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By *Edoardo Lanciano, Daniele  
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# **Crypto Ownership among Young People: The Effect of Financial Literacy and Risk Propensity**

Edoardo Lanciano<sup>1</sup>, Daniele Previati<sup>2</sup>, Ornella Ricci<sup>3</sup>

## **Abstract**

The aim of this paper is to analyse how financial literacy and risk propensity affects crypto investment decisions. We investigate a sample of 4,924 Italian respondents, available from the 2023 Bank of Italy survey on financial literacy of young people, finding that both financial literacy and risk propensity have a strong effect in crypto ownership. In addition, we find that high risk propensity affects crypto ownership even among people with low financial literacy, and that these people are also affected by a gambling orientation. Our main goals are to shed light on crypto investors' characteristics such as financial literacy, risk propensity, and gambling orientation, and to highlight the role of financial literacy in mitigating risky behaviour or, at least, in taking risky behaviour consciously, especially for young people.

Keywords: Financial literacy, crypto, risk propensity, young

JEL codes: G53, G11, G41, G51

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<sup>1</sup> University Roma Tre, edoardo.lanciano@uniroma3.it

<sup>2</sup> University Roma Tre, daniele.previati@uniroma3.it

<sup>3</sup> University Roma Tre, ornella.ricci@uniroma3.it

## **1. Introduction**

Cryptocurrencies and crypto assets are highly volatile and risky financial instruments. In fact, they are decentralized instruments, they are not regulated, or supervised by supervisory authorities, they are issued by private entities, and their value depends mainly on the investors (Liu & Tysvinski, 2021). Thus, crypto investments are a matter under particular attention from supervisory authorities, as they may be affected by several risks, and these risks should be well understood before taking investment decisions. The behaviour of cryptocurrencies is in fact more speculative and riskier than other asset classes (Baek & Elbeck, 2015; Yermack, 2015). Moreover, crypto investment behaviour is often associated with gambling mentality (Almeida & Goncalves, 2023). For these reasons, owning an adequate level of financial knowledge and skills allows to consider and assess risks and opportunities related to crypto investments.

The aim of this paper is to analyse in which way financial literacy and risk propensity are related to the ownership of crypto assets. Financial literacy and risk propensity are, in fact, individual characteristics that can affect investment decisions, and which should be considered in the adequacy assessments before taking investment decisions, which are not submitted for investments in crypto assets, being out of the regulated matters. The analysis is performed on an Italian sample of young people composed of 4,924 observations. Our evidence show how crypto ownership is positively and significantly related with both individual financial literacy and risk propensity. In addition, analysing how crypto ownership is related to different levels of financial literacy and risk propensity, our most relevant finding is that high risk propensity affects significantly crypto investments even among lowly financially literate individuals, and that these individuals are affected by gambling orientation in these decisions.

The contribution of this paper is to shed light on the individual characteristics of crypto owners, giving the general lack of research on this matter, due to anonymity and non-traceability of crypto transactions (Hackethal et al., 2022), focusing on their financial literacy, risk attitudes and sociodemographic factors. Moreover, we aim to provide useful evidence for regulators and policy makers highlighting the role of financial literacy in mitigating risky behaviour or, at least, in taking risky behaviour consciously, especially for young people, thus showing the relevance of educating people on these matters and, in addition, showing how is important the adequacy and appropriateness assessments of the customers' profile before taking investment decisions, which allows to associate customers' individual features such as their risk profile, financial education and habits, with the financial products' characteristics, which does not happen in crypto platforms. Finally, we aim to enrich the literature analysing the relationship between financial literacy and crypto investment decisions, which is quite conflicting and inconclusive at the moment, providing a case from Italy

focused on young people, typical owners of crypto assets, a target often under particular focus by supervisory authorities regarding crypto, as they generally use to be digitally but not highly financially literate.

The paper is structured as follows: section 2 offers a literature review, section 3 reports method and sample information, section 4 results, and section 5 some discussion and conclusions.

