CHAPTER 6

Financial Competence and the Role of Non-cognitive Factors

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6.1 Introduction

Financial literacy has been recognized as a core life skill for young people in modern society (Lusardi, 2015; OECD, 2020). Mastery of financial concepts is increasingly seen as an essential precursor to financial well-being and active citizenship; furthermore, during these times plagued by

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the COVID-19 pandemic investment in financial education seems also able to reduce the NEET status, build inclusiveness and financial resilience (Aina et al., 2021; Lyons et al., 2020). It follows that a truly thorough comprehension of the financial education process is quite crucial and thus represents a top priority worldwide as financial illiteracy remains widespread at a global level regardless of the proliferation of financial education programs. On this point, in Chapter 1, the authors show how, despite the proliferation of educational programs, the financial literacy of Italian adults deteriorated over the period under consideration.

Against the backdrop of the discussion above, academic efforts worldwide are still needed to understand "how people acquire and 'deploy' financial literacy" (Bongini et al., 2015). In this context, the study of the "attitudinal variables" received substantial academic attention in recent years, since they have been acknowledged as a fundamental component of financial literacy (OECD INFE, 2011) and thus recognized as an influential factor in financial learning (OECD, 2019). This notwithstanding, the available empirical evidence from this flourishing area of investigation is quite ambiguous yet, probably also due to the huge variety of definitions and measures that have been adopted so far across surveys in the absence of a shared conceptual framework (Nicolini, 2019; Remund, 2010).

Despite the variety of existing definitions, three main approaches seem to prevail in doctrine. The first, mainly proposed by the scholars who first addressed the issue of non-cognitive skills in the financial literacy field, tends to elude the definitional problem. Several academics within this stream of scholarship avoid giving ex-ante an explicit definition of financial attitude, which can be only inferred ex-post through the instruments used to assess it (Bocchialini et al., 2013). The second, supported by OECD/INFE (2015), looks at financial attitudes as one of the three components of financial literacy, the one which is basically "meant to capture attitudes towards precautionary saving" and to longer-term financial planning (D'Alessio et al., 2020). The third, followed by several scholars, focus on some people's traits—such as their vision of finance, their feelings towards finance, and their financial self-confidence—to understand whether these factors interfere with personal financial literacy (Danes & Haberman, 2007; Dobni & Racine, 2016; Van Der Cruijsen et al., 2021). Based on this approach, the above variables have typically been explored in isolation rather than in their interrelationship: they have not been included in a complete unifying framework and least of all under the banner of attitude.

In the face of this definitional challenge, no surprise that the role of attitude in the financial education process remains somewhat controversial. Does financial attitude influence financial knowledge? Does financial knowledge influence financial knowledge? Does financial knowledge influence financial attitude? Are they two independent constructs? How and to what extent could financial education initiatives that pay attention to learners' attitudinal profiles help financial learning? This issue is far from clear, probably also because most studies have so far mainly investigated the relationship between financial knowledge and financial behavior (Almenberg & Säve-Söderbergh, 2011; Van Rooij et al., 2012), rather than focusing on attitude, maybe also due to its evanescent nature (Riitsalu et al., 2019). Against this background, interesting new research opportunities open up. Just moving from this knowledge gap on the relationship between the two above variables, the present chapter seeks to evaluate if and to what extent attitude towards finance is important to predict financial knowledge or vice versa.

We define financial knowledge—intended as the cognitive component of financial literacy—as the basic understanding of those financial concepts that allow an individual to make responsible financial decisions (Huston, 2010). Inspired by Di Martino and Zan (2011), we also focus on the concept of "attitude towards finance", which we purposely adopt to mark the difference from the more popular construct of financial attitude (see, for instance, D'Alessio et al., 2020 and Talwar et al., 2021). We refer to "attitude towards finance" as the inclination of an individual to respond favorably or unfavorably to a particular financial stimulus, due to the durable mix of feelings (affective response) and opinions (cognitive response) held around financial matters. Unlike the OECD methodology, our definition does not merely capture the tendency of an individual "to look at financial issues in a long-term perspective" (D'Alessio et al., 2020), whereas it's still quite similar to others proposed in the financial literature (Garber & Koyama, 2016). In this study, we consider the attitude towards finance as a multifaced concept based on a combination of three dimensions: the view of finance, the emotional disposition towards finance, and the perceived competence in finance (Di Martino & Zan, 2011). Hence, having a favorable attitude towards finance essentially means that an individual holds an emotional system and a belief system (both towards finance and on self) that makes him or her open towards finance-related issues and willing to engage with them. In more detail,

a positive attitude towards finance is a complex construct that conjointly implies that an individual: (1) has a favorable view (thoughts, opinions, and judgments) of finance. For example, the individual acknowledges the social and economic value of the financial sector and trusts financial institutions. He may also display a positive vision of finance as a field of study, for instance, believing in the usefulness, relevance, and worth of financial education in professional and personal life. (2) Enjoys finance learning experiences and finance-related activities and has no (or low) anxiety towards them. The individual may also hold aspirations towards finance and show interest in finance-related activities or in pursuing a finance-related career. (3) Has self-esteem in finance and is confident of succeeding in finance-related issues ("I'm able", "I can easily understand, learn and use finance", "I can succeed in finance-related issues").

