FINANCIAL SOCIALIZATION, STRENGTH OF SOCIAL TIES AND INVESTMENT LITERACY OF INVESTORS IN PEER-TO-PEER (P2P) LENDING PLATFORMS

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Abstract

This study explores survey data of investors in peer-to-peer (P2P) lending aiming to assess their investment literacy, how this literacy is affected by their financial socialization and the strength of their social ties, and whether this effect differs among investors' sociodemographic groups. Our research model was built based on Gudmunson and Danes (2011), Gudmunson et al. (2016) and Potrich et al. (2016). It measured investment literacy, assessing three components — knowledge, skills and attitudes; included multiple socialization agents; and investigated both direct and indirect effects of financial socialization. Descriptive and reliability analysis, confirmatory factor analysis (CFA), t-tests, analysis of variance (ANOVA) and second-order structural equation modeling (SEM) analysis were employed. The results indicate that the investment literacy of P2P lending investors is high. The compound direct effect of financial socialization on the overall level of investment literacy was found to be positive and stronger than on its individual components. Although the strength of social ties had a strong influence on financial socialization, its indirect effect on investment literacy was rather weak. Peers proved to be the main socialization agent and exhibited the strongest social ties with the respondents. The strongest effect of financial socialization on the investment literacy was identified for P2P lending investors in 18–34 years group working in the financial sector with a net monthly income below 1500 euros. The research contributes to the existing literature by providing the methodology and valuable insights into the level of financial literacy among P2P investors and how investment literacy is or is not formed under social interaction in a close social environment.

Keywords: Investment Literacy, Financial Socialization, Strength of Social Ties, P2P Lending, SEM

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1. INTRODUCTION

Over the last decades, globalization, technological innovations and digitalization have been among the key factors reshaping financial markets. Additionally, these factors have facilitated the development of innovative financial products and services in the fields of payments, saving,

borrowing, investment, insurance, etc. Peer-to-peer (P2P) lending, as a type of crowdfunding, has become a new "norm" in financial markets around the world, allowing individuals to more easily participate in the financial market and quickly borrow or invest relatively small amounts of money. Although this type of lending creates new opportunities for financial market participants, it also requires market participants to make more complex financial decisions than ever before (Sharif & Naghavi, 2020); it also brings about some threats associated with the specific characteristics of innovative financial services, as well as the manner and speed of making financial decisions. Market participants are not only faced with an increasing supply of innovative financial products (Bruton et al., 2015) but are also challenged by the higher complexity and sophistication of these products (Lusardi et al., 2017). In regard to innovative financial services, behavioral models are more suitable for explaining the financial decision-making process, as they are based on a multiplicity of determinants for investors' behavior (D'Orlando & Sanfilippo, 2010) and focus on the financial literacy, cognitive abilities, psychological aspects and bounded rationality of real investors (Frydman & Camerer, 2016).

Innovative financial services differ from traditional ones in such characteristics as a higher reliance on technological innovations and application of digital solutions, speed of innovations, a lower amount of minimum investment, easier access, nontraditional providers, higher investment risk, lower level of regulation of the services and their providers, etc. (Butticè & Vismara, 2022). Specific characteristics of innovative financial services, as well as of dynamic investment environments, constantly force market participants to gather new knowledge to develop or adapt existing skills and attitudes toward innovative financial services or financial decision-making. Here, social interaction with one's peers, families, service providers, media and others, who are also known as financial socialization agents, might play a crucial role, as we believe that formal education lags behind the integration of up-to-date market developments. In this study, we also explore the strength of social ties with specific agents, as this aspect could even further strengthen financial socialization outcomes (Kim et al., 2011). At the same time, we question a popular perception in financial markets that users of innovative financial services possess low levels of innovative financial services-related investment literacy and, therefore, act opportunistically or make less rational financial decisions. This paper focuses on the investment side of innovative financial products and services and explores investment literacy, financial socialization and the strength of social ties with socialization agents of P2P lending investors.

Little is known about the innovative financial product- and service-related investor behavior and its determinants (Gao & Fok, 2015). Moreover, research on such investors' literacy is also quite scarce. For example, some research has concentrated on the link between cryptocurrency and financial literacy (Arias-Oliva et al., 2019). The expansion of the P2P lending market is also hardly possible without the enhanced financial literacy of citizens (Oh & Rosenkranz, 2020), however previous research (Lusardi & Mitchell, 2011) demonstrates that young adults still lack basic knowledge of interest rates, inflation, and risk diversification, therefore, there is the need for more financial literacy on P2P platforms (Gonzales, 2023). It has been shown that more financially literate investors receive relatively higher returns on P2P platforms than their counterparts (Ran et al., 2019). Therefore, the first objective of the paper is to assess the investment literacy of investors in P2P lending platforms.

The second objective of this study is to fill in the gap concerning the investment literacy of people who choose to invest in innovative financial products or services, namely, P2P lending, and how this literacy is affected by their financial socialization and the strength of their social ties with socialization agents. Similar to Jorgensen et al. (2017) and Kim and Torquati (2021) in our research, we also control for sociodemographic characteristics; the third objective is to identify whether the effect of financial socialization and social ties differs among the respondents' sociodemographic groups.

All concepts under investigation, i.e., financial literacy, financial socialization and social ties, are complex phenomena. Therefore, in Section 2, we first review the literature on financial literacy (we expand our review to financial literacy as the research on investment literacy is rather limited), financial socialization and social ties to develop a conceptual framework capturing the complexity of the issue under investigation. Section 3 explains our research methodology. The conceptual framework, along with a discussion of our assumptions and research approach is described in subsection 3.1. Then, subsection 3.2 is dedicated to the dataset, and subsection 3.3 explains our research methods. The results of the research are presented in Section 4. The paper finalizes discussion in Section 5 and conclusions in Section 6.

2. LITERATURE REVIEW

2.1. Investor behavior and financial literacy

Financial literacy was and remains an area of high interest among academia, politicians, financial market participants and society. Many studies have already shown that financial literacy plays a crucial role in making household decisions such as spending (Setiawan et al., 2022), retirement planning (Lusardi & Mitchel, 2017), borrowing (Almenberg et al., 2021), insurance (Pitthan & DeWitte, 2021) and, in particular, investing (Atkinson & Messy, 2012; Lusardi & Mitchell, 2014; Peng et al., 2022).

According to Martín-Oliver and Salas-Fumás (2011), investor behavior defines how an investor evaluates, analyzes, forecasts, and reviews decision-making procedures, including aspects such as investment psychology and investment decision-making, i.e., gathering, understanding, analyzing, and evaluating information. Research on investor behavior is centered on investing decisions and their determinants (Hunguru et al., 2020), with the financial literacy of individual investors being one of the major determinants among these determinants. For example, financial literacy is revealed as a significant determinant of stock

market participation (van Rooij et al., 2011). Families with a high level of financial literacy significantly increase their investment in risky financial assets (Li et al., 2020; Peng et al., 2022).