## **2. Literature review**

The relationships between financial literacy, investment behaviours and crypto ownership have generated particular interest in the academic literature in the recent years, especially due to the trend of digitalization of financial operations, to the development of decentralized finance and the spread of cryptocurrencies and crypto assets among retail investors. However, these can be considered as relationships that still are under explored and deserve further evidence. The literature, in fact, is very recent and provides at the moment conflicting results from studies conducted in different contexts. For example, Fujiki (2020) in Japan and Colombo & Yarovaya (2024) in Brazil find that crypto asset owners have a higher level of financial literacy compared to non-owners, while Carbo-Valverde et al. (2023) and Panos et al. (2020) show in their studies that financial literacy is negatively related with crypto ownership, respectively in Spain and in a sample of 15 countries. Not only financial literacy but also several other investors' characteristics affect cryptocurrency purchasing decisions, such as risk attitudes, gambling orientation, the level of self-confidence, and sociodemographic factors (Balutel, et al., 2022; Chhatwani & Parija, 2023; Fujiki, 2020, 2021; Hasso et al., 2019; Panos et al., 2020; Hackethal et al., 2022; Johnson et al., 2023; Stix, 2021).

Focusing on risk attitudes, usually crypto investments are positively associated with risk propensity. We can mention, for example, Fujiki (2020) which found that crypto owners tend to be impatient, to have less self-control and to be less risk-averse than non-owners, or Hacketal (2022) which shows how crypto investors are prone to investment biases and hold risky portfolios, or Stix (2021), also, which reports that crypto owners, on average, have higher financial knowledge and are more risk-tolerant than non-owners.

Related to risk attitudes, given the characteristics of these financial instruments, also gambling is often associated with crypto investment decisions. Johnson et al. (2023) in their scoping review of the emerging literature on cryptocurrency trading and its link to gambling symptoms, considering six studies which examine the relationship between cryptocurrency trading and problem gambling (Delfabbro et al., 2021a; Kim et al., 2020; Mills & Nower, 2019; Oksanen et al., 2022; Sonkurt & Altinoz, 2021; Song, 2022), find that there is a likely relationship between problem gambling and cryptocurrency trading.

### 3. Data and method

For our research purposes we consider data from the 2023 Bank of Italy survey on young people financial literacy. The sample is composed by 4,924 survey respondents, aged between 18 and 34. Statistics about sample composition are reported in Table 1. Given the goals of our study we considered as outcome variable the ownership of crypto assets (*Crypto*), obtained from a survey question where it is asked whether the respondent has ever invested in crypto assets. It is considered as a dummy variable where 1 represents the ownership while otherwise is 0. As independent variables, first we consider a proxy of financial literacy (*Financial literacy*), composed of the amount of correct answers to a set of sixteen financial literacy questions, eight financial knowledge and eight financial behaviour questions, including the Big three (interest rate, inflation, risk diversification) topics (Lusardi & Mitchell, 2008), and other financial topics as risk-return relationship, mortgages, savings, retirement planning, and budgeting. In addition, we consider as independent variable the respondents' risk propensity (*Risk propensity*), particularly relevant in crypto investment decisions, taken from a specific survey question where it is asked how much on a 1-10 scale the respondent feels himself inclined to take risks in investment and financial decisions. Finally, we include a set of sociodemographic control variables, typically considered in similar studies with similar goals (Balutel, et al., 2022; Fujiki, 2020; Hasso et al., 2019; Panos et al., 2020; Hackethal et al., 2022; Stix, 2021), such as gender, age (three age groups), geographical residence (three geographical areas), municipal dimension (three dimensions), education (three educational levels), wealth (three wealth levels), profession (three profession groups), and the individual level of usage of digital financial services (*Digitalization*), which is a clear driver for this kind of decisions, assessed considering a question where the respondents declare how much they feel comfortable in using financial services (payments, bank account, credit, insurance, pension funds, trading, advisory) in a digital form. Finally, in order to see whether these decisions can be affected by gambling orientation, we consider a measure of gambling orientation (*Gambling*) consisting of one question that asks whether respondents are confident that the value of Bitcoin will increase if it has increased in the previous year, represented by a dummy variable where 1 indicates an affirmative answer while otherwise is 0.<sup>4</sup> We consider this measure as a proxy of gambling orientation, since if a respondent is confident about an increase of the value of Bitcoin relying on an increase of the value in a previous period, probably will be more inclined to invest but without being aware of the risks and volatility of these instruments.

