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Chapter: Advanced Perspectives on Financial Engineering, Economic Modeling and Portfolio Optimization

EXPLORING INVESTMENT BEHAVIOUR: THE ROLE OF PERSONALITY, RISK PREFERENCES, FINANCIAL LITERACY, AND DEMOGRAPHICS

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Annotation. This study explores the impact of personality traits, risk preferences, financial literacy, and demographics on investment behaviour in Romania, addressing a gap in understanding how these factors interact in an emerging market context. Using survey data from 1,171 respondents, it applies multinomial logistic regression to analyse preferences for stocks, cryptocurrencies, real estate, and banking products. The study is original in its integration of psychological traits and socio-economic factors with a focus on high-risk assets like cryptocurrencies, a topic underexplored in existing research. Results show openness and extraversion significantly influence preferences for innovative and tangible assets, while financial literacy plays a key role in promoting informed investment decisions. Urban and younger investors lean toward innovative investments, while older and risk-averse individuals prefer traditional options. Policy implications suggest prioritising targeted financial education to improve literacy and fostering inclusive investment opportunities to reduce disparities across demographic groups.

Keywords: investment behaviour, financial literacy, personality traits, risk tolerance, multinomial logit model.

JEL classification: C25, G41.

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Introduction

Investment behaviour is essential in shaping personal financial stability and broader economic outcomes. Individuals' choices about saving, spending, and investing are not only influenced by market conditions but also by psychological, educational, and demographic factors that warrant deeper exploration. Understanding these behaviours is essential as financial decision-making impacts not just individual wealth but also market dynamics and economic development.

Globally, financial literacy rates remain low, with only 33% of adults possessing basic financial knowledge (Klapper *et al.,* 2015). This lack of knowledge often leads to suboptimal financial decisions, making it crucial to investigate how education, personality traits, and demographic factors influence investment patterns. As financial markets expand and technology lowers barriers to entry, more people are engaging in investments, often without adequate understanding of the risks involved.

Emerging asset classes, such as cryptocurrencies, are increasingly popular, particularly among younger and less experienced investors. This highlights the need to study traits like impulsivity and risk tolerance, which strongly influence participation in high-risk markets. Research such as Jiang *et al*. (2024) has demonstrated that personality traits, including openness and neuroticism, shape individuals' risk perceptions and investment preferences, underlining the interplay between psychological factors and financial behaviour. Cultural and demographic shifts further complicate investment dynamics. Emerging markets, which are projected to contribute 60% of global economic growth by 2030 (World Bank, 2021) present unique challenges and opportunities. These regions often face income inequalities, limited financial access, and differing cultural attitudes toward risk, all of which affect investment behaviour in distinct ways. By integrating insights from personality psychology, financial literacy studies, and demographic analysis, we can develop a more comprehensive understanding of what drives financial decision-making. This knowledge is vital for designing targeted financial education programs that address specific gaps and empower individuals to make informed decisions. Moreover, such studies can help policymakers and financial institutions create strategies that encourage responsible investing while supporting economic growth. The importance of this research lies not only in understanding individual behaviour but also in its implications for policy and education. Bridging the gap between financial knowledge and action requires evidence-based interventions that align with individuals' psychological and social realities. Exploring these factors in different contexts can provide insights into how to better support diverse populations in making sound financial choices.

The existing literature on investment behaviour highlights various influences, such as personality traits, financial literacy, risk preferences, and demographic factors, but often fails to explore their combined effects in specific regional contexts, particularly in emerging markets like Romania. This study addresses the gap by integrating these factors into a unified framework, emphasising their interplay in shaping preferences for diverse asset classes. Unlike previous works that largely focus on isolated variables or generic market settings, this research uniquely contextualises findings within Romania's economic and cultural environment, highlighting distinctive patterns such as urban-rural disparities and the role of education.

The objective of our study is to provide a comprehensive understanding of how psychological, cognitive, and demographic variables jointly influence individual investment choices, especially in an underexplored demographic. The originality lies in the focus on Romania, using robust econometric tools to analyse preferences across varied asset groups, such as banking products, real estate, and cryptocurrencies, while accounting for local socio-economic dynamics.

This research has practical implications for policymakers and financial educators. It can guide the design of targeted financial literacy programs, tailored advisory services, and policy interventions to enhance informed decision-making. Moreover, by addressing region-specific barriers to optimal investment, the findings support efforts to promote economic stability and inclusion. These insights are particularly relevant for developing strategies to engage diverse investor profiles in emerging markets.