Recent research has tended to focus on separate domains of financial literacy, such as debt literacy (Lusardi & Tufano, 2015), insurance literacy (Lin et al., 2019), investment literacy (Fan & Chatterjee, 2020) and even bitcoin literacy (Hidajat et al., 2021), and explore them separately, as each area of financial decision-making requires some area-specific knowledge, skills, and attitudes. Even though the concept of financial literacy is more widely used than investment literacy in the scientific literature, the latter more accurately evaluates specific knowledge, skills and attitudes toward investors' decisions.

2.2. Conceptualizing investment literacy

In this paper, we concentrate on investment literacy; however, to do so, we need to refer back to some relevant aspects of financial literacy and adapt them where applicable. Our concept of investment literacy is based on financial literacy phenomena that integrate multidimensional aspects: the cognitive dimension (financial, or more specifically, investment knowledge), the practical dimension (financial/investment skills/behavior) and the psychological dimensions (financial/ investment self-efficacy/attitudes) (Remund, 2010). The Organisation for Economic Co-operation and Development (OECD, 2013) has defined financial literacy as a blend of skill, behavior, awareness, attitude and knowledge of individuals that are required to make sound financial decisions that lead toward the achievement of financial well-being. Most researchers who apply a multidimensional approach to financial literacy choose the following three elements of this phenomenon: knowledge, behavior and attitudes (Atkinson & Messy, 2012; Potrich et al., 2016; Rai et al., 2019). The key difference between financial and investment literacy lies in their content. Investment literacy concentrates on investment and investment decision-making-related knowledge, skills and attitudes and is more focused than broad-scope general financial literacy. In the case of investment literacy, such an application would be largely limited to investment- and wealth maximization-related decisions.

An individual's financial knowledge is the most researched constituent part of financial literacy and is often measured by a series of financial knowledge questions (Lusardi, 2019; Kramer, 2016). Some researchers include not only objective but also subjective financial knowledge, which is often measured using a self-rated question to assess the perceived financial knowledge (Nguyen et al., 2017). The fact that financial skills and behavior are also very important and fundamental components of financial literacy has also been indicated by different researchers (Atkinson & Messy, 2012; OECD, 2013). Kasman et al. (2018) stressed the importance of measuring not only the level of financial knowledge but also an individual's financial attitudes. According to Rai et al. (2019), financial attitude can be defined as personal inclination toward financial matters. We believe that while the abovementioned aspects are transferable to the measurement of investment literacy, measurement instruments must reflect on the area-specific content.

Specifically, investment literacy, or the investors' knowledge of investment and the ability to use this knowledge effectively, has been a focus of several studies in behavioral finance that have proven its prominence. For example, Fan and Chatterjee (2020) analyzed robo-advisor adoption behavior in connection with one's investment literacy. Volpe et al. (2002) devoted their work to the investment literacy of online investors and aimed to determine the relationship between their knowledge and investing experience, education, gender, and other factors. Halim et al. (2021) concentrated on the current state of investment literacy and readiness to participate in the stock market of a population of young adults in Malaysia. Takeda et al. (2013) revealed that the higher investors' investment literacy is, the lower their level of overconfidence bias is.

In regard to innovative financial products and services, the research has also shown the major role of investment literacy. Kim et al. (in press) indicated that objective investment literacy is negatively associated with holding cryptocurrency, while subjective literacy is positively associated with holding cryptocurrency. Overconfident investors are more likely to invest in cryptocurrency. Ran et al. (2019) results demonstrate the importance of financial literacy for both borrowing and investment in online P2P lending.

These results suggest that a high level of investment literacy can prevent investors from making biased investment decisions. As Takeda et al. (2013) stated, efforts made to improve investors' investment literacy by enhancing social systems could be beneficial in guiding investors to make unbiased investment decisions. We were not able to find any research that explores how innovative financial products and service-related investment literacy are formed in the social environment and what are the main determinants of this formation process; therefore, our research aims to fill this gap.

2.3. Financial socialization, social ties and investment literacy

The conceptual pathway from financial socialization to financial literacy is compelling and supported by data (Lusardi, 2019). However, the liaison between investment literacy and financial socialization in the context of innovative financial products is under-researched.

Socialization in a general sense is understood as the inclusion and adaptation of an individual in society. Financial socialization, however, is understood as a learning process wherein knowledge about money and money management is acquired and skills are developed in various financial practices, such as banking, budgeting, saving, insurance, using credit cards and investing (Bowen, 2002).

As proposed by Gudmunson et al. (2016), gaining financial knowledge or practicing new skills are considered proximal outcomes of financial socialization, which in time develops into the ability to independently perform particular financial

activities and create financial wellbeing (distal outcomes). Individuals acquire financial knowledge, skills and attitudes through different agents of financial socialization. Moschis (1987) was the first to distinguish four major agents of financial socialization: parents, peers, education, and media. According to Moschis (1987), financial socialization agents are described as interactions with the social environment through which individuals acquire financial knowledge or form financial behavior through different financial socialization channels. The most researched channels of financial socialization are financial discussions and lessons (Gibby et al., 2021); instructions or sources of financial/economic information (Cho et al., 2012); behavior modeling (Gibby et al., 2021; Mohamed, 2017); and learning through experience (LeBaron et al., 2019). Some of the channels are more common for some agents than others; for example, behavior modeling is commonly attributed to family and friends/colleagues/peers.

In regard to the research on financial socialization agents, our analysis revealed that the family is considered the main agent of financial socialization and is most widely explored, while other agents are under-researched (Cho et al., 2012). The breakthrough in family financial socialization research could be associated with the conceptual model of family financial socialization presented by Gudmunson and Danes (2011), as a number of researchers have relied on this model afterward. In recent decades, financial education has also been increasingly evaluated as a financial socialization agent. However, it is often evaluated only tentatively as one's engagement in taking financial, economic or mathematics lessons (Agnew, 2018; Gutter & Copur, 2011), while the content of these lessons is not evaluated. Additionally, in the 21st century, more attention has been given to the agents of friends/colleagues or peers and their importance in shaping individuals' economic and financial knowledge, attitudes or behavior patterns. Media as a socialization agent is not widely studied in the context of economic and financial socialization. The authors (Sohn et al., 2012) who have assessed media as an agent of financial socialization have viewed it rather basically, i.e., only as a source of financial/economic knowledge. There are also some studies (Wu & Lin, 2017) that have evaluated the impact of media on an individual's financial behavior; however, they do not examine financial socialization. Additionally, there are a limited number of empirical studies that have evaluated financial socialization agents all together (Cho et al., 2012; Copur & Gutter, 2019) and assessed their complex effects. We believe that in the global, dynamic and rapidly changing financial system, there is no single most important agent of financial socialization; rather, their joint efforts should lead to a higher effect. Therefore, it is relevant to assess not only the individual agents of financial socialization and the directions of their impact but also the complex effect of all agents of financial socialization. Our research facilitates knowledge in this area.

Empirical studies of financial socialization have mostly analyzed teenagers and students (Agnew, 2018; Glenn & Heckman, 2020; Kim et al., 2011; Moreno-Herrero et al., 2018; Shim et al., 2015; Sohn et al., 2012, Drever et al., 2015). Children and teenagers are particularly receptive to new information and behavior patterns, which is why financial socialization studies are popular among respondents of this age group. Studies of financial socialization in adult samples are on a much smaller scale (Copur & Gutter, 2019; Gibby et al., 2021). Additionally, previous empirical studies have not evaluated the users of a specific financial service and the impact of financial socialization on them. This finding supports the importance and novelty of our research on adult investors in a specific financial product.