For analysing the relationships between our variables, as a first step of the empirical analysis we employ an OLS regression (Model 1) considering *Crypto* as the outcome variable, which

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<sup>4</sup> The text of the questions considered for our dependent and independent variables (*Crypto*, *Financial literacy*, *Risk propensity*, *Gambling*) are available in Appendix 1.

represents crypto ownership, and as independent variables our proxy of *Financial literacy*, *Risk propensity* and  $\delta_j$  which represents our sociodemographic controls. The model is specified below (1).

$$(1) \text{Crypto}_i = \beta_0 + \beta_1 \text{Financial literacy}_i + \beta_2 \text{Risk propensity}_i + \sum \delta_j + \varepsilon_i$$

As a second step, we further analyse the role of financial literacy and risk propensity, verifying how different level of financial literacy and risk propensity are related to crypto ownership. Following the approach proposed by Chhatwani & Parija (2023), we divide the sample in four subgroups, considering the combination between two levels of financial literacy (above and below the average) and two levels of risk propensity (above and below the average). Thus, we obtain four groups: a group where respondents have low financial literacy and low risk propensity (*Appropriate low risk propensity*), a group where respondents have low financial literacy and high risk propensity (*Financial risk propensity*), a group where respondents have high financial literacy and high risk propensity (*Appropriate high risk propensity*), and the final group where respondents have high financial literacy and low risk propensity (*Financial risk aversion*). Each group is represented by a dummy variable where 1 indicates the belonging to the group while otherwise is 0. The four groups are represented in Figure 1 below.

**Figure 1** Financial literacy and risk propensity categories

<p><b>Financial risk propensity</b> Low financial literacy High risk propensity</p>	<p><b>Appropriate high risk propensity</b> High financial literacy High risk propensity</p>
<p><b>Appropriate low risk propensity</b> Low financial literacy Low risk propensity</p>	<p><b>Financial risk aversion</b> High financial literacy Low risk propensity</p>

Considering these four groups, we employ a second OLS regression (Model 2), with *Crypto* as dependent variable, and as independent variables the four financial literacy and risk propensity categories, in order to verify how crypto ownership changes considering different levels of financial literacy and risk propensity. The model, specified below (2), includes three of the four groups, while *Appropriate low risk propensity* is taken as the base category.

$$(2) \text{Crypto}_i = \beta_0 + \beta_1 \text{Financial risk propensity}_i + \beta_2 \text{Appropriate high risk propensity}_i + \beta_3 \text{Financial risk aversion}_i + \sum \delta_j + \varepsilon_i$$

In addition, in order to verify whether these groups take crypto investment decisions with a gambling approach, we consider our groups as subsamples and for each group we employ a third OLS regression (Model 3), considering again Crypto as dependent variable and as main independent variable of interest our gambling orientation proxy. The model is specified below:

$$(3) \text{Crypto}_i = \beta_0 + \beta_1 \text{Gambling}_i + \sum \delta_j + \varepsilon_i$$

Finally, as robustness tests we employ the same three models but using a reduced proxy of financial literacy, represented by the eight financial knowledge questions, and re-estimate Model 2 but using a different sample composed of 5,002 observations, not focused only on young people and nationally representative, available from the 2023 survey on financial literacy levels of Italian household, led by the Italian Financial Education (Edufin) Committee. This last robustness test, using a different dataset with observations from a different sample, is particularly relevant to confirm our results about the relationship between crypto ownership and our financial literacy and risk propensity groups. For this last robustness test, we use a proxy of financial literacy considering the available financial literacy questions contained in the questionnaire, while for risk propensity in this case too we use a specific survey question where it is asked how much on a 1-10 scale the respondent feels himself inclined to take risks in investment and financial decisions<sup>5</sup>.

#### 4. Results

Showing some preliminary statistics about our variables, first of all we can see that crypto assets are hold by the 15.62 % of our sample (769 observations) (Table 2). Regarding our main independent variables, financial literacy and risk propensity, the average level of financial literacy among the overall sample is 0.57, while for risk propensity it is 4.07. It is also interesting to see how the average level of financial literacy and risk propensity changes among crypto owners and non-owners (Table 4). The average level of financial literacy among crypto owners (0.6189) is about 11% higher than the average level among non-owners (0.5569) with a difference in mean statistically significant at the 1% level of significance. Regarding risk propensity, these differences are more

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<sup>5</sup> More information and text of the questions considered contained in the 2023 Edufin questionnaire are available upon request.

pronounced. In fact, the average level of risk propensity among crypto owners (5.3368) is approximately 40% higher than non-owners (3.8358), with a very high level of significance ( $p < 0.01$ ).

