen, 2002; Danes, Haberman, 2007, Webley, Nyhus, 2013; Agnew et al., 2018).

FIGURE 8. *Learning about financial/economic terms in school, by gender: familiarity with financial concepts.*



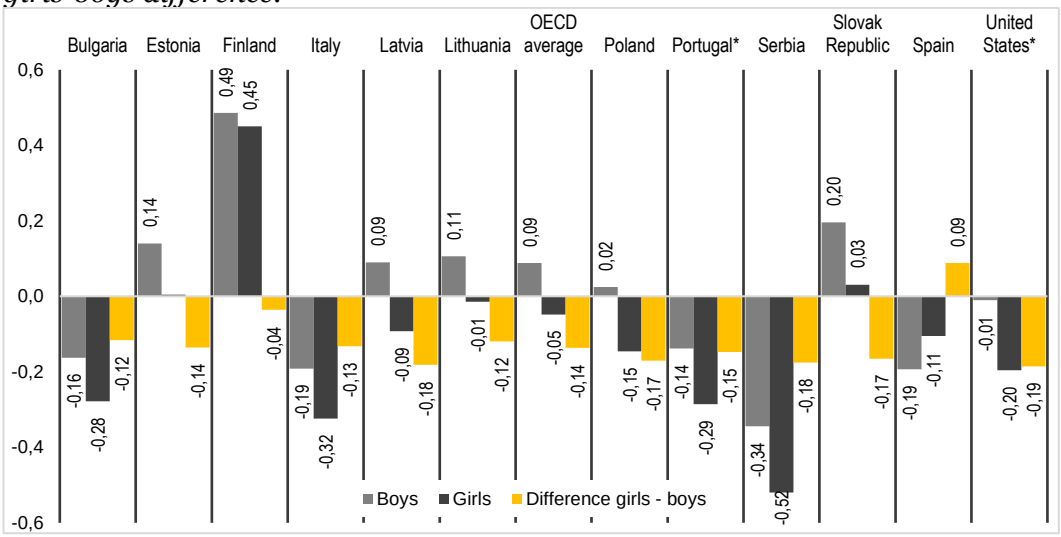
Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1.5.3. *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable

As the figure above clearly shows, Italian girls' mean score for financial education via school lessons[15] is the lowest of all the girls considered here (except for Serbia) and 0.13 points lower than that of Italian boys. This gender gap in favour of boys can also be seen in the proportion of students who had encountered money-related tasks and activities in class. In Italy, this gender

[15] The index of financial education in school lessons (FLSCHOOL) is constructed by OECD-PISA experts by aggregating students' responses as to «how often ("never", "sometimes", "often") describing the purposes and uses of money; exploring the difference between spending money on needs and wants; exploring ways of planning to pay an expense; discussing the rights of consumers when dealing with financial institutions; discussing the ways in which money invested in the stock market changes value over time; analysing advertisements to understand how they encourage people to buy things» (OECD, (2020a: 148). Positive values mean that students are more exposed to financial education in school lessons than is the student average across countries.

gap is statistically significant for tasks and activities related to financial institutions (8.7 percentage points) and stock market value change over time (9 percentage points) (Table 6).

FIGURE 9. *Mean index of financial education in school lessons by gender and girls-boys difference.*



Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1.5.10. *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable

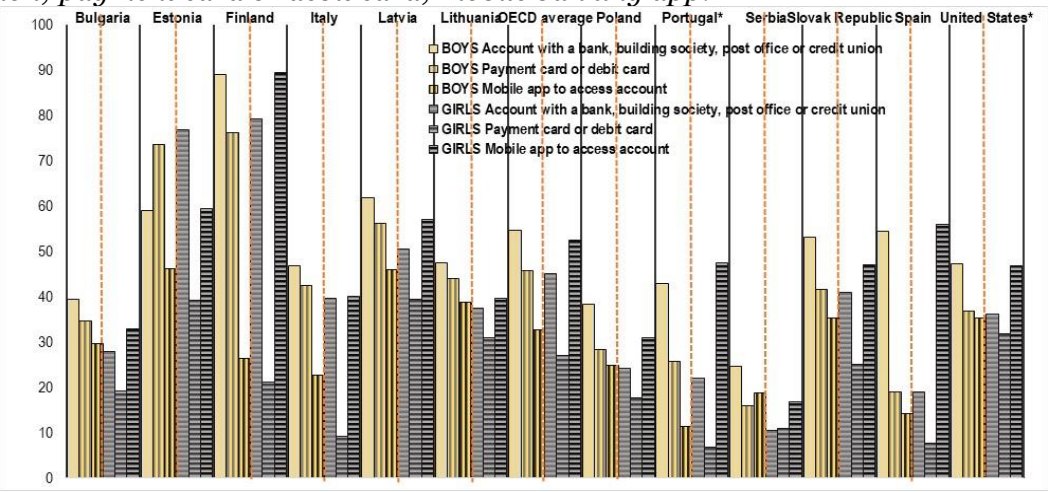
TABLE 6. *Difference in girls-boys percentage for those who had encountered the following types of tasks or activities sometimes or often in a school lesson over the previous 12 months*

	Describing the purpose and uses of money	Exploring the difference between spending money on needs and wants	Exploring ways of planning to pay an expense	Discussing the rights of consumers when dealing with financial institutions	Discussing the ways in which money invested in the stock market changes value over time	Analysing advertisements to understand how they encourage people to buy things
Bulgaria	-3.4	-1.8	-2.5	-5.8	-4.7	-0.4
Estonia	-2.3	-3.8	-4.5	-11.0	-10.0	1.1
Finland	1.8	-2.2	-8.3	-3.3	-5.5	-0.5
Italy	-6.4	-2.6	-5.6	-8.7	-9.0	-4.4
Latvia	-5.6	0.3	-5.9	-11.0	-14.8	-8.8
Lithuania	-1.9	-3.1	-2.7	-7.2	-6.2	-1.5
OECD average	-4.1	-3.1	-6.3	-8.7	-8.7	-3.0
Poland	-2.0	-5.0	-8.5	-8.8	-8.7	-2.7
Portugal*	-8.3	-3.7	-7.9	-9.0	-10.6	-2.1
Serbia	-3.6	-6.9	-7.1	-9.8	-10.2	-6.3
Slovak Republic	-2.6	-3.1	-6.4	-11.2	-11.5	-6.6
Spain	-1.4	4.1	-0.7	-3.2	-0.5	5.1
United States*	-6.6	-5.5	-8.5	-13.1	-9.6	-5.5

Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1.5.10. *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable

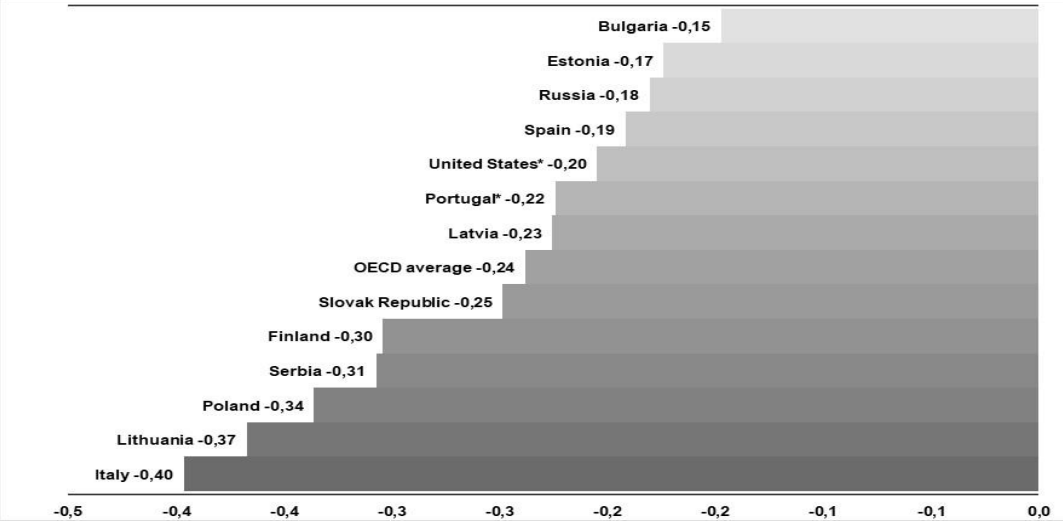
According to OECD-PISA 2018 assessment data, girls have fewer chances to maintain an account with a financial institution or a payment/debit card and, above all, to be involved in digital financial transactions. Although the proportion of Italian boys with a bank account, debit card or a mobile banking app is lower than the average of boys in other countries, it is still higher than that of Italian girls who have these basic financial tools (Figure 10).