Based on the above definition of attitude towards finance, this study surveys a sample of university students attending a public university located in the North of Italy in the attempt to measure their attitudes towards financial issues in conjunction with their level of financial knowledge. University students are generally considered "a particularly interesting group to study about financial capability issues" (Suyanto et al., 2021). Like other countries, in Italy they have been systematically investigated insofar as their financial knowledge levels (Bongini et al., 2016; De Vincentiis et al., 2017) and much less so about their attitudinal profile (Bocchialini & Ronchini, 2019).

By examining how financial self-efficacy beliefs, feelings and opinions towards finance, here labeled as "attitude towards finance", influence the students' financial knowledge in Italy, the present chapter seeks to address the above-mentioned research gaps and aims to answer these research questions: 1) To what extent do students in our sample possess financial knowledge and hold healthy attitudes towards finance? 2) Does attitude towards finance have a significant effect on financial knowledge?

Thus, it originally contributes to the body of knowledge in two main ways: by exploring the nature and magnitude of the relationship between attitudes towards finance and financial knowledge; by clarifying the direction of causality between them.

This chapter offers several contributions: (1) it adopts a different understanding of the key construct "attitude" in comparison with previous literature, that's also because the financial attitude construct has been recently questioned (D'Alessio et al., 2020); (2) the relationship between attitude towards finance and financial knowledge is here clarified

in terms of both correlation and causation; and (3) the chapter specifies which of the three dimensions of attitude towards finance—vision, emotion, and self-confidence—leads most effectively to being financially knowledgeable (or vice versa). To our knowledge, no prior study in Italy or abroad has examined these aspects so far.

The remainder of this chapter is organized as follows. Section 6.2 presents a review of all studies that are relevant to our research questions. Section 6.3 describes the data and presents the methodology for investigating the linkages between attitude and knowledge. Section 6.4 discusses the empirical results. Finally, Sect. 6.5 summarizes the key findings and provides some ideas for further research.

6.2 Literature Review

The extant research in the financial education field has widely acknowledged financial attitude as an important driver of financial outcomes: attitudes can be regarded as a crucial factor to be considered when attempting to understand variability in one's financial literacy levels (OECD, 2019; Yahaya et al., 2019). Early studies mainly focused on measuring financial competencies and researching their determinants. Financial literacy has been found to be affected by a variety of factors such as education, age, gender, income, employment status, nationality, and family background (Atkinson & Messy, 2012; Chen & Volpe, 1998; Lusardi et al., 2010; OECD, 2013). Attitude has been shown to be also particularly important (Talwar et al., 2021).

Many studies on financial literacy have targeted young people so far and, in particular, the more educated ones attending high school, college, and university (Beal & Delpachitra, 2003; Chen & Volpe, 1998; de Bassa Scheresberg et al., 2014; Jones, 2005; Wagland & Taylor, 2009). In this general framework, both in Italy and abroad economics/business students have been frequently targeted by scholars to date (Bocchialini et al., 2013; Bongini et al., 2015; Gok & Ozkale, 2019; Kuntze et al., 2019). After all, this specific target population has some interesting features: this subgroup of millennials is better suited to explore the gender gap issue (Bongini et al., 2016) because it is characterized by homogeneity (especially in terms of educational choices). Moreover, given their range of age, university students are going through the delicate transition phase from dependency to financial independence from their

parents. Business students also have higher financial exposure in comparison with younger students. Nevertheless, there is yet mixed evidence on whether economics/business students are financially educated or not. For example, Pintye and Kiss (2016) have shown that the financial literacy of economics and business Hungarian students—except in the dimension of financial behavior—cannot be considered to be at a higher level than among "average" young people. On the other hand, based on a sample of Italian university students, De Vincentiis, Pia, and Zocchi provide evidence that graduate students in Economics and Finance had above average (levels of) financial literacy compared to students graduates in different fields of study. Equally heterogeneous results come from the existing studies specifically aimed at assessing (inter alia) financial attitudes among university students (Setiyani & Solichatun, 2019; Yogasnumurti et al., 2020), probably due to the large variety of the definition and measurement methods used, which certainly do not favor comparisons over time and across countries.

The second strand of studies subsequently focused on measuring and researching mutual relationships between financial literacy, attitude (Ameliawati & Setiyani, 2018; Haque & Zulfiqar, 2015), and other significant outcomes, including, for example, economic empowerment and financial well-being (Consumer Financial Protection Bureau, 2015; Haque & Zulfiqar, 2016), financial satisfaction (Arifin, 2018), financial inclusion, and resilience (Dwivedi et al., 2015; Lyons et al., 2020). For example, (Skagerlund et al., 2018a, 2018b) have recently documented that some cognitive and emotional attitude towards numbers) are a driving force behind becoming financially literate.