In this study, we also build on the importance of the intensity or strength of social ties (sometimes referred to as social interactions) with specific agents, which is analyzed as an interrelated part of financial socialization (Agrawal et al., 2015; Gao & Fok, 2015; Kim & Torquati, 2021; Lin & Viswanathan, 2016). Most researchers include the aspect of social ties intensity when analyzing parental influence, referring to it as parental warmth (Gudmunson & Danes, 2011; Kim et al., 2011). Gudmunson and Danes (2011) included relationships with parents in their family financial socialization model while taking the direct and indirect effects (through purposive financial socialization) of this factor on the proximal outcomes of financial socialization, such as financial literacy. In the peer context, Alshebami and Aldhyani (2022) found that peer influence (measured as social ties with peers, peer discussions and behavior modeling) has a positive and significant impact on respondents' financial literacy and saving behavior. However, the study did not isolate the strength of social ties but rather measured its effect along with the other socialization mechanisms. Although there are a few studies on social interactions and their impact on financial behavior (Hong et al., 2004), the analysis of social ties with individual agents, except family, and their impact not only on financial behavior but also on proxy variables such as financial literacy is very under-researched. From the behavioral finance perspective, social ties could be an important factor in explaining the formation of behavioral biases (for example, herding). In regard to financial products and services, taking into consideration their novelty, speed of innovations and easy access and lower or no regulation, social ties could be an important factor influencing investors' behavior and facilitating their investment literacy formation.

2.4. Sociodemographic characteristics, financial socialization and financial literacy

Research on financial literacy and financial socialization has also revealed the importance of sociodemographic variables such as gender, age, income, qualification and education. Sociodemographic variables are the most commonly researched determinants of the differences in the levels of financial literacy or financial socialization.

A number of studies have identified significant differences in financial literacy levels according to gender. For example, Cupák et al. (2018) disclosed that in OECD countries, on average, women score lower on financial literacy than men. Bottazzi and Lusardi (2021) revealed that according to data on financial literacy from more than 140 countries,

gender differences are present everywhere, i.e., from developing to advanced economies. In the context of income, the financial literacy level tends to increase with an increase in income (Lusardi & Tufano, 2015). Low-income individuals and less-educated people tend to consistently underperform on literacy tests (Batsaikhan & Demertzis, 2018; Wagner, 2019). High-income households display higher levels of financial knowledge (van Rooij et al., 2011). In the context of age, mostly financially literate individuals are middle-aged individuals (van Rooij et al., 2011; Lusardi & Mitchell, 2011; Batsaikhan & Demertzis, 2018).

The financial socialization process and its consequences (such as financial literacy) are also dependent on sociodemographic factors; factors such as age, gender, income and living conditions affect socialization by influencing the learning process. Gudmunson and Danes (2011) also included personal characteristics as an important construct of factors in the family socialization model. Most of the research in this field analyzes gender-based differences in the financial socialization process and its outcomes; for example, women can benefit more than men from parental influence in terms of behaving in a more positive manner toward the financial decision-making process (Tang et al., 2015). Socioeconomic status has also been taken into consideration in some of the financial socialization research, revealing that a higher socioeconomic background leads to more intensive and productive financial socialization in families (mostly with young children) (Luhr, 2018). However, the age factor is very much under-researched in this area and does not provide enough insight into how adults learn new financial knowledge, skills and attitudes. Additionally, there is a lack of knowledge about how the above-mentioned sociodemographic factors affect the financial socialization process in other social (peer, school or media) environments, especially in the context of learning about innovative financial instruments that require new knowledge, skills and reshaped attitudes.

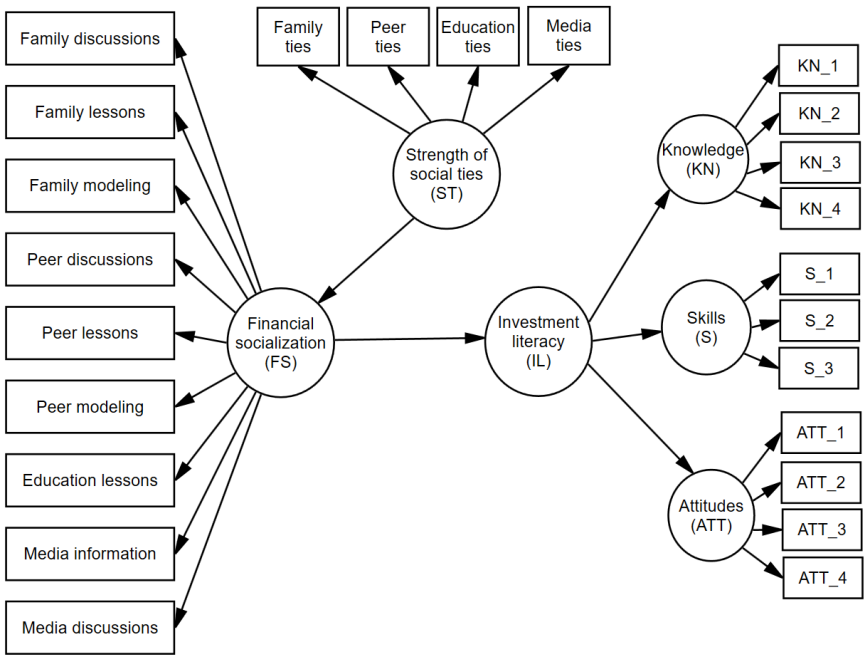
Our research also facilitates knowledge in this area by identifying sociodemographic characteristics that explain significant differences in investment literacy across the research sample and then, for those that prove to be significant, by exploring whether these characteristics lead to significantly different effects of financial socialization and the strength of social ties on investment literacy.

3. RESEARCH METHODOLOGY

3.1. Study design

We built our conceptual research model (see Figure 1) based on Gudmunson and Danes (2011), Gudmunson et al. (2016) and Potrich et al. (2016) with some adjustments and developments to reflect our perception of the complexity of the concepts of investment literacy and financial socialization and their interactions in the contemporary investment environment.

Figure 1. The conceptual research model



This study is distinguished from previous studies in several aspects. First, we took the approach that in the context of investment decision-making, investment literacy (rather than generic financial literacy) must be assessed. Moreover, in line with Potrich et al. (2016), Remund (2010), Rai et al. (2019), Kasman et al. (2018), investment literacy must be measured in a complex way, especially when referring to investors of innovative financial products. In our model, investment literacy was evaluated by its three key components, knowledge, skills, and attitudes, whereas their assessment criteria were adapted to reflect the specifics of a particular investment product (see the subsection 3.2 of this paper for further details). Such an approach not only allowed us to assess the overall level of investment literacy and its interaction with financial socialization but

also differentiated between investors' knowledge, skills, and attitudes and enabled us to understand which of them were affected by financial socialization.