Finally, in Table 5 we report some statistics about the four groups composed of different levels of financial literacy and risk propensity. The majority of crypto owners are observed in both the groups with high risk propensity, with the highest percentage (38.23%) reported in the group with respondents highly financially educated and with high risk propensity (*Appropriate high risk propensity*).

Table 6 reports the results of Model 1, which analyses the relationship between financial literacy, risk propensity, control variables and crypto ownership. In line with Fujiki (2020), Colombo & Yarovaya (2024), and Stix (2021) we find that both financial literacy and risk propensity have a strong effect on crypto ownership. Moreover, crypto ownership is much more likely among male, the youngest, worker, wealthy, and highly digitalized respondents. No relevant differences are reported based on education level, geographical origin and municipal dimension.

Table 7 reports the results of Model 2, which analyses crypto ownership among the four groups composed of respondents with different level of financial literacy and risk propensity. Model 2 includes three of the four groups, while *Appropriate low risk propensity*, the omitted one, is taken as the base category. From these results, which should be read on the basis of the omitted group, we find that the group which is more likely to own crypto assets is the group with both high financial literacy and risk propensity (*Appropriate high risk propensity*). At the same time, we find that also the other group with high risk propensity but with low financial literacy (*Financial risk propensity*), is positively and highly significantly related with crypto ownership. This can be considered as the most surprising result of this paper. In fact, risk propensity drives these investment decisions not only among people with an adequate level of financial knowledge and skills, which therefore take these decisions with awareness, despite they are notoriously risky, but also, among people with low financial literacy which, on the contrary, take these risky investment decisions unconsciously. Finally, no significant results are reported for the remaining group, composed of people with low risk propensity and high financial literacy (*Financial risk aversion*), showing how people with low risk propensity tend to not invest in these financial instruments.

Finally, Table 8 reports the results of Model 3, which analyses how crypto ownership is affected by gambling orientation in each of the four groups. In line with (Johnson et al., 2023), we find that crypto ownership is positively related with gambling mentality, but only in the *Financial risk propensity* group, composed by respondents with low financial literacy and high risk propensity, while no significant results are reported for the other groups. This result is particularly relevant, because it tells that people with low financial literacy and high risk propensity are more likely to

adopt a gambling approach in crypto investment decisions, compared to the other groups where these decisions are taken with higher awareness of the related risks.

Table 9 reports results of our robustness tests, employed adopting a different proxy for financial literacy, represented by the eight financial knowledge questions, a reduced number of questions compared to the original proxy composed by knowledge and behavioural questions. In order to reassembling the four groups with different levels of financial literacy and risk propensity adopting this measure, we consider as high financial literacy at least four correct responses to these eight questions, while for risk propensity we consider again the average as parameter to separate high and low risk propensity. We estimated again our three models, considering these measures. Results, respectively reported in Panel A, B and C of Table 9, are confirmed.

Finally, Table 10 reports results of our final robustness test, employed re-estimating Model 2 but using a different dataset, available from the 2023 survey on financial literacy levels of Italian household, led by the Italian Financial Education (Edufin) Committee, with available sociodemographic control variables included (gender, age, education, geographical origin, income, digitalization). In this case too, using other data, the group which is more likely to own crypto assets is the group with both high financial literacy and risk propensity (*Appropriate high risk propensity*), and again at the same time, also the other group with high risk propensity but with low financial literacy (*Financial risk propensity*), is positively and highly significantly related with crypto ownership. Results are similar also in control variables. These results, obtained from different data, from a different sample that is not focused only on young people, confirm the particularly relevant role of risk propensity, which can be considered as a strong determinant for crypto ownership.

## **5. Discussion and conclusions**

This paper studies the phenomenon of crypto ownership among young people as an investment instrument, and in particular analyses the effects on these decisions of specific individual characteristics such as financial literacy, risk propensity, gambling orientation and a set of control variables. The main findings of the paper are the strong effect of both financial literacy and risk propensity on crypto ownership, with high risk propensity that drives these decisions even among young people with low levels of financial literacy. In addition, this group seems to consider crypto ownership as a gambling move compared to the other groups.