Another strand of research in personal finances has explored possible inter-linkages among financial attitudes, financial knowledge, and financial behavior (Fessler et al., 2020; Rai et al., 2019; Yong et al., 2018). The general findings have shown that these variables are significantly and reciprocally interrelated (Kadoya & Khan, 2020; Shim et al., 2009). Gender differences in financial knowledge, attitude, and behavior have also been widely documented in various studies worldwide (Bucher-Koenen et al., 2017; Robson & Peetz, 2020).The specific relationship between financial knowledge financial behavior is another topic which has been extensively explored so far (Almenberg & Säve-Söderbergh, 2011; Van Rooij et al., 2012), whereas a smaller body of work has focused on both the attitudes-knowledge dyad (Borden et al., 2008; Jorgensen & Savla, 2010; Shim et al., 2010) and the attitude-behavior pair (Talwar et al., 2021). This is

probably due to the more evanescent nature of the attitudes construct. In fact, it has been noted that it is far more difficult to determine what "sound attitudes" are, than to establish whether a behavior is healthy or an answer to a financial knowledge is correct (Johan et al., 2021; Riitsalu et al., 2019). Anyway, when it comes to the relationship between financial knowledge and financial attitude, the evidence is mixed: a positive relation has been documented in some studies (Hayhoe et al., 2005; Riitsalu et al., 2019) in the face of a null or a weak association found in others (Agarwalla et al., 2013; Riitsalu et al., 2019). Furthermore, to date, very few studies have focused on causation rather than correlation. Accordingly, further investigations are required in order to clarify the direction of causality between knowledge and attitude.

Yet, to date, some research has finally also investigated the actual impacts on financial knowledge exerted by each one of the three dimensions of the so-called attitude towards finance construct (Dobni & Racine, 2016; Driva et al., 2016). For example, in their recent study Van Der Cruijsen et al. (2021) found that a positive vision towards finance (approximated by the belief that the financial sector, its institutions, and regulators are trustworthy) is associated with a higher level of financial knowledge. Likewise, according to other prior studies, the feelings related to finance (for example, personal interest in financial matters rather than financial anxiety) as well as financial self-efficacy interferes with individuals' ability to attain financial knowledge (Arellano et al., 2014; Bongini et al., 2016; Farrell et al., 2016; Palameta et al., 2016; Skagerlund et al., 2018a, 2018b). Basically, despite the advantage of determining associations, these studies have investigated in isolation one single specific aspect of the multidimensional construct "attitude towards finance". To date, these factors have neither been explicitly seen as a dimension of the attitude towards finance nor related to the other components of the above construct within a single complete framework.

6.3 Data and Method

6.3.1 Sample

About 500 business students enrolled at the Department of Economics and Management of Parma University, in Northern Italy, voluntarily participated in this study. The survey has been administered during the first semester of the academic year 2019–2020. A total of about 600

questionnaires were distributed. After filtering, the final sample consisted of 466 respondents. Female respondents were slightly lower than male respondents (48.71% vs 51.29%). Participants were mostly of Italian nationality (89.70%), belonged to different academic years and different curricula. More than half of the sample were master's degree students (55.79%), whereas 44.21% were first-level degree students. When it comes to the type of degree course, about 36% of participants pursued the finance stream, whereas 64% pursued a degree in non-finance-related fields. Basically, the age of the respondents ranged from 19 and 29; the largest age group was between 23–25 years old (49.79%), followed by the age group 19–22 (30.04%). There were quite great differences in the area of origin from which participants came (49.36% were from the North of Italy, 36.27% from the South, 7.30% from the Center), as well as in their educational backgrounds and attainments at the school-leaving diploma. Just over half of the sample still lived with their families of origin (52.36%). An overview of the socio-demographic characteristics of the sample can be seen in Table 6.1.

6.3.2 Methodology

In order to assess both the level of the financial literacy of business students in the sample and their attitude profile, this research adopted a questionnaire method. The questionnaire consisted of three main sections covering: (1) socio-demographic information; (2) financial knowledge; and (3) attitude towards finance. The first part provided identification of respondents including their gender, age, nationality, area of origin, and level of study.

The second part of the questionnaire, aimed at measuring respondents' financial knowledge level, was based on six questions, based on prior literature (Lusardi & Mitchell, 2011; Van Rooij et al., 2012). They covered several topics such as compound interest, inflation, stock risk, investment risk assessment, the relationship between interest rate and price of bonds, and portfolio diversification. For each question, 1 point was awarded for the correct answer and 0 points for the wrong or missing answer. A dummy variable was created indicating if the question was answered correctly. Thus, participants' financial knowledge total score (FK_tot) was equal to the sum of their correct answers and ranged from 0 to 6.