Second, aiming to reflect on the real-life investment environment, we assumed that financial market participants simultaneously interact with multiple socialization agents through various financial socialization channels and that investors' investment literacy is shaped by their combined influence. In our research, following Moschis (1987), who was the first to identify the key socialization agent groups, we assessed financial socialization with four key financial socialization agents, namely, family, peer, media and educational institutions. Moreover, building on the approach of Gudmunson and Danes (2011) and Gudmunson et al. (2016), we aimed to evaluate both the direct and indirect effects of social interaction (financial socialization and strength of social ties, respectively) on investment literacy. To assess the direct effect, we first identified how financial socialization (as a complex latent measure) is built through the key socialization channels of discussion, lessons, information and modeling and then applied structural equation modeling (SEM) to capture its effect on investment literacy. The number of financial socialization channels used differed based on their suitability to a particular socialization agent. Interaction with family and peers was represented by three financial socialization channels (discussion, lessons and modeling), interaction with media was represented by two channels (information and discussions), and interaction with educational institutions was represented by only one channel (lessons). Regarding the indirect effect, building on the concept of bounded rationality and behavioral biases (i.e., herding) in investor behavior, we aimed to explore whether investment literacy, especially in the case of investors on P2P lending platforms, might also be affected by the strength of social ties with socialization agents. For example, a stronger relationship with family or peers could result in higher-level investment knowledge, skills and attitudes. In our model, the strength of social ties does not have a direct effect on investment literacy but could reveal itself indirectly (as shown in Figure 1). To this end, we first assessed how strong the social ties with socialization agents are and then explored whether those ties result in an indirect effect on the level of investment literacy (through financial socialization as a mediator).

3.2. Dataset

The research data were collected through an online-survey of Lithuanian P2P lending platform investors. The data were collected from a random sample of people who were registered on the P2P lending platforms irrespective of their investment status (activity, existence of outstanding investments, the amount invested, etc.). A total of 390 answers were collected, which, taking into consideration the general population of the country, makes it a representative sample. The survey questionnaire was constructed in 3 main parts and contained a total of 23 questions. In the 1st part of the survey, closed-end questions collected data on investors' sociodemographic characteristics, such as their age, gender, income, education, occupation status, residence and interface with the financial sector. The 2nd part of the survey was designed to evaluate investment literacy, i.e., investment knowledge, skills and attitudes. Investment literacy was assessed by 3 questions and 11 statements adapted for investment activity from Lusardi et al. (2014) and Metzger and Fehr (2018). From these 11 statements, 4 statements were designed to assess an investor's knowledge of investment risk and return, portfolio diversification, and regulation; 3 statements were designed to evaluate an investor's skills of making rational P2P investment decisions; and 4 statements were designed to assess an investor's attitudes toward investment risk preferences short vs. long investment. All investment literacy statements were rated on a Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The 3rd part of the survey was designed to evaluate the financial socialization and strength of social ties. Financial socialization was measured by 9 questions and 43 statements adapted from Gutter and Copur (2011), Jorgensen and Savla (2010), Mohamed (2017), Moreno-Herrero et al. (2018), Shim et al. (2015), Sohn et al. (2012). The questions on financial socialization related to the four main agents of socialization (family, peer, education and media) and the main channels of socialization (discussions, lessons, modeling, information). The discussions, lessons and information statements covered topics about general finance, advantages and disadvantages of traditional and innovative financial services, P2P lending, assessment and management of investment risk and return, and rational investment decision-making. The modeling statements focused on socialization agents' behavior monitoring of investing in loans through P2P lending platforms and other financial products based on return and risk criteria. The strength of social ties was measured by 4 questions and 14 statements adapted from Luan et al. (2017) and focused on the strength of social ties with socialization agents and how much investors rely on information received from socialization agents.

Table 1 provides an overview of the general sociodemographic information collected from the participants. The study sample consisted of more male investors (75.1%) than female investors (24.9%). This gender distribution of respondents is quite common in the investor sample. Although the questionnaire had no age restrictions, the study sample consisted of respondents between the ages of 18 and 54 years. There were slightly more respondents aged between 18 and 34 years old (56.9%) than respondents aged between 35 and 54 years old (44.8%). The distribution of respondents across the three income groups showed that the largest group of respondents (43.8%) had a net income of less than 1500 euros per month. For comparison, the average net monthly salary in Lithuania at the time of data collection was 1058 euros. The majority of respondents were educated; 38.3% of the respondents had a Bachelor's degree, and 35.6% of the respondents had a Master's degree. Moreover, the majority of the respondents (71.3%) were employed by businesses or public organizations and listed their place of residence as one of the largest cities in Lithuania. Finally, over half of the respondents (60%) had no interface with the finance sector.

Table 1. Descriptive statistics of the research sample

Profile	*Group*	*Frequency*	*%*
Gender	Female	97	24.9
	Male	293	75.1
Age	18–34 years old	219	56.2
	35–54 years old	171	43.8
Net monthly income	Less than 1500 euros	171	43.8
	1501–3000 euros	145	37.2
	More than 3001 euros	74	19.0
Education	Professional	11	2.8
	Secondary	23	5.9
	Not finished high school	25	6.4
	College degree	34	8.7
	Bachelor's degree	149	38.3
	Master's degree	139	35.6
	PhD degree	9	2.3
Occupation	Student	22	5.6
	Employee	278	71.3
	Self-employed	82	21.0
	Others (retired, unemployed)	8	2.1
Residence	One of the largest cities in Lithuania (Vilnius, Kaunas)	285	73.1
	Other's cities	70	17.9
	Village	21	5.4
	Abroad	14	3.6
Interface with the finance sector	Yes	156	40.0
	No	234	60.0

3.3. Methods

The analysis was conducted in four steps. First, we assessed the investment literacy of P2P lending investors according to its 3 components, namely, knowledge, skills, and attitudes. The collected data allowed us to measure the aggregate score for investment literacy (with a maximum score of 55) for each respondent, as well as scores for separate components ($max_{knowledge} = 20$, $max_{skills} = 15$, $max_{attitudes} = 20$). Further analysis of the data involved descriptive, reliability (Cronbach's alpha), and first- and second-order confirmatory factor analysis (CFA). In previous research, for the interpretation of the investment/financial literacy level, the scores were either categorized into high/low (or above/below average) literacy levels or grouped into certain ranges (which was rather rare). In our research, we developed investment literacy assessment criteria based on Alhenawi and Elkhal (2013), who employed three levels to categorize financial literacy (above 80% for high level, between 60–79% for medium level and below 60% for low level); we slightly adjusted the ranges to use the quartile approach. Therefore, in our research, investment literacy was interpreted to be high when it scored above 75%, to be medium when it scored between 60–74%, and to be low when it scored below 60% of the maximum available score.