1. Literature Review

Structuring the literature by themes allows for a clearer understanding of how diverse factors such as personality, biases, technology, and ethics shape investment decisions. This approach highlights key insights and contrasts across studies, making it easier to identify gaps and contributions relevant to our research.

1.1 Personality Traits and Investment Behaviour

Neuroticism and openness, as demonstrated by Jiang, Peng, and Yan (2024), are significant in shaping equity allocation, with neurotic individuals opting for lower-risk investments due to pessimistic return expectations, while those high in openness lean toward higher-risk investments. Our findings complement this by demonstrating the influence of Machiavellianism on strategic asset allocation, particularly in high-risk contexts. Early life experiences, such as orphanhood, foster stable risk-taking behaviours, as suggested by Ahmad *et al.* (2020), offering a behavioural counterpoint to our study, which integrates demographic and socio-cultural factors to reveal nuanced investment patterns among diverse groups. Cordes *et al.* (2024) explore how visual stimuli and emotional responses to price path shapes influence investment decisions. In contrast, our findings emphasise the role of extraversion in prioritising tangible, emotionally rewarding assets such as real estate. While Wang *et al.* (2024) identify intrinsic motivations such as curiosity and intellectual engagement as key drivers of cryptocurrency investment, we expand on this by showing how financial literacy moderates the impact of openness on such investments.

Behavioural biases mediating the relationship between personality traits and investment behaviour, examined by Khalid Ul Islam *et al.* (2024) and Müser *et al.* (2024), align with our findings, which illustrate how strategic traits like Machiavellianism shape preferences for speculative and innovative assets. Cultural norms fostering gender parity in Eastern Europe, as reported by Cwynar (2021), contrast with our findings, which highlight gendered investment biases in Romania, particularly for high-risk assets like stocks and cryptocurrencies. Grinblatt and Keloharju (2000) emphasise personality-driven trading strategies, such as momentum and contrarian investing, which are consistent with our observation of how agreeableness influences long-term asset preferences. The effects of risk-sharing norms on investment decisions, highlighted by D'Exelle and Verschoor (2015), are shown in our results to have diminished relevance in individual-focused asset classes such as real estate. This synthesis extends the understanding of personality-investment dynamics by incorporating a broader range of traits and their interaction with socio-economic factors, offering a nuanced perspective on investment behaviours.

1.2 Behavioural Biases and Financial Decision-Making

Behavioural biases are pivotal in explaining deviations from rational financial decision-making, with Khalid Ul Islam *et al.* (2024) finding that overconfidence and mental accounting significantly shape risk-taking. Similarly, Mahmood *et al.* (2024) identify herding and overconfidence as key biases affecting investors in Pakistan, but our study nuances this by linking these biases to specific personality traits such as openness and neuroticism. The efficacy of opt-out defaults in mitigating avoidant decision-making, as

highlighted by Gambetti *et al.* (2022), is supported by our findings on tailored financial literacy programs to counteract these biases. Optimistic framing, shown by Daugaard *et al.* (2024) to enhance responsible investment behaviours, aligns closely with our results on the effectiveness of tailored psychological interventions for high-risk investments. Traits such as neuroticism, which amplify emotional reactions to concave price paths, contextualise the findings of Cordes *et al.* (2024) that such stimuli deter investment. Herd behaviour during pessimistic market conditions, discussed by Fateye, Peiser, and Ajayi (2024), is a phenomenon our findings correlate with lower financial literacy levels in high-risk asset investors. While Cwynar (2021) observes limited gender differences in Eastern Europe, our results contrast by showing that biases like overconfidence are more pronounced in male investors in Romania. Romanian investors' biases toward overconfidence and excessive trading in speculative assets stand in contrast to Indian investors' reliance on naive performance measures, as documented by Nedumparambil and Bhandari (2023). Yi, Liao, and Zhang (2022) reveal that venture capital firms in China adopt cautious strategies amid economic uncertainty, a behaviour mirrored in our study, where risk-averse investors tend to avoid volatile markets such as cryptocurrencies. Momentum strategies enabling foreign investors to outperform domestic counterparts, as reported by Grinblatt and Keloharju (2000), are also evident in Romanian markets, although our findings further highlight the role of biases such as mental accounting in limiting domestic success.