Finally, the last part of the questionnaire gauged respondents' attitude profiles. The test consisted of 51 statements adapted from the study

Table 6.1 Study participant characteristics

		Percent (%)
Gender	Male	51.29
	Female	48.71
Age	19–22	30.04
	23–25	49.79
	26–29	18.45
	From 30 upwards	1.72
Nationality	Italian	89.70
	Foreign	10.20
Area/Region of origin	North	49.36
	Center	7.30
	South	36.27
	Foreign	7.08
Level of University study	First Cycle	44.21
	Second Cycle	55.79
Type of Degree course	Finance	35.84
	No Finance	64.16
Type of High school diploma	Scientific High School or Similar	39.70
	Classical Or Linguistic or Humanistic/Social High School	16.95
	Technical Commercial Institute	36.05
	Technical-Industrial or Tourist or Hotel-Management Institute	3.00
	Institute For Surveyors	1.50
	Professional Institute	2.79
High school mark	60–65	7.94
	66–70	12.66
	71–75	16.74
	76–80	16.52
	81–85	12.02
	86–90	13.52
	91–95	6.22
	96–100	14.38
Cohabitation	Off-site students (student living alone/away from family)	47.21
	Students living with family	52.36

of Bocchialini and Ronchini (2019), taking also into account the "Attitude towards Economics" questionnaire (Walstad & Soper, 1983). The statement focused on the three different facets of the attitude towards finance construct, namely: thoughts and beliefs related to "finance",

emotional disposition towards finance, and financial self-efficacy beliefs. Participants were asked to indicate the degree to which they agreed about the following items: (1) finance is a difficult and math-heavy subject; (2) financial education is useful in their daily and professional life; (3) finance is a male domain; and (4) financial skills are fixed (namely not malleable). Participants were also asked (5) how they emotionally feel when dealing with finance-related issues and (7) to rate their level of self-confidence in financial matters. Like in Pisa 2015, all questionnaire statements utilized a four-point Likert scale, ranging from "strongly disagree", "somewhat disagree", and "somewhat agree" to "strongly agree". In more detail, vision towards finance was measured using 30-items, emotional disposition towards finance was measured with 9-items, and self-efficacy beliefs were measured using 12-items. Accordingly, three different indicators, one for each dimension of attitude, were created (the "VIEW" indicator; the "EMOTION" and the "SELF-CONF" indicator) and next converted into a standardized score on a basis of 1 for comparison. Basically, the overall "attitude towards finance (Potrich et al., 2016).

In this chapter, the structural equation modeling (SEM) approach was employed to test our hypotheses about causal relationships between attitude towards finance and financial knowledge, based on the theoretical background and the research questions discussed above. In order to investigate whether a good/bad attitude to finance causes high/poor financial knowledge, or whether the relationship is the other way around, we applied SEM to the collected data. The causal relationship between the attitude to finance and actual financial knowledge was estimated. We also studied which one of the different attitude facets was most closely related to students' financial knowledge. Finally, we identified the most significant exogenous variables provided by the questionnaire.

Hence, the research variables in the study were as follows: the attitude towards finance variable was proxied from Bocchialini and Ronchini (2019) with the view of finance, emotional disposition towards finance, and self-efficacy beliefs (or perceived competence in finance) sub-indicators. The financial knowledge variable was divided into the basic financial knowledge indicator and the advanced financial knowledge indicator, respectively, proxied from Lusardi and Mitchell (2011) and Van Rooij et al. (2012). Their sum gave the overall indicator of financial knowledge.

Widely used in most behavioral, educational, medical, and social studies, SEM is a covariance-based statistical methodology able to capture

causality relations between variables which can be either measurable (manifest variables) or not measurable (latent variables or factors) (Bollen, 1989; Kaplan, 2009). A variable is not measurable when the values assigned to it are uncertain because, for example, of errors generated by the measurement method. SEM can be divided into two sub-models: (1) structural or internal models which capture relationships between latent variables; (2) measure or external models which capture relationships between manifest and latent variables.

The relations between variables can be estimated using either covariance-based methods or component-based methods. Covariance-based methods work mainly on manifest variables, and component-based methods on latent variables, through multivariate linear techniques, in particular path analysis, which was introduced by Wright, in 1921 to genetics research and originally applied by Joreskog (1973) in SEM. The underlying mathematical tool is the decomposition of the total correlation or covariance between two variables among all paths which connect them. Decomposition of total correlation produces the path coefficients, which express the strength of the causality relation. The path diagram is the graphical representation of a system of the simultaneous equations where latent and manifest variables are represented by circles and squares respectively.

SEM has been used to study attitude to different subjects: in particular, in mathematics (Papanastasiou, 2000; Yurt, 2014), in statistics (Escalera-Chávez et al., 2014), and in finance (Nadeem et al., 2020; Potrich et al., 2016; Talwar et al., 2021).