The second step aimed to assess whether the investment literacy of P2P lending investors was directly affected by the combined financial socialization with 4 key socialization agents and indirectly affected by the strength of social ties with socialization agents. To do so, we first conducted descriptive and reliability analysis and CFA of financial socialization and the strength of social ties data and then performed second-order SEM analysis. The SEM was chosen for two main reasons. Firstly, SEM has been commonly used by previous researchers, who assessed the effect of financial socialization (Gibby et al., 2021; Jorgensen & Savla, 2010; Shim et al., 2015). Other methods have also been used in previous research, such as path analysis (Kim & Torquati, 2021), ordinary least squares (OLS) regression (Agnew, 2018) or logistic regression (Copur & Gutter, 2019), but SEM remains one of the main methods to assess financial socialization due to data complexity and its nature. Secondly, SEM allowed us to use latent variables and to test all direct and indirect effects in a single model (Hoyle, 2012). Additionally, in this research, we used second-order SEM, as this allows the representation of a hierarchical structure, which implies that the association between a second-order factor and the measured variables (manifest items surveyed) is mediated by the first-order variables (Li et al., 2020). In this research, financial socialization (*FS*) was a latent variable represented by 9 observable constructs, each of which was assessed by multiple statements assessed on a Likert scale ranging from 1 to 5. The strength of social ties (*ST*) was also a latent variable represented by 4 observable constructs (with multiple statements assessed on a Likert scale ranging from 1 to 5). Scores for the different *FS* and *ST* constructs were calculated as the average scores of the relevant statements.

Furthermore, we also questioned the common perception that investment literacy is largely related to sociodemographic characteristics rather than other factors, such as financial socialization, which also stands for the investors of innovative financial products, namely, those investing in P2P lending. We further explored the data to assess whether significant differences in investment literacy across sociodemographic groups exist and, if so, how the influence of financial socialization on the investment literacy of P2P lending investors varies across these sociodemographic groups. In the third step of the analysis, we identified whether the aggregate investment literacy of P2P lending investors differs across their demographic characteristics (gender, age, income, education, occupation, residence, interference with the financial sector). Here, the research methods used consisted

of t-tests and one-way analysis of variance (ANOVA). To control for the complexity of the findings presented in this step, we only used aggregate scores of investment literacy; however, the data on components of financial literacy are also available upon request.

Finally, in the last step, we further explored the effect of financial socialization on the investment literacy of P2P lending investors according to each demographic characteristic, which proved to be significant in the third step of our analysis. In this step, multigroup second-order SEM was performed, as the method allows the separation of structural models in different demographic characteristic groups.

4. RESULTS

4.1. Investment literacy of P2P lending investors

The combined average for investment literacy (*IL*) of P2P lending investors was high, scoring 41.33 points out of 55 (SD = 4.57), which placed it at 75.1%. Table 2 represents the results of descriptive, reliability, first- and second-order CFA of three components of *IL* (knowledge, skills, attitudes). Interestingly, the knowledge (*KN*) component scored the highest average among all *IL* components (16.07 out of 20 or 80.4%), which also falls into the high level. This outcome demonstrates that most investors have a solid understanding of innovative financial services and investment decision-making criteria. However, their skills (*S*) (72.4% score) and attitudes (*ATT*) (72% score) are generally less developed (both fall into average levels). This finding rejects our initial assumption that, due to the easy access, lower regulation level, and low entry barriers and costs, investments in P2P lending platforms will attract people with low levels of investment literacy. In contrast, our results indicate that such investors demonstrate high-level investment literacy and are, therefore, more likely to make more rational investment decisions.

Table 2. Investment literacy (*IL*) of P2P lending investors

Construct/factor	*Descriptive statistics*				*Reliability analysis*	*First order CFA*			*Second order CFA*		
	Min	*Max*	*Mean*	*SD*	*Cronbach's alpha*	*Factor loading*	*CR*	*AVE*	*Factor loading*	*CR*	*AVE*
Knowledge (*KN*)	**1**	**20**	**16.07**	**2.23**							
KN_1	1	5	4.24	0.70		0.47					
KN_2	1	5	4.04	0.83	0.70	0.79	0.73	0.41	0.85		
KN_3	1	5	3.73	0.72		0.53					
KN_4	1	5	4.06	0.81		0.71					
Skills (*S*)	**1**	**15**	**10.86**	**1.89**							
S_1	1	5	3.95	0.67	0.70	0.61	0.74	0.50	0.53	0.68	0.43
S_2	1	5	3.66	0.80		0.89					
S_3	1	5	3.26	0.91		0.58					
Attitudes (*ATT*)	**1**	**20**	**14.40**	**2.25**							
ATT_1	1	5	3.59	0.86		0.43					
ATT_2	1	5	3.77	0.80	0.65	0.72	0.68	0.36	0.53		
ATT_3	1	5	3.19	0.83		0.46					
ATT_4	1	5	3.84	0.73		0.69					
Total investment literacy (*IL*)	**1**	**55**	**41.33**	**4.57**							

Reliability analysis revealed that all constructs of *IL* components were reliable and suitable for further analysis ($\alpha > 0.60$). In terms of composite values, all constructs exceeded the value of 0.60 recommended by Huang et al. (2013). Moreover, the reliability evaluation based on the average variance extracted (AVE) revealed that the *KN* and *ATT* constructs were below 0.50. This implied that the variances captured by these constructs were lower than the variances accounted for by measurement error. Even though not all constructs exceeded the recommended AVE value of 0.50, they could be used in this research because the composite reliability (CR) vaiue was higher than 0.60 (Lam, 2012). According to Fornell and Larcker (1981), "on the basis of p_n (composite reliability) alone, the researcher may conclude that the convergent validity of the construct is adequate, even though more than 50% of the variance is due to error" (p. 46).

4.2. Financial socialization of P2P lending investors and its effect on their investment literacy

First, an analysis of financial socialization (*FS*) and the strength of social ties (*ST*) data was conducted to identify the most influential financial socialization agents and channels and to validate the suitability of the data for further analysis. The descriptive statistics for *FS* of P2P lending investors according to different financial socialization agents and socialization channels (*FS* constructs) and *ST* according to financial socialization agents are presented in Table 3.

Table 3. Results of descriptive and reliability analysis and CFA for financial socialization (*FS*) and the strength of social ties (*ST*)

Construct/factor		*Descriptive statistics*		*Reliability analysis*	*CFA*		
		Mean (Max score 5.0)	*SD*	*Cronbach's alpha*	*Factor loading*	*CR*	*AVE*
Financial socialization (*FS*)	Family discussions	2.96	0.82	0.73	0.31	0.72	0.29
	Family lessons	2.50	0.96		0.32		
	Family modeling	2.75	0.96		0.30		
	Peer discussions	3.44	0.87		0.80		
	Peer lessons	2.50	1.09		0.73		
	Peer modeling	3.19	0.94		0.79		
	Education lessons	2.83	0.96		0.28		
	Media information	3.03	0.73		0.32		
	Media discussions	1.99	1.02		0.27		
Strength of social ties (*ST*)	Family ties	3.89	0.71	0.63	0.55	0.61	0.29
	Peer ties	3.72	0.78		0.81		
	Education ties	3.22	0.82		0.39		
	Media ties	2.55	0.74		0.30		

The data indicate that the *FS* scores of P2P lending investors with different socialization agents through different financial socialization channels ranged between 1.99 and 3.44 (out of 5.00), which demonstrates a relatively disperse and moderate level of financial socialization. Financial socialization with peers through all socialization channels (discussions, modeling and lessons) scored higher than any other socialization agent and channel. However, even though the average for the peer agent was the highest, it was still in a relatively average range (2.50–3.44 out of 5.00). According to factor loading, the strongest *FS* constructs were also peer discussions and peer modeling, suggesting that in the P2P context, peers can be considered the main agent of financial socialization. Such results differ from the findings of previous research, in which family financial socialization was reported to be a key socialization agent both in general and for traditional financial services (Cho et al., 2012).