This means that part of the sample invests in crypto without awareness of the related risks, thus showing that they do not own adequate characteristics for these decisions. Without financial literacy, in fact, investment decisions are made without awareness, and they can be affected by other factors, such as risk propensity and gambling orientation. Financial literacy is important for making

aware financial decisions (Lusardi & Mitchell, 2014). Taking investment decisions without awareness can have serious consequences. One of the goals of the paper, is in fact to highlight the importance of financial literacy for mitigating risky behaviour or, at least, in taking risky behaviour consciously, as we have seen in crypto ownership in the group with respondents with both high financial literacy and risk propensity (*Appropriate high risk propensity*).

The evidence from this study could be useful to better understand the phenomenon of crypto investments among young people, knowing something more about the individual investors' characteristics, and could have informative value for regulators and policy makers. In addition, these results could be useful for regulators and policy makers providing evidence about the importance of financial education in developing awareness in financial decision making, and the relevance of the adequacy and appropriateness assessments of the investor characteristics before taking investment decisions and suggesting how they could be useful also in crypto investment platforms, in order to avoid the purchase of crypto assets by people with inadequate characteristics. Moreover, this study aims to enrich the literature about cryptocurrencies and financial literacy which provides at the moment inconclusive results. However, the paper has some limitations. In fact, we analyse the Italian context while can be useful to expand our research to other contexts, we don't know the amount invested in crypto by the respondents and also which crypto assets are purchased. For these reasons, further research is needed to better know about crypto assets, crypto investors, their financial literacy and other individual characteristics.

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**Table 1 Sample composition**

Gender	Freq.	Percent.	Cum.
Men	2,455	49.86	49.86
Women	2,469	50.14	100.00
Total	4,924	100.00	
Age	Freq.	Percent.	Cum.
18-23	1,598	32.46	32.46
24-29	1,660	33.71	66.17
29-34	1,666	33.83	100.00
Total	4,924	100.00	
Geographical residence	Freq.	Percent.	Cum.
North	2,176	44.20	44.20
Centre	965	19.59	63.79
South and islands	1,783	36.21	100.00
Total	4,924	100.00	
Municipal dimension			
City	1,275	25.89	25.89
Province	1,174	23.84	49.73
Village	2,475	50.27	100.00
Total	4,924	100.00	
Education	Freq.	Percent.	Cum.
University	1,537	31.21	31.21
High school	2,865	58.18	89.39
Lower education	522	10.61	100.00
Total	4,924	100.00	
Profession			
Student	1,400	28.43	28.43
Worker	3,107	63.09	91.52
Unemployed	417	8.48	100.00
Total	4,924	100.00	
Wealth	Freq.	Percent.	Cum.
High wealth	924	18.76	18.76
Medium wealth	2,939	59.69	78.45
Low wealth	1,061	35.45	21.55
Total	4,924	100.00	

**Table 2 Crypto ownership**

Crypto	Freq.	Percent.
Yes	769	15.62
No	4,155	84.38
Total	4,924	100.00

**Table 3 Descriptive statistics**

	N	Mean	SD	Min	p25	Median	p75	Max
Financial Literacy	4,924	0.57	0.18	0.00	0.44	0.56	0.69	1.00
Risk propensity	4,924	4.07	2.32	1.00	2.00	4.00	6.00	10.00

**Table 4 Difference in mean among crypto owners**

Crypto	Yes	No	Difference	p-value
Financial literacy	0.6189	0.5559	0.0630	0.0000
Risk propensity	5.3368	3.8358	1.5009	0.0000

**Table 5 Groups statistics**

	n.	Percent.	Crypto	Percent.
Appropriate low risk propensity	1,498	30.42	109	14.17
Financial risk propensity	1,223	24.84	224	29.14
Appropriate high risk propensity	957	19.44	294	38.23
Financial risk aversion	1,246	25.30	142	18.46
Total	4,924	100.00	769	100.00