FIGURE 10. *Having basic financial products, by gender. Percentage of boys and girls who have an account with a bank, building society, post office or credit union; payment card or debit card; mobile banking app.*



Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1.6.3. *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable

FIGURE 11. *Index of confidence in using digital financial services. Difference girls-boys*



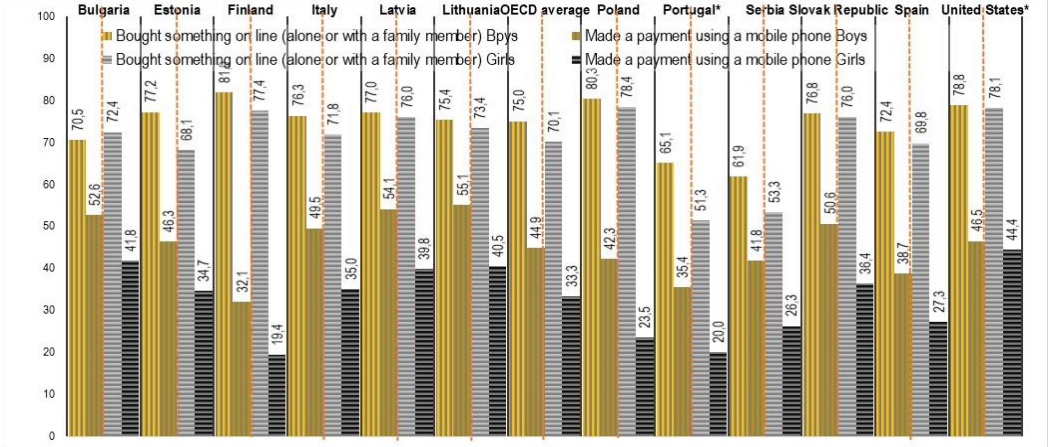
Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1. 7.2. *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable

Boys on average also seem more familiar than girls with making use of digital financial services: in all the countries considered, the index of

confidence in using digital financial services[16] is higher amongst boys; Italy has the highest gender gap disadvantaging girls (Figure 11).

Hence, within a global trend of gendered patterns of socialization in digital financial tools impacting on teenagers' financial literacy (Helsper, 2010; Gammage et al., 2017), Italian girls risk being left far behind in digital finances: the proportion of Italian 15-year-old girls who had made an online purchase or a payment using their mobile phone in the last year is respectively 4.5 and 14.5 percentage points lower than that of Italian boys. These outcomes suggest that girls' digital financial technology habits are far less established than boys' (Figure 12).

FIGURE 12. *Digital financial activities, by gender. Percentage of boys and girls who had bought something online and/or made a payment using a mobile phone.*



Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1. 6.10. *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable

Gender stereotyped habits might be a key factor in explaining the gap between girls and boys in financial awareness and skills. As a matter of fact, on OECD average less girls than boys report receiving money from an allowance, working outside school hours in petty or informal jobs, working in a family business or selling things (Table 7). The Italian girls versus boys gap in earning pocket money is remarkably wide for working outside school hours and/or in a family business, a sign that families and society at large are still inclined to provide beginning job opportunities according to a traditional gender role division by which boys need to be trained and accustomed to earning money to strengthen their masculinity while girls can wait to bolster their femininity until they finish school (Mortimer et al., 1990).