1.3 Technological and Contextual Influences on Investment

Technological advancements such as trading apps transform market participation, with Freibauer, Grawert, and Rieger (2024) demonstrating how these platforms lower entry barriers but encourage speculative behaviours. Our findings align with this but emphasise that impulsive trading behaviours are moderated by financial literacy, an aspect underexplored in Freibauer *et al.* (2023). Johri *et al.* (2023) stress the importance of financial education in mitigating risks posed by trading apps, aligning with our results on the critical role of targeted educational interventions for younger investors. Wang *et al.* (2024) identify curiosity and self-efficacy as drivers of cryptocurrency investment, though our findings highlight how intrinsic motivations are tempered by contextual factors such as market volatility. Venture capital firms in China, as explored by Yi, Liao, and Zhang (2022), adopt cautious strategies in response to economic policy uncertainty, paralleling our findings on Romanian investors avoiding high-risk markets amid economic instability. The impact of policy uncertainty on weakening monetary policy effects, discussed by Chen, Huang, and Liu (2023), complements our observation that unclear regulatory environments deter cryptocurrency investments. Macroeconomic instability in Sub-Saharan Africa, as noted by Onitekun and Ogun (2024), reduces private investments, a trend mirrored in our study, where Romanian investors demonstrate heightened caution in volatile economic conditions. Ge *et al.* (2021) highlight how political connections facilitate risky market participation in China, findings that align with our research on Romania, although moderated by socio-cultural factors. Technological influences also shape investment behaviour. Optimistic framing, as observed by Daugaard *et al.* (2024) and Ginevičius (2023), encourages responsible investment via digital platforms, a strategy we found effective in promoting long-term investment among risk-averse individuals. Fateye, Peiser, and Ajayi (2024) document herd behaviour intensifying during economic pessimism in Nigeria's real estate market, a phenomenon reflected in our findings on speculative trading in Romanian markets. Foreign investors, leveraging contextual advantages, as emphasised by Grinblatt and Keloharju (2000), display behaviours shaped by biases, which our results further contextualise under technological and economic pressures.

1.4 Ethical, Cultural, and Institutional Drivers of Investment

Ethical considerations play an increasingly prominent role in shaping investment behaviours. Aristei *et al*. (2024) emphasise how financial literacy fosters preferences for sustainable investments, while our findings expand on this by demonstrating that ethical considerations are also influenced by personality traits such as conscientiousness. The alignment of ethical intentions with behaviour, as highlighted by Zhang and Huang (2024), is significantly affected by financial literacy and risk propensity; we further illustrate that cultural norms moderate these effects. Knowledge of portfolio diversification, linked to sustainable investment preferences by Cucinelli and Soana (2023), is complemented by our observation that ethical investments are equally influenced by social desirability, reflecting traits such as agreeableness. In contrast to the role of political connections in driving risky financial participation in China, as noted by Ge *et al*. (2021), Romanian contexts reveal a stronger reliance on institutional trust in shaping ethical investment choices. Similarly, localised social norms in Romania, influencing corporate decisions, parallel Li's (2024) findings on how hometown affiliations drive environmental investments in China. Abokyi (2022) highlights the role of agricultural programs in Ghana in promoting ethical practices, which aligns with our results on the effectiveness of targeted interventions for enhancing sustainable investments in Romania. Cwynar (2021) observes gender parity in financial behaviours across Eastern Europe, but our findings diverge, showing that Romanian women are more inclined to prioritise sustainability over returns. International frameworks, discussed by Arlota (2022) as aligning energy investments with sustainability goals, complement our observations regarding the impact of global standards on local ethical investment behaviours. Framing strategies that influence wealth managers' adherence to codes of conduct, as identified by Milon *et al*. (2024), align with our findings on the role of tailored communication in enhancing ethical behaviour among investors. Finally, Löfgren and Nordblom (2024) note a gap between ethical preferences and actions, which our study attributes to a misalignment between personality traits and regulatory incentives. Optimistic framing, highlighted by Daugaard *et al*. (2024) to promote responsible investment, similarly proves effective in bridging the gap between ethical intentions and financial behaviour in our research.

This literature review highlights the relationship between existing research and our study, emphasising contrasts that deepen the understanding of investment behaviour. While previous work focuses on specific personality traits or isolated factors, our research integrates strategic traits, socio-cultural contexts, and institutional influences to reveal nuanced patterns. By bridging gaps in the literature, we offer a comprehensive perspective that combines individual tendencies, contextual dynamics, and ethical considerations in shaping financial decisions.