Based on these studies, the next section presents the relationship between attitude towards finance and financial knowledge. It should be noted that for all the SEM analyses described, we monitored the most relevant indicators for the goodness of the model: the Goodness of Fit Index, the Standardized Root Mean Square Residual, the baseline model Chi-Square, and the Satorra-Bentler-Scaled Base Model Chi-Square. We also verified whether they were above or below the suggested thresholds (e.g., the Goodness of Fit Index above 0.9, the Standardized Root Mean Square Residual below 0.08). All the indicators of model fit were found within the permitted levels and were consistent with past studies (Rai et al., 2019).

Table 6.2 shows and describes the dependent and independent variables used in the analysis, which was conducted using SAS (https://www.sas.com/). For other possible statistical packages, see Narayanan (2012).

Table 6.2 Description of variables used in this study

Variables	*Abbreviation*	*Description*
Socio-demographic variables		
Gender	GEN	Student gender. Dummy variable (1 = Male, 0 = Female)
Age	AGE	Student age
Nationality	NAT	Student country of origin. Dummy variable (1 = Italian, 0 = Other)
Area of origin	AREA	Student region of origin. (NORTH, CENTRAL, SOUTH, and FOREIGN, according to the classification of regions by ISTAT). The appropriate dummy variables were constructed
High school diploma	HSD	Student diploma type (scientific high school or similar, classical or linguistic or humanistic/social high school, technical-commercial institute, technical-industrial or tourist or hotel-management institute, institute for surveyors, professional institute). The appropriate dummy variables were constructed
Mark of high school diploma	HSD_M	Students' final diploma result (60–65; 66–70; 71–75; 76–80; 81–85; 86–90; 91–95; 96–100)
Mathematics	MATH	Self-assessment of liking mathematics (Likert-type scale 1–4—None, very little, some, lot)

(continued)

Table 6.2 (continued)

Variables	*Abbreviation*	*Description*
Study levels	LEVEL	Student level of university education. Dummy variable (1 = First level/bachelor's degree; 0 = Master's degree/second level)
Student Year	YEARS	Year of the student (First level: first year, second year, third year, outside prescribed time for the bachelor's degree; Second level: first year, second year, outside prescribed time for the master's degree)
Father's educational attainment	FATHER_EDU	Father's Education (No schooling, completed primary school, completed junior high school a, completed vocational school, Completed high school, University graduate)
Mother's educational attainment	MOTHER_EDU	Mother's Education (No schooling, completed primary school, completed junior high school, completed vocational school, Completed high school, University graduate)
Household income	INCOME	Income level of the household
Ownership of material goods	Mobile TV Pc_tablet Car Bathroom Boat Moto Hsea Hmountain	Self-assessment of household possess: 0, 1, 2, 3, or more (the material goods were mobile phone, television, personal computer-tablet, car, bathroom, private boat, motorbike, beach house, mountain house)
Financial Knowledge *indicator–discrete variable*		
Indicator of total financial knowledge	FK_tot	Indicator of the student's overall financial knowledge (sum of the correct answer to the six questions in the category: 1 = Correct, 0 = Incorrect/Missing)

(continued)

Table 6.2 (continued)

Variables	*Abbreviation*	*Description*
Attitude towards finance indicator–discrete variable		
"View of finance" component	VIEW	Indicator of ATF, with specific regard to the component "view of finance". Self-assessment of vision towards finance (sum of the scores on 30 statements—Likert-type scale 1–4). The index is normalized and returned to a unit basis
"Emotional disposition towards finance" component	EMOTION	Indicator of ATF, with specific regard to the component "emotional disposition towards finance". Self-assessment of feelings towards finance (sum of the scores on 9 statements—Likert-type scale 1–4). The score is normalized
"Self-confidence" component	SELF-CONF	Indicator of ATF, with specific regard to the component "self-confidence towards finance". Self-assessment of financial self-efficacy beliefs (sum of the scores on 12 statements—Likert-type scale 1–4). The score is normalized
Overall Indicator of Attitude Towards Finance	ATF	Indicator of the student's overall attitude towards finance, derived from the sum of the previous three indicators ("VIEW" indicator + "EMOTION" indicator + "SELF-CONF" indicator)

6.4 Results

6.4.1 Students' Levels of Financial Knowledge and Attitude Towards Finance

The first objective of this chapter was to assess the levels of financial knowledge and attitude towards finance of the students in the sample. Other than the overall measure of financial knowledge, we also provided

the measure for two subscales—basic financial knowledge and sophisticated financial knowledge. Tables 6.3 and 6.4, respectively, show the main descriptive statistics for each of the financial knowledge indexes described above and their frequency distributions.

Based on the results exhibited in Tables 6.3 and 6.4, it is known that, on average, the general performance in financial knowledge is relatively good among university students in the sample. Only about 24% of respondents get all six correct and approximately 7% of students fall into the cluster "zero correct answers-to-1 correct answers"; the overall measure of financial knowledge of the sample can be considered medium–high.