[16] The index (FLCONICT) is calculated on the extent to which students feel "not at all confident", "not very confident", "confident" or "very confident" when «using digital or electronic devices outside of a bank: transferring money; keeping track of their balance; paying with a debit card; paying with a mobile device instead of using cash; and ensuring the safety of sensitive information when making an electronic payment or using online banking» (OECD, 2020a: 148). Positive values mean that students express more familiarity with using digital financial services than does the average student across OECD countries.

TABLE 7. *Sources of money, by gender. Percentage difference between girls and boys receiving money from various sources.*

	An allowance or pocket money for regularly doing chores at home	An allowance or pocket money without having to do any chores	Working outside school hours (e.g. a holiday job, part-time work)	Working in a family business	Occasional informal jobs (e.g. babysitting or gardening)	Gifts from friends or relatives	Selling things (e.g. at local markets or on eBay)
Bulgaria	-10.7	5.5	-13.9	-15.4	-13.7	8.0	-16.9
Estonia	-17.3	5.0	-5.5	-7.2	-6.3	6.8	-11.7
Finland	-10.6	-1.8	-4.8	-8.5	2.4	5.3	1.2
Italy	-7.8	-3.1	-12.6	-12.0	-6.6	7.6	-19.1
Latvia	-14.4	7.4	-11.4	-12.1	-3.9	8.8	-16.7
Lithuania	-11.4	0.2	-15.7	-12.9	-5.3	6.9	-15.3
OECD average	-8.6	2.5	-9.1	-9.3	-2.1	6.1	-12.9
Poland	-12.1	4.5	-11.7	-10.1	-7.7	9.5	-14.3
Portugal*	-6.5	-0.9	-10.4	-10.0	-5.4	2.5	-15.3
Serbia	-16.7	3.2	-22.0	-15.7	-15.1	6.3	-20.0
Slovak Republic	-10.8	4.6	-12.6	-9.6	-10.0	6.1	-13.6
Spain	-6.6	1.8	-7.2	-8.7	-0.5	4.2	-14.5
United States*	-5.0	9.4	-10.7	-8.7	1.2	5.0	-17.3

Source: processing of PISA 2018 results (Volume IV) - OECD 2020 Table IV. B1. 6.15. *Data did not meet the PISA 2018 technical standards but were accepted by OECD as largely comparable

4. SELECTED FACTORS EXPLAINING GENDER GAPS IN BOYS AND GIRL'S FINANCIAL LITERACY AND ATTITUDES

Despite the extensive literature published in the last decade, there is no clear, standalone model adequately explaining gender gaps in financial literacy. However, here below we review the main approaches we believe may contribute to framing Italian teenagers' gender gap.

4.1. Materialism

European countries are still characterised by a set of values in which materialism remains highly important, even more for men than for woman (European Commission, 2012). We can define materialism as the importance given to money as a mean of achieving happiness. Statistics shows that men do earn more than women, with a gender pay gap significantly higher in southern European countries (European Commission, 2017). Indeed, surveys on children (Rinaldi, Giromini, 2002; Orizzonti TV, 2018), preadolescents (Rinaldi, 2010) and teenagers (Dei, 2006) in Italy find that boys assign more relevance to money as a route to happiness and success than do girls. Furthermore, boys more frequently associate money with positive concepts such as respect, power, prestige and job satisfaction than negative or ambivalent ones such as greediness, cupidity, or selfishness (Prince, 1993;

Zelizer, 1994; Deutsch et al., 2003), while girls display a more mixed attitude. Since money is more relevant and positive for boys than for girls, it is reasonable to expect boys will also be more implicitly "embedded" in social contexts and personal realms correlated with the financial domain, thereby achieving greater financial literacy.