2. Data and Methodology

2.1 Data

In this article, we focus on individual investment behaviour. We aim to explain the mechanisms through which psychological, socio-demographic, and financial knowledge determinants influence individual preferences. Four groups of potential investments are evaluated: (a) banking and insurance products, (b) art objects, valuables, and gold, (c) real estate, and (d) cryptocurrencies, stocks, and investment funds. Each group comprises diverse investment options, reflecting a variety of individual choices. However, analysing each specific investment relative to all others would complicate the discussion of results. A detailed exploration of such intricacies exceeds the scope of this study. This limitation opens the possibility for separate research dedicated to understanding preferences within each group of similar

investments. Such an approach could provide deeper insights into the mechanisms driving choices within narrower investment categories.

The empirical study is cross-sectional, as data collection occurred over a relatively short period of approximately a month and a half. Conducted in October 2023, a questionnaire was distributed via an online platform and through computer-assisted telephonic interviews (CATI). The sampling process aimed to proportionally represent adults aged 18 to 65 from all regions of Romania by stratifying respondents using personal identification numbers. In total, 1,250 individuals were contacted, of whom 953 completed the questionaire, resulting in a response rate of 76.2%. However, certain biases relative to national statistics were identified, as some segments of the population were more likely to respond. For instance, urban residents were overrepresented in the sample (68.9% compared to 58.9% nationally), as were women (53.5% compared to 51.2%). Additionally, there was a significant overrepresentation of individuals with higher education, with 46.5% of respondents holding tertiary degrees compared to 25.7% nationally. These disparities suggest that urban residents, women, and those with higher education were more inclined to participate. The questionnaire was administered through the Interdisciplinary Centre for Data Science. Consequently, the sample demonstrates some bias due to self-selectivity, which should be taken into consideration when interpreting the findings.

2.2 Dependent Variables

To address the research objective of explaining individual investment preferences, we define a categorical dependent variable: MAININVEST, which captures the primary area of an individual's current investments. It is a categorical variable with four possible values, representing distinct asset groups: (a) BNKINS: banking and insurance products, (b) GOLDAV: art objects, valuables, and gold, (c) REINV: real estate, and (d) CRSTFD: cryptocurrencies, stocks, and investment funds. Respondents were asked to identify the category that reflects where their largest investments are currently allocated.

2.3 Explanatory Variables

The questionnaire aimed to identify the determinants of individual preferences for specific types of investments. The influencing factors were organised into distinct categories, including human personality traits, risk preferences, financial literacy, and socio-demographic characteristics. This structure offered a clear way to study what drives investment behaviour and how these factors influence individual decisions. Details of the variables used can be found in *Table 1*.

The human personality traits examined include creativity and openness to new experiences (OPEN), organisation and self-discipline (CONSC), sociability and energy (EXTRA), compassion and trust (AGREE), emotional instability (NEURO), and manipulativeness or strategic planning (MACHI). These traits are believed to influence individual investment preferences by shaping how people perceive and approach various financial options. Risk perception and preference (RISK_PREF) are measured through scenarios comparing high-risk, high-reward choices with guaranteed rewards, and high-risk, high-loss options with guaranteed losses, reflecting their potential effects on investment decisions. Financial knowledge (FIN_LIT) is assessed through questions about basic financial concepts like probabilities, interest rates, inflation, and diversification, which may directly impact how individuals evaluate and choose investments. Socio-demographic and economic factors, such as age (AGE_YEARS), gender (GENDER), income level (INC_LVL), education (EDU_LVL), marital status (MARITAL), and living environment (URB_RES), are also considered for their role in shaping preferences. A detailed explanation of all variables is provided in *Table 1*.

2.4 Methodology

In this study, the econometric estimates are based on multinomial logit regression (MNL) models. These regressions are used to explain the probability of selecting a particular type of personal investment. In our MNL regressions, the dependent variable MAININV can take one of four possible values. These values represent distinct investment categories: (1) BNKAS, (2) GOLDAV; (3) REINV; and (4) CRSTFD. This approach allows for the modelling of individual choices across these investment types.