When it comes to basic financial knowledge, more than one in two students in the sample were top performers (51.50%). They obtained the maximum score of 3 and thus demonstrated to fully possess the set of knowledge that underpins day-to-day financial decision-making, given that they correctly responded to questions about interest rates, inflation, and risk diversification. For example, 82.00% of the respondents know how compound interest is calculated, about 70% of them understand the concepts of inflation as well as the risk diversification principle. For the advanced knowledge indicator, 33.38% of the sample obtained a maximum score of 3. These students demonstrated to possess some complex financial concepts and showed a deep understanding of the financial landscape. Interestingly, students scored the highest on question Q5, which evaluated the knowledge of the differences between

Table 6.3 Descriptive statistics of FK indicators

Variable	*Obs*	*Mean*	*Mode*	*Median*	*Std. Dev*	*Min*	*Max*
FK_tot	466	4.217	5	5	1.560	0	6

Table 6.4 Frequency distribution of FK_tot indicator

FK_tot	Score	Frequency (%)
	0	13 (2.79)
	1	20 (4.29)
	2	36 (7.73)
	3	59 (12.66)
	4	103 (22.10)
	5	126 (27.04)
	6	109 (23.39)

stocks and bonds, followed by Q. 1 (interest rates) and Q. 3 (risk diversification). Conversely, the lowest scores were obtained on question Q4, which deals with the relationship between bond prices and interest rates, followed by Q. 2 on the understanding of inflation.

The attitudinal profiles towards finance were also assessed to consider some personality factors, such as cognitive and emotional status towards finance, which could play an important role in affecting the financial knowledge of students in the sample. Table 6.5 reports the descriptive statistics of the attitude towards finance (ATF) of the sample. The frequency distribution for the "attitude towards finance" measures are presented in Tables 6.6a and 6.6b.

Looking at them, it can be noted that for none of the indicators the descriptive statistics of mean/median/mode fall below the value of 0.7, showing a highly positive average level of attitude towards finance in the sample. The overall attitude towards finance index, as well as its subcomponents, were quite high: for each attitude subcomponent, about 70% of the sample were in the high and very high levels. Only a minority of students (less than 5% of the sample) had a strong disengagement with finance and was categorized as very low or low profile. Moreover, since the proportion of students with a positive attitude towards

Table 6.5 Descriptive statistics of "attitude towards finance" indicators

ATF Indicators	*Obs*	*Mean*	*Median*	*Mode*	*Min*	*Max*	*Range*
View	466	0.737	0.767	0.833	0	1	0–1
Emotion	466	0.764	0.778	0.833	0	1	0–1
Self-Confidence	466	0.715	0.729	0.854	0	1	0–1
Overall ATF	466	0.736	0.752	0.819	0	1	0–1

Table 6.6a Frequency distribution of "attitude towards finance" overall indicator

Level		*Overall ATF Frequency (%)*
Very Low	0–0.20	6 (1.29)
Low	0.21–0.40	4 (0.86)
Medium	0.41–0.60	45 (9.66)
High	0.61–0.80	260 (55.79)
Very High	0.81–1	151 (32.40)

Table 6.6b Frequency distribution of "attitude towards finance" indicators (View–Emotion–Self-Confidence)

Level		*View Frequency (%)*	*Emotion Frequency (%)*	*Self-Confidence Frequency (%)*
Very Low	0–0.20	8 (1.72)	1 (0.21)	8 (1.72)
Low	0.21–0.40	3 (0.64)	15 (3.22)	10 (2.15)
Medium	0.41–0.60	31 (6.87)	58 (12.45)	98 (21.03)
High	0.6–0.80	293 (62.87)	186 (39.91)	189 (40.56)
Very High	0.81–1	130 (27.90)	206 (44.21)	161 (34.55)

finance was large within the sample, some heterogeneity anyway existed related to the single sub-components of the construct (vision, emotion and self-confidence). In fact, there existed different "profiles of attitude" within the sample, depending on the mix of a personal vision of finance, the beliefs about the self, and the emotional reaction to financial issues held by each student. In particular, the differences mainly concerned the emotional scores and the "beliefs about the self' component levels.

In order to better understand the attitude profiles of the participants we can then apply this rule: we consider (1) the individual attitude profile positive if all three of its constituent components were positive, while (2) we judge the attitude profile negative if only one of its constituent dimensions was rated as negative. Following this rule, we find that 84.76% of the sample has a positive attitude towards finance, while 15.24% has a negative attitude (because at least one of the components was negative, i.e., below a score of 0.5).

6.5 Relationship Between Attitude Towards Finance and Financial Knowledge

As noted above, prior investigations explored the link between financial attitude and financial knowledge, but the evidence was mixed (Agarwalla et al., 2013; Hayhoe et al., 2005; Riitsalu et al., 2019). Moreover, none of those studies focused on the construct of attitude towards finance here investigated and the causality question rested to be unraveled as well.