In terms of *ST*, the results of the descriptive analysis are in line with previous literature (Kim et al., 2011) and indicate that P2P lending investors have strong social ties with family (3.89 out of 5), followed by peers (3.72 out of 5.00). Even though the average for family social ties reported the highest score, based on factor loading, the main indicator of the strength of the social ties construct was still the social ties with peers (0.81).

According to the results of reliability analysis and CFA, even though some factor loadings were quite low and the AVE was lower than 0.50, both CR scores were higher than 0.60. Therefore, all constructs of *FS* and *ST* were reliable and suitable for further analysis.

The results of a second-order SEM analysis exploring the direct effect of *FS* and the indirect effect of *ST* on *IL* are provided in Table 4.

Table 4. Effect of financial socialization (*FS*) and the strength of social ties (*ST*) on investment literacy (*IL*) of P2P lending investors

Variables	*Direct effect*			*Indirect effect*		
	B	*β*	*SE*	*B*	*β*	*SE*
FS → IL	0.49***	0.37***	0.17			
FS → KN	0.25**	0.27**	0.05			
FS → S	0.19**	0.19**	0.07			
FS → ATT	0.14**	0.18**	0.04			
ST → FS	0.69***	0.56***	0.16			
ST→ IL				0.26**	0.21**	0.05
ST → KN				0.16**	0.14**	0.05
ST → S				0.13**	0.11**	0.04
ST → ATT				0.10**	0.10**	0.03

*Note: *p < 0.05, **p < 0.01, ***p < 0.001.*

The model fit was acceptable: $\chi^2/df = 1.42$, goodness-of-fit index (GFI) = 0.95, comparative fit index (CFI) = 0.95, root mean square error of approximation (RMSEA) = 0.03. We found support for the proposed pathways (i.e., changes in *ST* were associated with changes in *FS*, and changes in *FS* were associated with changes in *IL*).

The main results of the constructed SEM are as follows.

4.2.1. Direct effect

FS had direct, positive and relatively moderate effects on the aggregated level of *IL* ($\beta = 0.37$, $p < 0.001$). An investor with a higher level of *FS* had a higher level of *IL*. The construction of a second-order SEM also allowed the interpretation of the *FS* effect on separate components of *IL*. *FS* had the strongest effect on the *KN* component of investment literacy ($\beta = 0.27$, $p < 0.01$) and the weakest effect on the *ATT* component ($\beta = 0.18$, $p < 0.01$); however, the reported effects were weaker than those for the aggregate *IL*. Such results confirm our initial assumption that different investors employ financial socialization to collect the newest information on innovative matters such as P2P lending. The fact that the effect of financial socialization was higher for the aggregate level of investment literacy than for its separate components might indicate that different investors use financial socialization to "fill in the gaps" in different

components of investment literacy, at the same time improving the overall level of investment literacy across investors of P2P lending platforms.

We also developed an additional model to assess the effect of financial socialization with separate socialization agents on investment literacy. Although the model fit was acceptable ($\chi^2/df = 1.97$, GFI = 0.93, CFI = 0.97, RMSEA = 0.05), the results reveal that only peer agents of *FS* had a statistically significant effect on *IL* ($\beta = 0.26$, $p < 0.01$). Additionally, the peer effect ($\beta = 0.26$) was smaller than the effect of combined *FS* ($\beta = 0.37$). These results confirm that our approach to examining financial socialization as a combined phenomenon is appropriate.

4.2.2. Indirect effect

The indirect effect involved testing whether *ST* affected *IL*, not directly but rather through *FS*. First, the data revealed that *ST* had a direct, positive and relatively strong effect on *FS* ($\beta = 0.56$, $p < 0.001$). Such results suggest that the stronger the social ties with financial socialization agents are, the more intensive the process of financial socialization is and the more investors rely on the information or experience gathered during socialization. This is in line with previous literature (Allen et al., 2007). However, the indirect effect of *ST* on *IL* was quite weak ($\beta = 0.21$, $p < 0.01$). Moreover, the effect of the separate components of *IL* was weaker than the overall effect. The strongest effect was identified for the *KN* component ($\beta = 0.14$, $p < 0.01$), and the weakest effect was identified for the *ATT* component ($\beta = 0.10$, $p < 0.01$). Such results were to some extent unexpected and require additional research. The reasons could be twofold. First, the investment literacy of P2P lending investors was already high. The highest effect for both financial socialization and the strength of social ties was identified in the peer group; therefore, the indirect effect of social ties was not that evident. Additionally, the social ties-related questions focused on how much investors rely on information received from socialization agents. The weaker indirect effect of social ties on financial literacy (especially on attitudes) might indicate the higher respondents' independence and rationality in investment decision-making (taking into consideration the already high level of financial literacy).

4.3. Sociodemographic factors and investment literacy

At this step of research, we tested the common perception that the level of investment literacy is largely related to the respondents' sociodemographic characteristics. Data on the respondents' sociodemographic characteristics, such as investors' age, gender, income, education, occupation status, residence and interface with the financial sector, are presented in Table 1. To identify which of them were statistically significant determinants of the differences in investment literacy, one-way ANOVA and t-tests were performed (Table 5 presents the data for the significant sociodemographic determinants).

Table 5. Investment literacy across sociodemographic groups

Profile	*Group*	*Mean*	*SD*	*t-test /F*	*df*	*p*
Gender	Women	39.88	4.74	-3.684	388	0.000
	Male	41.82	4.41			
Age	18–34 years old	41.74	4.63	1.974	388	0.049
	35–54 years old	40.82	4.43			
Net income (euro)	Less than 1500 euros	40.29	4.80	9.393	387	0.000
	1501–3000 euros	41.82	3.95			
	More than 3001 euros	42.78	4.63			
Interface with the finance sector	Yes	41.93	4.82	-2.115	388	0.035
	No	40.94	4.35			

Note: Only statistically significant sociodemographic determinants are included.

A t-test was used to analyze whether there were differences in respondents' *IL* across their gender, age, and interface with finance sector groups. Based on the results of the t-test, gender, age, and interface with the finance sector demonstrated statistically significant differences in the levels of investment literacy. The results indicate that male investors have an approximately 4.5% higher level of *IL* than women. Furthermore, for women, all components of *IL* (*KN*, *S*, *ATT*) are indicated to be inferior, with the most significant gap present in the investment *KN* component (approximately 7% lower than for men). The t-test also revealed significant differences between age groups and the level of investment literacy. The level of *IL* was higher among younger investors (18–34 years). Interestingly, younger investors demonstrated not only a higher level of *S* (over 3.7%) but also a higher level of *KN* (over 4.1%) compared to their counterparts. Another statistically significant difference occurred between the interface with the finance sector and the level of *IL*. Investors who had an interface with the finance sector (studied or worked in finance-related fields) had a higher level of aggregated *IL* and higher levels of all its components (*KN*, *S*, *ATT*), particularly in the *S* component (approximately 5% higher than those without interface with the finance sector). ANOVA was used to analyze whether differences in respondents' *IL* across their income, education, occupation, and place of residence groups exist. The results of ANOVA for the net income group showed that the F-statistic was 9.39, which is statistically significant. This result indicates that a significant difference exists in the level of *IL* with respect to the net income of individual investors. Investors with a higher net monthly income had a higher level of aggregated *IL*, as well as higher levels of all its components (*KN*, *S*, *ATT*). Finally, the results of ANOVA indicated no significant differences in the level of investment literacy across the three groups of demographic characteristics: education, occupation, and place of residence. Thus, these groups of sociodemographic characteristics were not included in further analysis.