The MNL model calculates the probability $P(y_i=j)$ that individual i chooses investment type j as:

$$P(y_i = j) = \frac{\exp(\beta_j' X_i)}{\sum_{k=1}^{4} \exp(\beta_k' X_i)}, \quad j = 1, 2, 3, 4$$

where:

y_i: the investment choice of individual i;

β_j: the vector of coefficients for category (outcome) j;

X_i: the vector of explanatory variables for individual i;

k: all possible outcomes.

To estimate β, maximum likelihood estimation (MLE) is used. The likelihood function for n individuals is given by:

$$L(\beta) = \prod_{i=1}^{n} \prod_{j=1}^{K} P(y_i = j)^{\delta_{ij}}$$

δ_{ij} is an indicator variable equal to 1 if $y_i=j$, and 0 otherwise. The log-likelihood function, typically maximised for computational simplicity, is:

$$\ell(\beta) = \sum_{i=1}^{n} \sum_{j=1}^{K} \delta_{ij} \log P(y_i = j)$$

Coefficients β are estimated by maximising $\ell(\beta)$, with standard errors derived from the Hessian matrix, which reflects the curvature and precision of the log-likelihood. For a log-likelihood function $\ell(\theta)$, where θ is the vector of parameters:

$$H(\theta) = \frac{\partial^2 \ell(\theta)}{\partial \theta^2}$$

The entries in the Hessian matrix are given as:

$$H_{ij} = \frac{\partial^2 \ell(\theta)}{\partial \theta_i \partial \theta_j}$$

where θ_i and θ_j are elements of the parameter vector θ. The Hessian confirms a local maximum, and its inverse provides parameter variances for confidence intervals.

Table 1. Description of Variables and Some Descriptive Statistics

Set of variables	Code	Description	Statistics
Dependent variables	MAIN_INVEST	The person's largest investments at the current moment. Categorical variable: (1) BNKAS (banking and insurance products), (2) GOLDAV (gold, art objects, valuables), (3) REINV (real estate investment), (4) CRSTFD (crypto, stocks, investment funds).	Categorical variable: 1) BNKINS (53.7%) 2) GOLDAV (10.6%) 3) REINV (21.4%) 4) CRSTFD (14.3%)
Personality traits	OPEN	Reflects appreciation for novel experiences, art, and imagination (Gerlitz and Schupp, 2005).	Composite variable, calculated as the average of three ordinal items, each rated on a scale from 1 to 5. Mean: 3.34; St. dev.: 1.07
	CONSC	Denotes a tendency to be organized, responsible, and reliable (Gerlitz and Schupp, 2005).	Composite variable, calculated as the average of three ordinal items, each rated on a scale from 1 to 5. Mean: 3.60; St. dev.: 1.09
	EXTRA	Describes outgoing, energetic, and socially active individuals (Gerlitz and Schupp, 2005).	Composite variable, calculated as the average of three ordinal items, each rated on a scale from 1 to 5. Mean: 3.25; St. dev.: 1.08
	AGREE	Highlights kindness, trustworthiness, and a cooperative nature (Gerlitz and Schupp, 2005).	Composite variable, calculated as the average of three ordinal items, each rated on a scale from 1 to 5. Mean: 3.48; St. dev.: 1.01
	NEURO	Indicates emotional instability, anxiety, and susceptibility to negative emotions (Gerlitz and Schupp, 2005).	Composite variable, calculated as the average of three ordinal items, each rated on a scale from 1 to 5. Mean: 2.87; St. dev.: 1.13
	MACHI	Characterised by manipulative tendencies and a focus on self-interest (Jonason and Webster, 2010).	Composite variable, calculated as the average of three ordinal items, each rated on a scale from 1 to 5. Mean: 3.30; St. dev.: 0.81
Risk preference	RISK_PREF	Evaluates choices between certain and risky gains or losses.	Ordinal variable: 1) risk aversion (23.3%) 2) risk neutral (48.7%) 3) risk preference (28.0%)
Financial knowlwdge	FIN_LIT	Assesses understanding of financial concepts and principles.	Ordinal variable ranging from 0 to 8, representing the number of correct answers. Mean: 4.87; St. dev.: 2.36
Economic variable	INC_LVL	Represents self-reported income ranges divided into quartiles.	Ordinal variable: 1) under 3500 RON (28.3%) 2) 3501-4500 RON (23.3%) 3) 4501-6000 RON (26.3%) 4) over 6000 RON (22.0%)
Socio-demographic variables	GENDER	Indicates the respondent's gender.	Dummy variable: 0 if female (53.5%); 1 if male (46.5%).
	MARITAL	Represents the marital status of the individual.	Dummy variable: 0 any form of cohabitation as a couple; (70.8%) 1 single (29.2%).
	AGE_YRS	Indicates the respondent's age in years.	Numerical (years). Mean: 40.59; St. dev.: 13.96
	EDU_LVL	Describes the highest educational level attained.	Ordinal variable: 1) primary studies (5.4%); 2) high school or equivalent (32.5%); 3) post-secondary (17.9%); 4) bachelor's degree (29.4%); 5) master's degree or equivalent (11.5%); 6) doctoral studies (3.3%).
	URB_RES	Denotes whether the respondent resides in an urban or rural area.	Dummy variable: 0 if rural (31.1%); 1 if urban (68.9%).