To identify which way the causation runs between attitude and knowledge, we used two sets of SEM. The first takes the attitude towards finance as the independent variable which causes knowledge (ATF ->

FK), whereas the second takes the knowledge as the independent variable which affect the attitude towards finance (as FK -> ATF). The two sets of models are run on the questionnaire data and the *p*-values of the model parameters were compared: the model with the lowest p-values can be considered the best.

Table 6.7 summarizes the *p*-values of the main parameters of a model ATF -> FK_tot and FK_tot -> ATF, where FK_tot is the financial knowledge indicator. Comparing the pairs of *p*-values present in each row, it was clear that the parameters of the financial attitude in the model ATF -> FK_tot were generally smaller than the parameters of the attitude towards finance in a model FK_tot -> ATF. Namely, this was the case for both View and Emotion while for Self Confidence the two *p*-values were rather close. Thus, the first model was preferable.

Based on Table 6.7, it was found that the levels of all *p*-values were quite low; this suggested that a direct and significant link existed between attitude and knowledge (the smaller the *p*-values in a study, the more the null hypothesis is improbable, and the alternative hypothesis is probable). Moreover, the direction of the causation was also suggested: attitude towards finance affected financial knowledge rather than the opposite; the more favorable a person's profile of ATF, the higher the level of Financial Knowledge.

After having established that the strongest causality relation was from attitude to knowledge, we focused on SEM where attitude towards finance was the dependent/response variable and financial knowledge was the independent/exogenous variable. Now we aimed at investigating

Table 6.7 *p*-values obtained in a SEM model where it is assumed that (1) each "ATF" component (first column) determines the financial knowledge "FK" (column ATF -> FK) and (2) the financial knowledge "FK" affect each "ATF" components (column FK -> ATF)

ATF dimensions	*Overall financial knowledge*	
	ATF -> FK_tot	*FK_tot -> ATF*
View	2.89E-7	7.25E-6
Self Confidence	2.68E-12	2.28E-12
Emotion	5.62E-12	2.79–11

which dimension of attitude towards finance most influenced the knowledge of finance and thus played the most significant role in becoming financially knowledgeable.

The three components of attitude—view of finance, perceived financial competence, and emotional disposition—were the result of aggregation of the scores obtained in many statements (respectively, 30, 12, and 9 for each component). As all statements didn't have the same relevance on basic and advanced financial knowledge indicators, we therefore build 30 + 12 + 9 = 51 SEM models to study the significance of the parameters of each relation and re-compute the three attitude components using only the statements for which the relation with the two FK indicators was both significant at 0.01 level. Of the 30 statements related to the view of finance, only 8 were significant and were retained; 7 (out of 12) were retained concerning the perceived financial competence; and 7 (out of 9) questions relating to emotional disposition.

The results of the SEM obtained using the re-computed attitude components are in Table 6.8. Looking at the extent to which each dimension of attitude was associated with financial knowledge in the sample, the results revealed that all three components of attitude had a positive impact on the overall indicator of knowledge, with an emotional disposition towards financial matters exerting the strongest influence, followed by financial self-confidence. Instead, we found that the "view towards finance" component of the overall attitude towards finance index exerted the lowest effect on the general index of financial knowledge.

Next, we tested the extent to which the three components of attitude were interlinked. Table 6.9 reported the results: the three re-computed dimensions of attitude were positively associated with each other. Financial self-confidence and emotional disposition towards finance were the most strongly associated, with a Pearson coefficient larger than 0.8 congruent with a previous study (Lind et al., 2020). Thus, our result

Table 6.8 *p*-values obtained in SEM where scores for "view", "self-confidence", and "emotion" are re-computed using only significant statements

	ATF -> FK_tot
View	2.32eE-8
Self Confidence	6.18E-10
Emotion	7.29E-12

Table 6.9 Statistical associations between the three dimensions of attitude: Pearson Coefficients

	View	*Self confidence*	*Emotion*
View	1	0.67450	0.61641
Self Confidence		1	0.82424
Emotion			1

suggests the complementary nature and the close interplay between emotional disposition towards finance and students' self-efficacy beliefs in finance. Accordingly, a negative emotional disposition towards finance (for example in the shape of financial anxiety) can be the reason for a lack of success/ understanding, because it is well known that anxious people have access to fewer cognitive resources. At the same time, a low perceived competence related to finance tend to elicit a negative emotional disposition towards finance-related situations. Conversely, if finance generates positive emotions in an individual, he or she will feel comfortable and benign in presiding over finance and vice versa.