A recent survey of 1,200 Italian primary school students found that, at as young as 8-10 years old, boys are significantly more willing than girls to have a high-paying job as adults (Orizzonti TV, 2018). Such orientations may foster the beliefs that create the cultural framework that actors, even at an early life stage, use to perceive and enact gender differences and inequalities. For example, if girls think that "money is dirty" or expect to earn less than men, they may be less willing to talk about it with peers, spend time studying it, negotiate a higher salary at job interviews or chose more remunerative careers and jobs. This mechanism may reproduce, in adulthood, gender gaps not only in financial literacy, but also in income and job type.

4.2. Parents as role models

Gender differences in values as well as perceived abilities or expectations do not appear suddenly; they develop over time. They are influenced by gender-role socialization, stereotyped expectations and encouragement from others, and sociocultural norms as well as individual characteristic and experiences. Over the course of socialization, studies have shown that parents can act as powerful role models for children in many domains such as smoking (Jester et al., 2019) or sports (Côté, 1999).

If we accept the hypothesis of social learning from a parent's example, observing a specific distribution of financial power, knowledge, management or control within the family, children may consolidate – through identification with the same-sex parent – their attitudes and ultimately behaviours around money. It bears recalling that gender differences in financial literacy among the adult population remain significant in Italy (Hasler, Lusardi, 2017). As Preston and Wright (2019) note, gender disparities in adulthood financial literacy may reflect a rational choice by partners based on their assessment of the costs/benefits of time use and preferences for the maximisation of utility in the household (Becker, 1985). Indeed, empirical studies show that males in Italian households are more likely to be the primary decision-makers regarding saving, investment and borrowing when their female partner is less educated (Facchini, 2008; Fonseca et al., 2012). Such divisions of labour or "household specialisation" may reflect a rational choice by respective partners (on the assumption that households act as single decision-making units). Therefore, it would be rational for the partner specialized in financial activities to invest more effort and time in acquiring more knowledge in the financial domain. For example, research into the social construction of gender identity conducted among preadolescents in Italy (Besozzi, 2003) has documented that boys are more willing than girls to "demand" their right to receive money from their parents: when ranking the features of "good parents", boys assign greater importance to "giving children the possibility to have money" than do girls.

These findings may also be due in part to the fact that, as indicated by Williams (2001), girls are more affected than boys by «commodification anxiety», i.e., the fear of a world sullied by the commodification of intimate relationships in which money pervades even family relationships and the «economy of care», as also found in Italy (Rinaldi, 2010). Thus, girls (like or partially following their mothers) may tend to attach less importance to money and the right to receive it, reducing their chances of learning how to manage and use it. These hypotheses may be theoretically supported by popular family studies theories from the mid-20th century, such as Blumer's symbolic interactionism in which gender roles were socially assigned specific duties, with men given the role of financial provider and allocator (White, Klein, 2002), and women that of (unpaid) care-giver and emotional support provider (Preston, Wright, 2019). Although couples in which the women earn more than men show signs of more pro-female financial arrangements (Fraboni, 2019), the hypothesis of same-sex parental role-models having significant influence in familial financial socialization seems to play a key role in explaining the Italian financial literacy gender gap.

4.3. Gendered values and norms within the family

International research suggests that the gender gap in financial literacy arises from gender-differentiated sets of practices and expectations that parents display towards children, which may cause girls to develop distinct fears, preferences, and confidence levels in financial matters (Prince, 1993; Rabow, Rodriguez, 1993; Zelizer, 1994; Newcomb, Rabow, 1999).