**Table 6 Financial literacy, risk propensity and crypto ownership**

Variables	(1) Crypto
Financial literacy	0.155*** (0.0306)
Risk propensity	0.0242*** (0.00228)
Male	0.126*** (0.0101)
University	-0.0184 (0.0174)
High school	0.00169 (0.0157)
18-23	0.0409*** (0.0148)
24-29	0.0288** (0.0119)
North	-0.0121 (0.0114)
Centre	-0.00118 (0.0138)
City	-0.00558 (0.0120)
Province	-0.0193 (0.0121)
Student	-0.0120 (0.0144)
Worker	0.0217* (0.0121)
High wealth	0.0423** (0.0167)
Medium wealth	-0.00754 (0.0116)
Digitalization	0.155*** (0.0180)
Constant	-0.217*** (0.0222)
Observations	4,924

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 7 Financial literacy and risk propensity groups and crypto ownership**

Variables	(1) Crypto
Financial risk propensity	0.0612*** (0.0127)
Appropriate high risk propensity	0.144*** (0.0167)
Financial risk aversion	0.0112 (0.0117)
Male	0.134*** (0.0100)
University	-0.00990 (0.0173)
High school	0.00636 (0.0155)
18-23	0.0433*** (0.0148)
24-29	0.0300** (0.0119)
North	-0.00784 (0.0114)
Centre	0.000562 (0.0139)
City	-0.00838 (0.0120)
Province	-0.0200* (0.0121)
Student	-0.00842 (0.0144)
Worker	0.0263** (0.0120)
High wealth	0.0538*** (0.0167)
Medium wealth	-0.00121 (0.0116)
Digitalization	0.172*** (0.0178)
Constant	-0.110*** (0.0197)
Observations	4,924

Robust standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

**Table 8 Crypto ownership and gambling orientation in financial literacy and risk propensity groups**

Variables	(1) Crypto	(2) Crypto	(3) Crypto	(4) Crypto
Subsample	Financial risk propensity	Appropriate high risk propensity	Financial risk aversion	Appropriate low risk propensity
Gambling	0.0494** (0.0234)	-0.0570 (0.0465)	0.0827 (0.0616)	-0.0136 (0.0200)
Male	0.112*** (0.0208)	0.249*** (0.0270)	0.120*** (0.0195)	0.0918*** (0.0161)
University	0.0515 (0.0353)	-0.107 (0.0706)	0.0172 (0.0377)	-0.0204 (0.0227)
High school	-0.000309 (0.0303)	-0.0121 (0.0679)	0.0270 (0.0364)	-0.00281 (0.0196)
18-23	0.0790*** (0.0300)	0.0397 (0.0433)	0.0265 (0.0287)	0.0315 (0.0212)
24-29	0.0543** (0.0267)	0.0523 (0.0351)	-0.00360 (0.0211)	0.0255 (0.0165)
North	-0.0153 (0.0236)	-0.0260 (0.0344)	-0.0244 (0.0221)	0.0207 (0.0150)
Centre	0.0607* (0.0316)	-0.0414 (0.0413)	-0.0342 (0.0266)	0.0167 (0.0174)
City	-0.00194 (0.0264)	-0.0107 (0.0350)	-0.000105 (0.0211)	-0.0305** (0.0155)
Province	-0.0454* (0.0261)	-0.0321 (0.0349)	0.00373 (0.0226)	-0.0193 (0.0162)
Student	-0.00711 (0.0318)	-0.0499 (0.0443)	0.0302 (0.0266)	-0.0120 (0.0193)
Worker	0.0303 (0.0264)	-0.00578 (0.0410)	0.0675*** (0.0213)	0.0106 (0.0158)
High wealth	0.0889*** (0.0335)	0.0297 (0.0487)	0.0437 (0.0311)	0.0202 (0.0258)
Medium wealth	0.0244 (0.0258)	-0.0159 (0.0425)	-0.00269 (0.0225)	0.00277 (0.0143)
Digitalization	0.218*** (0.0328)	0.383*** (0.0643)	0.0545 (0.0435)	0.103*** (0.0226)
Constant	-0.148*** (0.0435)	-0.0991 (0.0999)	-0.0466 (0.0449)	-0.0361 (0.0225)
Observations	1,223	957	1,246	1,498