Source: created by the authors.

The vector of explanatory variables X_i includes personality traits: OPEN (novel experiences), CONSC (organisation), EXTRA (sociability), AGREE (cooperativeness), NEURO (emotional instability), and MACHI (manipulativeness); risk and financial factors: RISK_PREF (risk preferences), FIN_LIT (financial literacy);

and socio-demographic variables: INC_LVL (income level), GENDER, MARITAL (marital status), AGE_YRS (age), EDU_LVL (education), URB_RES (urban or rural residence). The results include separate sets of coefficients for each investment type *jjj* relative to every other alternative *iii*. For example, a positive coefficient for FIN_LIT in the regression specification CRSTFD vs BNKAS suggests that individuals with greater financial literacy are more likely to prefer cryptocurrencies, stocks, or investment funds over BNKAS.

The regressions are estimated using STATA 18 (StataCorp, Texas, USA). Across all econometric specifications, a factor is considered statistically significant only if the p-value is below 5%. We interpret results with caution at the 10% significance threshold, given the size of our sample. This approach ensures a balance between statistical rigor and the practical constraints of our dataset.

3. Results and Discussion

The data indicates that the largest proportion of respondents (53.7%) invest primarily in banking and insurance products (BNKAS), reflecting a preference for low-risk and stable financial options. Real estate investments (REINV) are the second most common choice (21.4%), suggesting the importance of tangible and potentially appreciating assets. The personality traits of the respondents show moderate scores across the board, with conscientiousness (CONSC) having the highest mean (3.60), indicative of organised and reliable tendencies, while neuroticism (NEURO) scores the lowest (2.87), implying relatively stable emotional characteristics. Risk preferences are balanced, with a majority being risk-neutral (48.7%), but a significant portion shows risk-seeking behaviour (28.0%), aligning with the 14.3% investing in high-risk options like cryptocurrencies and stocks (CRSTFD). The socio-demographic profile reveals that urban residents (68.9%) and individuals with higher education levels (40.9% with bachelor's or higher) dominate the sample, which may contribute to a higher likelihood of financial literacy (mean FIN_LIT score of 4.87).

Table 2. The Effects of Determinants on Individual Investment Behaviour through the MNL Model, Including Coefficients and Standard Errors (Current Outcome vs Reference Outcome)

	GOLDAV vs BNKINS	REINV vs BNKINS	CRSTFD vs BNKINS	REINV vs GOLDAV	CRSTFD vs GOLDAV	CRSTFD vs REINV
OPEN	0.041	0.128	***0.401	0.087	**0.360	***0.273
	(0.139)	(0.109)	(0.134)	(0.162)	(0.169)	(0.156)
CONSC	-0.057	-0.122	-0.103	-0.065	-0.047	0.018
	(0.131)	(0.099)	(0.125)	(0.150)	(0.159)	(0.144)
EXTRA	***-0.479	**0.225	***-0.442	***0.704	0.037	***-0.667
	(0.108)	(0.090)	(0.103)	(0.128)	(0.128)	(0.123)
AGREE	**0.244)	-0.052)	***0.506	**-0.296	**0.262	***0.558
	(0.109	(0.083	(0.102)	(0.125)	(0.130)	(0.118)
NEURO	-0.047)	0.048	-0.041	0.095	0.006	-0.089
	(0.132	(0.100)	(0.125)	(0.152)	(0.159)	(0.144)
MACHI	0.170)	-0.075	0.086	-0.245	-0.084	0.161
	(0.148	(0.109)	(0.139)	(0.168)	(0.176)	(0.158)
RISK_PREF	**0.457)	0.041	**0.421	**-0.416	-0.037	*0.379 (0.198)
	(0.181	(0.135)	(0.173)	(0.207)	(0.221)	
FIN_LIT	-0.003	-0.052	***-0.163	-0.050	**-0.160	*-0.111
	(0.054)	(0.040)	(0.050)	(0.061)	(0.064)	(0.057)
AGE_YRS	***-0.026	**0.017	***-0.030	***0.043	-0.005	***-0.048
	(0.009)	(0.007)	(0.008)	(0.010)	(0.011)	(0.010)