Italian studies find that boys receive more pocket money than girls (Ruspini, 2012). During childhood, boys declare that parents encourage them to pursue more remunerative jobs in the future than girls (Rinaldi, Giromini, 2002). A further survey from ISTAT (2011) documented that 53% of boys aged 14-17 have a regular allowance but only 42.1% of girls do, although the latter occasionally receive money "on demand". This suggests that parents encourage boys, more than girls, to develop financial skills and autonomy, in keeping with the results discussed above (Figure 2). Furthermore, as money is a "sensitive" subject in family relationships, students' self-reported answers may be insufficient, while questionnaires filled in separately by parents and children could provide more accurate results (Webley, Nyhus, 2006; Rinaldi, 2007).

4.4. Self-confidence in the financial domain

Several studies have also found that boys are more confident in managing money than girls (Chen, Volpe, 2002; Hira, Mugenda, 2000; Hira, Loibl, 2008) and the same is true among adults in Italy (Hasler, Lusardi, 2017). Prior research suggests that males are more overconfident than women when the behaviour or task is expected to be masculine or in uncertain situations (Barber, Odean, 2001). Many aspects of financial planning such as investing have historically been considered masculine tasks and fraught with risk (Hira, Mugenda, 2000; Croson, Gneezy, 2009). These results may reflect a status belief, once again in line with status characteristics theory

(Berger et al., 1998; Ridgeway, 2001; Ridgeway, et al., 2009). According to this theory, gender inequalities are due in part to status beliefs, i.e. «widely held cultural beliefs that link greater social significance and general competence, as well as specific positive and negative skills, with one category of a social distinction (e.g., men) compared to another (e.g., women)» (Ridgeway, 2001: 638). Under this premise, Italian girls might feel less self-confident about their money knowledge (and management) than boys, since their self-evaluation is affected by a status belief. This could explain why significantly more women answer "do not know" in financial literacy tests than do men, even when they actually know the correct answer (Bucher-Koenen et al., 2017).

CONCLUSIONS AND IMPLICATIONS

The study of gender differences in financial literacy, and in adolescents' and adults' financial socialization patterns more broadly, is currently considered highly relevant for multiple reasons. Firstly, the 2008 financial downturn has strongly affected women's labour market participation in Europe, increasing the chances of falling into poverty especially for single parent, divorced, widowed and/or elderly women (European Commission, 2017). Even today labour markets offer young women fewer job opportunities than men, especially in Italy where women's current economic disadvantage may be even more dramatic because of COVID-19. Secondly, despite their increasing educational achievements, Italian women still are more likely than men to work temporary, low-skilled and low-paying jobs and to receive lower pension benefits when retired (Barbieri, Cutuli, 2009; Angelici et al., 2020).

After a brief overview of the state of the art of financial education project in Italy as compared to other countries, the chapter focussed on 15-year-old Italian students' financial literacy as measured by the most recent PISA 2018 assessment. As highlighted by previous waves of PISA, gender gaps in financial literacy are considerably deeper (and more statistically significant) in Italy than in other countries, and overall performances have deteriorated over time. Italy's data trend, furthermore, runs opposite to that of other countries that instead show improving results for both sexes. Similarly, the share of students scoring highest for financial literacy has been decreasing in Italy and increasing for the other countries: in fact, the proportion of Italian girls with low financial literacy proficiency scores is the highest amongst all the countries included in the PISA assessment. Moreover, Italian girls outnumber Italian boys in the low and medium levels of proficiency, while they are outnumbered by boys in top levels 4 and 5. Even considering the influence of proficiency in mathematics and reading, the gender gap in financial literacy in Italy persists. Looking for variables that differentiate teenagers' financial socialization patterns, we found a striking gender-