4.4. Assessment of the effect of financial socialization on investment literacy across sociodemographic groups

The results of the t-test and ANOVA identified that investor gender, age, net income, and interface with the finance sector are significant determinants of investment literacy. Based on such results, we further questioned whether the effect of financial socialization on investment literacy also varied across those sociodemographic groups. To answer this question, four additional SEMs for each of the four sociodemographic groups were constructed.

4.4.1. Gender

The second-order multigroup SEM results of the assessment of the direct and indirect effects of financial socialization on investment literacy in gender groups are provided in Table 6.

Table 6. Direct and indirect effects of financial socialization and the strength of social ties on investment literacy between gender groups

Gender group	*Path*	*Direct effect*			*Indirect effect*		
		B	*β*	*SE*	*B*	*β*	*SE*
Women	*FS → IL*	0.25*	0.36*	0.10			
	ST → FS	0.58**	0.54**	0.20			
	ST→ IL				0.14*	0.20*	0.02
Men	*FS → IL*	0.20***	0.45***	0.06			
	ST → FS	0.72**	0.54**	0.23			
	ST→ IL				0.14**	0.23**	0.06

*Note: *p < 0.05, **p < 0.01, ***p < 0.001.*

The main results of the SEM for different gender groups are as follows:

- The direct effect of *FS* on *IL* was stronger for men ($\beta = 0.45$) than for women ($\beta = 0.36$); however, the difference in the effect among the gender groups was not statistically significant (critical ratio 1.72). Interestingly, the main indicator of *IL* for women was *KN* ($\beta = 0.77$) and that for men was *S* ($\beta = 0.85$).
- The direct effect of *ST* with socialization agents on *FS* did not differ significantly among gender groups (critical ratio -0.44).
- The indirect effect of *ST* on *IL* was quite weak for both women ($\beta = 0.20$) and men ($\beta = 0.23$).

4.4.2. Age

Table 7 summarizes the results of the second-order multigroup SEM results of the assessment of the effect of *FS* on *IL* between the age groups.

Table 7. Direct and indirect effects of financial socialization and the strength of social ties on investment literacy between the age groups

Age group	*Path*	*Direct effect*			*Indirect effect*		
		B	*β*	*SE*	*B*	*β*	*SE*
18–34 years old	*FS → IL*	0.27***	0.46***	0.07			
	ST → FS	0.87**	0.62**	0.32			
	ST→ IL				0.23**	0.25**	0.10
35–54 years old	*FS → IL*	0.14	0.20	0.08			
	ST → FS	0.65***	0.56***	0.18			
	ST→ IL				0.09	0.11	0.10

*Note: *p < 0.05, **p < 0.01, ***p < 0.001.*

The main results of the SEM for different age groups can be summarized as follows:

- The direct effect of *FS* on *IL* was statistically significant only for younger investors (18–34 years old), and this effect was moderate. Based on the critical ratio, there was a statistically significant difference in the *FS* effect on *IL* among the age groups (critical ratio 1.98). Moreover, there was no significant difference between the strongest components of *IL*; in both age groups, the strongest indicator of investment literacy was knowledge ($\beta = 0.71$ and $\beta = 0.72$).
- The direct effect of *ST* on *FS* did not differ significantly between the age groups (critical ratio -0.60).
- The indirect effect of *ST* on *IL* was statistically significant only for the 18- to 34-year-old investor group.

4.4.3. Net income

The second-order multigroup SEM results of the assessment of the effect of *FS* on *IL* in net income groups are provided in Table 8.

Table 8. Direct and indirect effects of financial socialization and the strength of social ties on investment literacy across net income groups

Net income group	*Path*	*Direct effect*			*Indirect effect*		
		B	*β*	*SE*	*B*	*β*	*SE*
Less than 1500 euros	*FS → IL*	0.23***	0.53***	0.06			
	ST → FS	0.63**	0.52**	0.17			
	ST→ IL				0.24**	0.27**	0.09
1501–3000 euros	*FS → IL*	-0.01	-0.09	0.05			
	ST → FS	1.31***	0.71***	0.40			
	ST→ IL				-0.26	-0.03	0.06
More than 3001 euros	*FS → IL*	0.18	0.32	0.10			
	ST → FS	0.22	0.32	0.27			
	ST→ IL				0.05	0.10	0.07

*Note: *p < 0.05, **p < 0.01, ***p < 0.001.*

The main results of the SEM for different net income groups are as follows:

• The direct effect of *FS* on *IL* was statistically significant only for investors with a net monthly income lower than 1500 euros. The effect was positive and relatively strong. In other groups, the net income effect of *FS* on *IL* was not statistically significant. Based on critical ratios, significant differences between the following net income groups were identified: less than 1500 euros and 1500–3000 euros (critical ratio -2.456) and less than 1500 euros and more than 3001 euros (critical ratio 2.01). Moreover, differences in the main components of the *IL* exist. In the groups with a net monthly income of less than 1500 euros and between 1501–3000 euros, the main component of *IL* was *KN* ($\beta = 0.70$ and $\beta = 0.71$), while for the groups with a net monthly income of more than 3001 euros, it was *ATT* ($\beta = 0.79$).

• The direct effect of *ST* on *FS* was strongest for investors with a net monthly income of 1500–3000 euros, while for investors with a net monthly income of more than 3001 euros, the effect of *ST* on *FS* was not statistically significant.

• The indirect effect of *ST* on *IL* was statistically significant for the group with a net monthly income of less than 1500 euros.

4.4.4. Interface with the finance sector

Table 9 presents the results of the second-order multigroup SEM results of the assessment of the effect of *FS* on *IL* between the interface with finance sector groups.

Table 9. Direct and indirect effects of financial socialization and the strength of social ties on investment literacy between interface with finance sector groups

Interface with the finance sector group	*Path*	*Direct effect*			*Indirect effect*		
		B	*β*	*SE*	*B*	*β*	*SE*
Yes	*FS → IL*	0.27**	0.41**	0.08			
	ST → FS	0.88***	0.70***	0.24			
	ST → IL				0.24*	0.28*	0.12
No	*FS → IL*	0.19*	0.27*	0.08			
	ST → FS	0.65	0.23	0.18			
	ST→ IL				0.03	0.06	0.06

*Note: *p < 0.05, **p < 0.01, ***p < 0.001.*

These are the main results of the SEM for different interfaces with finance sector groups:

• The direct effect of *FS* on *IL* was statistically significant only for investors who had an interface with the finance sector. According to the critical ratio, a statistically significant difference was identified between *FS*'s effect on *IL* among those with an interface with the finance sector (critical ratio 2.07). Moreover, there was no significant difference in the strongest components of *IL*; in both groups that had an interface with the finance sector, the strongest indicator was *KN* (with $\beta = 0.80$ and $\beta = 0.65$).