6.6 Discussion and Conclusion

Globally, financial knowledge is now recognized as a key basic skill and a "buffer against adversities". It serves not only to navigate in modern society in normal times but also for promoting financial resilience by lowering vulnerabilities in difficult times and in complex environmental scenarios, such as the current one (Lyons et al., 2020). Many adversities and threats—whether environmental, social, or economic—particularly hang over young adults and the younger. In Italy, where both the NEET and the financial illiteracy rates are historically high (see also Chapter 6.1), young adults have been severely impacted also by the latest economic crisis making harder their transition to work. In addition, at present, they are also experiencing a significant economic impact on the current coronavirus pandemic.

In this analysis, we addressed the "young adults' issue" by exploring the mechanisms through which the attitudinal traits influence their achievement in the financial knowledge test. In other words, we wanted to know (1) whether the attitude towards finance (namely, their beliefs to finance, feelings, financial self-confidence) matters when it comes to financial knowledge and (2) how the attitude towards finance-financial

knowledge circle unfolds. In doing so, we intended to measure attitude towards finance in a sample of Italian university students and to assess their financial knowledge, using the definitions outlined in the introduction. We also explored the relationship between attitude towards finance-financial knowledge in terms of both correlation and causation. Prior works in the financial field aimed at deepening these themes have yielded quite inconclusive results and, in any case, they have focused on constructs other than the one investigated here, constructs that have also been criticized recently (D'Alessio et al., 2020).

We found that the university students surveyed showed both a relatively high level of financial knowledge and a quite positive attitude towards finance; only a small minority of them had a low profile in the area of attitude. Our findings are consistent with other studies of financial knowledge of college student populations (Anderson et al., 2018; Kubicková et al., 2019). Moreover, our perspective substantiates and also widens previous findings on the effects on financial knowledge exerted by certain variables, such as the interest in financial matters or financial self-confidence (Arellano et al., 2018; Bongini et al., 2016; Bucher-Koenen et al., 2017; Grohmann, 2016). For the first time, the present study has included these elements in the realm of attitude, rather than considering them as separate domains.

It was found that a direct and significant correlation exists between attitude towards finance and financial knowledge and that the former does affect the latter. It follows that a positive attitude towards finance can be a good start in becoming a financially knowledgeable person. This result has important implications for policymakers: the attitude towards finance should be targeted to enhance financial knowledge among the young. In order to optimize learners' financial outcomes, financial literacy programs should develop specific criteria for diagnosing and eventually modifying attitudes. In fact, learners who enter a financial literacy program with positive or even neutral attitudes towards finance are more likely to be open and willing to learn about finance; at the same time, favorable attitudes to finance should represent a final goal of a training program. Consequently, in agreement with Zan and Di Martino (2007), we believe that it is important to carefully monitor the learners' attitude profile, especially in the case of "negative" attitudes, because "the diagnosis of a 'negative' attitude becomes a starting point to design an intervention aimed at modifying the component(s) identified as 'negative'". It follows that possible remedial actions aimed at pushing a "positive attitude" will

require a completely different approach depending on whether the negative attitude to restore refers only to the emotional component or it refers to a particular pattern of (distorted and wrong) beliefs and emotions.

This study has also determined which of the three components of the attitude towards finance construct played the main role in becoming financially knowledgeable. It was found that the emotional disposition towards financial matters was the strongest predictor of financial knowledge, followed by financial self-confidence and next by the view of finance. In fact, the most financially knowledgeable students in our sample were more likely to be personally interested in financial learning (or other finance-related experiences) and to believe that they could easily succeed at learning finance. Our results were in line with prior studies, which found that feelings relate to finance and financial self-efficacy impacts an individuals' ability to gain financial knowledge (Arellano et al., 2014; Farrell et al., 2016; Skagerlund et al., 2018a, 2018b). Additionally, we have also pointed out how the way emotion relates to finance is strictly associated and interacts with the financial self-efficacy beliefs. Therefore, discouraging negative feelings towards finance should have interesting repercussions on low self-efficacy beliefs too and vice versa; these actions can support the learners' financial literacy process.

This research has certain limitations. The first and most important is that we collected data through a self-reported questionnaire at one point in time, in a single campus and geography. The small size of the non-random sample doesn't allow any generalization to a larger population beyond the scope of the present study. Thus, further research needs to be done to replicate our findings targeting a different subgroup of the population in Italy or in other countries. Anyway, more studies in the finance framework need to focus on the attitude towards finance-financial knowledge relations to validate our findings on a larger scale; the causal link between them could also be explored by using an experimental design. Future research should even assess the influence of some socio-demographic factors (age, gender, math aptitude, parents' attitude towards finance…) here neglected to affect and determine the level of students' financial knowledge and attitude. Future investigations are also required to explore whether the so-called attitude towards finance construct may also affect financial behavior and well-being, which are the true goals of financial literacy initiatives. Finally, exploring how to

develop the right attitude towards finance through formal financial education programs is another interesting avenue for further study. Worldwide there is still much to be done to integrate the "attitude diagnosis" into effective financial literacy curricula.

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