marked factor in "friends as a source of information about money matters": in Italy, boys report receiving financial information from friends more than girls do. Research conducted abroad (Erskine et al. 2006) and in Italy (Rinaldi, 2010) on adolescents and preadolescents has shown peer groups play a significant role in money-saving behaviours. We can then speculate that this influencing role may also affect interest in finance and financial knowledge, with boys talking more about money matters and promoting informal learning which, in turns, increase their financial literacy. In addition, a recent study by Driva and colleagues (2016) on 13-15-year-olds finds that stereotypes also play a major role in certain areas of financial socialization: females' financial knowledge deteriorates with stereotype intensity, whereas males' knowledge increased. While there is no proven causal relationship between gender stereotypes and financial knowledge, financial literacy gender gaps and stereotypes are both at play at young ages, which is consistent with the notion that stereotypes influence teenagers' investments in acquiring financial literacy. As there is evidence of powerful stereotypes in occupational segregation beginning in childhood in Italy (Sagone, et al., 2018), further research is needed to establish such causal links and, more generally, to understand the formation of gender stereotypes in domains straightforwardly related to the financial realm.

Another noteworthy finding is that Italian girls' mean score in the index of financial education in school lessons is the lowest among girls from major western countries: this may be due to either less frequent exposure to money-related tasks and activities in class, or a more limited "recollection" of it (while boys, being more interested in certain topics, may be better able to remember these more engrossing subjects). Italian male teenagers are also more familiar with bank accounts, payment or debit cards, and mobile banking apps, tools which may enhance their familiarity with the terms, activities, and information comprising financial knowledge. Both results require further investigation.

There is still no clear model that can satisfactorily explain the gap in Italy. We have discussed possible meso-factors that may permeate Italian boys' and girls' financial socialization context (such as materialism, expectations in the couple, gendered values and norms in family practices, and self-confidence), but we do not yet have a standalone explanation. A recent study by Longobardi and colleagues (2018) on factors explaining gender differences in financial literacy suggests that the family still has a direct impact on financial literacy attainment even after accounting for the mediating effect of students' gendered attitudes and motivations, thereby highlighting the important role of the familial context in shaping financial literacy gender differences. In other words, as posited by the cultural perspective on the sociology of money framework (Baker, Jimerson, 1992), the symbolic meanings, preferences and attitudes that boys and girls associate with money while growing up may play a significant role in their use of money and acquisition of financial knowledge. These factors, together with the influence of socio and cultural dimensions, deserve further investigation.

The ever-increasing number of projects promoting financial education in Italy can be considered an encouraging sign of various institutions' efforts

to improve Italians' financial knowledge (Banca d'Italia, 2017). Nonetheless, some critiques have been raised on the effective non-commercial purposes of some of these initiatives. In our opinion, financial literacy would best be improved not by either eliminating financial literacy programmes to rely instead on improved control and law enforcement (a measure that we consider complementary and not substitutive of financial education), or by making it a compulsory subject in the national curriculum, aware that such inclusion does not automatically address gender gaps. Based on our analyses and suggestions made by practitioners and scholars in Italy (Rinaldi, 2019b), three priority policies would need to be implemented and reinforced:

i) Better coordination of all existing projects: this is could be carried out by an independent entity, legitimized by the main institutional actors, which could provide detailed guidelines and clearer and more specific goals, such as improving female financial literacy. Previous editions of the *National Strategy of Financial Education* provided very general goals which are not much help in designing more effective interventions.

ii) Additional resources and tools for evaluation would be needed to study the efficacy of financial literacy projects in terms of enhancing girls' competences. It is fundamental for evaluations to be carried by independent research groups that do not have conflicts of interest with those carrying out the projects and are able to provide suggestions and feedback during the course of the project and not only *ex-post*.

iii) The one-size-fits-all approach manly used to date has dramatically disregarded the highly divergent financial education needs of different segments of the population (Cervellati, 2017; Nicolini, 2019). Attempts should be made to enact educational projects not only targeted more specifically to girls, but also with better communication campaigns to raise motivation and awareness. Families and parents may also play a significant role in promoting better financial literacy among girls: inter-generational projects may be tested as well as web-based activities engaging both students and their parents, using the internet to augment familiarity with digital financial tools. Italian policy makers and educational authorities should allocate resources to enhancing not only the quantity of financial education activities but their quality as well, promoting real improvements in the financial literacy and well-being of Italian girls and boys now and in future generations.

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