• The direct effect of *ST* on *FS* significantly differed among those with an interface with the finance sector (critical ratio -2.27). However, there was no statistically significant effect of *ST* on *FS* for investors who had no interface with the finance sector, while for investors who have worked or studied in the finance field, the effect of *ST* on *FS* was positive and strong.

• The indirect effect of *ST* on *IL* was statistically significant only for the investors who had an interface with the finance sector.

5. DISCUSSION

Our methodology enabled us to measure the aggregate level of P2P lending investor literacy and its individual components. Results showed that most investors have a high level of aggregate investment literacy. The level of P2P investment-specific knowledge was also high; however, their skills and attitudes were somewhat lower, as both categories scored at an average level. These results contradict our initial assumption that investors in P2P lending platforms, due to the ease of access, lower regulation, and low entry barriers and costs, lack an adequate level of investment literacy. In contrast, investors showed to be relatively well educated, especially compared to those who engage in traditional financial products and services (Lusardi & Tufano, 2015) and whose general financial literacy was assessed (Kramer, 2016; Wagner, 2019). In the future, it would be relevant to explore if and how investment literacy translates into the rationality of investment decisions.

Further analysis of the data revealed that investor gender, age, net income, and interface with the finance sector are significant determinants of investment literacy. Male investors have an approximately 4.5% higher level of aggregate investment literacy than women. The level of aggregate investment literacy is higher among those 18–34 years old than among those 35–54 years old, as well as those who have studied or worked in finance-related fields. Finally, investors with a higher net monthly income also had a higher level of aggregate investment literacy. Such results are in line with previous research (Batsaikhan & Demertzis, 2018; Bottazzi & Lusardi, 2021; Cupák et al., 2018; Lusardi & Tufano, 2015; van Rooij et al., 2011; Wagner, 2019) on traditional financial products, yet they broaden the knowledge on the investment literacy of P2P lending investors.

The analysis of financial socialization and social ties with different agents through different channels demonstrated relatively disperse moderate levels of overall financial socialization, whereas peers showed to be the most important agent, and peer discussions and peer modeling were the main channels of socialization. Such results differ from previous research, where family financial socialization was reported to be a key socialization agent both in general and for traditional financial services (Cho et al., 2012). It seems that family, as the key agent in early childhood and adolescence (Drever et al., 2015; Shim et al., 2015), loses its importance in adulthood in regard to matters such as innovative financial services, where the speed of

innovations and the scope of new information are much more intense. On the other hand, strong ties with peers and their role in financial socialization might be viewed as an issue, as they could lead to biased investment literacy and bounded rationality investment decisions. Therefore, the scope of financial socialization and reliance on the opinions of others should be a larger concern to market regulators than P2P investors' literacy itself.

SEM analysis revealed that financial socialization with different socialization agents through different socialization channels had direct, positive and relatively moderate effects on the aggregated level of investment literacy of P2P lending investors. Moreover, the effect on the aggregate level of investment literacy was stronger than that on the level of its separate components (i.e., knowledge, skills and attitudes). This result suggests that, in regard to innovative financial services, financial socialization could also be viewed as a means by which to "fill in the gaps", as the other ways in which to do so (i.e., through formal education) are unavailable due to time constraints or the speed of innovations. On the other hand, SEM analysis also indicated that although the strength of social ties has a significant effect on financial socialization across the data sample, the indirect effect of social ties on investment literacy is quite weak. Such results were to some extent unexpected and require additional research of additional determinants; however, the results could indicate that the reliance on others to form knowledge, skills and attitudes does not depend on how intensive the relationship between the investor and social agents is.

Further analysis of the effect of financial socialization on the investment literacy of P2P lending investors across sociodemographic groups revealed a statistically significant direct effect for both men and women (however, the difference among the gender groups was not statistically significant), for younger investors (18–34 years old of age), for investors with a net monthly income lower than 1500 euros and for those who have an interference with the financial market. Different from the results for the entire data sample, the indirect effect of social ties on financial literacy across the sociodemographic groups was evident but weak for both women and men; it was also statistically significant for 18- to 34-year-old investors, for those with a net monthly income lower than 1500 euros and for investors who have an interface with the finance sector. The assessment of both direct and indirect effects identified the same groups of P2P investors. This allows us to draw a profile of a P2P lending investor whose investment literacy is shaped by financial socialization and reinforced by the strength of his social ties; such an individual is 18–34 years old person (man or woman) working in the financial sector with a net monthly salary below 1500 euros.

In our opinion, the collected evidence brings interesting insights into how investment literacy is or is not formed under social interaction in a close social environment. The results could be used by market regulators, innovative service providers and educators in the development and promotion of innovative financial products and services, as well as the implementation of such product-related investment literacy programs. The results revealed that investors in innovative financial services mainly learn from their peers and family members, which brings speed into the learning process, yet also opens the doors for the formation of biased investment literacy. Therefore, to ensure the investors' protection and to enhance the rationality of the investment decisions, regulation of the services and obligatory information dissemination are the most important measures to be taken.

6. CONCLUSION

The purpose of this article was to examine the investment literacy of investors to P2P lending platforms, how that literacy is affected by their financial socialization and social ties and whether the effect of financial socialization and social ties is even further reinforced by the investors' sociodemographic characteristics.

Our research revealed that the investment literacy of P2P lending investors is high and suggests that innovative products and services attract more educated investors. Significant sociodemographic determinants of participants' investment literacy are investor gender, age, net income, and interface with the finance sector. As for financial socialization, peers showed to be the main socialization agent and demonstrated the strongest social ties with our respondents. The compound direct effect of financial socialization on the aggregated level of investment literacy of P2P lending investors was positive and stronger than that on its separate components. Although the strength of social ties had a strong influence on financial socialization, its indirect effect on investment literacy was rather weak. The average P2P lending platform investor whose investment literacy is shaped by financial socialization and reinforced by the strength of his or her social ties was shown to be an 18- to 34-year-old person (man or woman) working in the financial sector with a net monthly income below 1500 euros.

The research contributes to the existing literature by providing a conceptual research approach and methodology as well as valuable practical insights into the level of financial literacy among P2P investors and how investment literacy is or is not formed under social interaction in a close social environment. The findings of this analysis should be interpreted with an understanding of its limitations, as well as in light of potential areas for further research. In our research, we assessed one-way socialization, i.e., the effect of investors' interaction with socialization agents on their investment literacy. However, throughout the collection of research data, we saw indications that the respondents themselves might be the key socialization agents bringing about new knowledge and attitudes and, therefore, affecting the investing literacy of those socializing with them. This aspect represents a relevant and very much underexplored area of further research. Also, this research mainly aimed to explore the level of investment literacy of P2P lending investors, their financial socialization and demographic characteristics. Another relevant area of future research could be the analysis of how rational P2P lending investors are with regard to making their investment decisions, taking into consideration the relatively high level of their financial literacy and the moderate effect of financial socialization.

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