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 9 Robustness tests**

Variables	(1) Crypto			
<b>Panel A</b>				
Financial knowledge	0.0926*** (0.0215)			
Risk propensity	0.0241*** (0.0022)			
Constant	-0.205*** (0.0217)			
<b>Panel B</b>				
Financial risk propensity	0.0699*** (0.0184)			
Appropriate high risk propensity	0.1001*** (0.0150)			
Financial risk aversion	0.0020 (0.0121)			
Constant	-0.1258*** (0.0204)			
Controls	Yes			
Observations	4,924			
<b>Panel C</b>				
Variables	(1) Crypto	(2) Crypto	(3) Crypto	(4) Crypto
Subsample	Financial risk propensity	Appropriate high risk propensity	Financial risk aversion	Appropriate low risk propensity
Gambling	0.0579* (0.0326)	-0.0343 (0.0276)	-0.0238 (0.0246)	0.0402 (0.0307)
Constant	-0.246*** (0.0561)	-0.0916 (0.0562)	-0.0497* (0.0267)	-0.0248 (0.0295)
Controls	Yes	Yes	Yes	Yes
Observations	607	1,573	2,144	600

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 10 Financial literacy and risk propensity groups and crypto ownership with Edufin data**

Variables	(1) Crypto
Financial risk propensity	0.0307*** (0.00837)
Appropriate high risk propensity	0.0432*** (0.00870)
Financial risk aversion	-0.00657 (0.00613)
Male	0.0196*** (0.00630)
North	0.0282*** (0.00679)
Centre	0.0174** (0.00802)
Young	0.0438*** (0.00924)
Adult	0.00944 (0.00723)
University	0.00888 (0.00998)
High school	0.00178 (0.00916)
High income	0.00830 (0.00851)
Medium income	0.00356 (0.00723)
Digitalization	0.0442*** (0.00957)
Constant	-0.0591*** (0.0117)
Observations	5,002

Robust standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## Appendixes

### Appendix 1 Crypto, Financial literacy, Risk propensity and Gambling questions

Topic	Question number	Question	Answers
Crypto	I1_8	Have you ever invested in crypto assets?	Yes
Financial knowledge			
Interest rate	FK3	Suppose to have €100 on your banking account, with a 2% annual interest rate. How much will you have in your account after 1 year?	€102
Inflation	FK2	Five brothers receive a total of EUR 1,000 as a gift today but have to wait a year to dispose of their share. If the annual inflation rate is 8%, in a year's time each brother will be able to buy with their own sum:	Less than today
Risk diversification	FK5_2	It is usually possible to reduce investment risk by purchasing securities and shares of many types	True
Mortgages	FK5_3	A 15-year mortgage usually requires the payment of higher instalments than a 30-year mortgage, but the total interest paid during the total duration of the mortgage is lower.	True
Compound interest	FK4	Suppose to have €100 on your banking account, with a 2% annual interest rate. How much will you have in your account in 5 years?	More than €110
Risk-return relationship	FK5_1	An investment with a high return is probably low risk	False
Stock market predictability	B1_6	A financial advisor can predict with with extreme accuracy the performance of a stock share	Disagree/Strongly disagree
Inflation protection	B1_1	By keeping my savings in my current account, I am always protected from the risk that inflation will reduce its value.	Disagree/Strongly disagree
Financial Behaviour			

Savings	B2	Do you normally manage to save something at the end of the month?	Always/Often
Supplementary pension	B32	How do you plan to cope with the needs you will have when you retire? With a supplementary pension fund	Yes
Retirement planning	B4	When do you think it would be better to start saving for retirement?	As soon as possible, even small amounts
Budgeting	B5_1	Before buying something, I consider whether I can afford it	Always/Often
Budgeting	B6_2	How often do the following situations happen to you? Realising that you have spent more than you had planned	Never
Respect of deadlines	B6_3	How often do the following situations happen to you? Realising that you have forgotten a payment deadline	Never
House expenses	B7	Could you quantify how much you spend each month in total on the services you have on your subscription (e.g. transport, TV streaming services, music, gaming, telephony, etc.)?	Yes, precisely
Long term goals	A2_3	I set myself long-term financial goals and I commit myself to achieving them	Agree/Strongly agree
Risk propensity	R1	When thinking about your financial decisions, including financial investments, how much are you inclined to risk?	From 1 (no risk propensity) to 10 (High risk propensity)
Gambling	B1_2	If the value of a Bitcoin doubles in one year it is very likely to double in the following year as well	Agree/Strongly agree



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