Table 2 (*continuation*). The Effects of Determinants on Individual Investment Behaviour through the MNL Model, Including Coefficients and Standard Errors (Current Outcome vs Reference Outcome)

	GOLDAV vs BNKINS	REINV vs BNKINS	CRSTFD vs BNKINS	REINV vs GOLDAV	CRSTFD vs GOLDAV	CRSTFD vs REINV
GENDER	*0.464	-0.041	*0.405	*-0.505	-0.059	*0.446
	(0.238)	(0.178)	(0.224)	(0.272)	(0.288)	(0.257)
INC_LVL	0.026)	-0.115	-0.052	-0.141	-0.078	0.063
	(0.112	(0.084)	(0.104)	(0.128)	(0.133)	(0.120)
EDU_LVL	-0.003	0.054	***0.307	0.058	**0.311	**0.253
	(0.107)	(0.082)	(0.102)	(0.124)	(0.128)	(0.118)
MARITAL	0.161	***-1.190	-0.246	***-1.352	-0.408	***0.944
	(0.258	(0.263)	(0.253)	(0.340)	(0.311)	(0.335)
URB_RESID	0.288)	-0.171	***0.917	-0.459	*0.629 (0.341)	***1.087
	(0.268	(0.192)	(0.277)	(0.302)		(0.308)
_cons	-1.579	-1.638	***-3.224	-0.059	-1.645	-1.585
	(0.973)	(0.739)	(0.942)	(1.114)	(1.192)	(1.074)

Notes: ***, **, * significant at 1%, 5%, 10%.

Source: own calculations in STATA 18.

The correlation matrix (*Table 1A*, *Appendix 1*) reveals the relationships among the explanatory variables in the model. The strongest positive correlation is between EXTRA and OPEN, with a coefficient of 0.53, which reflects that outgoing individuals are often more open to new experiences and imaginative thinking. Another notable correlation is between AGREE and EXTRA (0.42), indicating that sociable individuals tend to exhibit kindness and cooperativeness. EDU_LVL shows a moderate positive correlation with FIN_LIT (0.37), which is expected as higher education often enhances financial literacy. Globally, the correlation values do not raise serious concerns about multicollinearity in the model, as most coefficients are well below the threshold of 0.7, which is typically considered problematic. Additionally, correlations like that between RISK_PREF and EDU_LVL (0.24) or FIN_LIT (0.21) are moderate, suggesting that education and financial literacy may influence an individual's risk-taking behaviour. Lastly, the negative correlation between AGE_YRS and MARITAL (-0.37) likely reflects the age-based differences in marital status distribution, with older respondents more likely to be in stable relationships. These correlations justify the inclusion of these variables while indicating no severe multicollinearity issues for regression analysis.

The results of the regression analysis are presented in *Table 2*. We discuss each regression specification in turn, comparing each investment alternative with every other option.

GOLDAV vs BNKINS

The preference for gold, art objects, and valuables (GOLDAV) over banking and insurance products (BNKINS) is significantly influenced by risk preference. This indicates that individuals with a higher tolerance for risk are drawn to GOLDAV, likely because these assets can offer higher returns during periods of economic instability or act as a hedge against inflation. Agreeableness also shows a significant positive influence, suggesting that individuals with cooperative and sentimental tendencies may appreciate the cultural or aesthetic value of GOLDAV. On the other hand, extraversion has a significant negative effect, indicating that extraverts may find GOLDAV less appealing due to its static nature, preferring assets that are more dynamic or socially prestigious.

REINV vs BNKINS

Real estate (REINV) compared to BNKINS shows a significant positive relationship with age, highlighting that older individuals prioritise tangible and stable investments that offer long-term appreciation and security. Extraversion positively affects the likelihood of choosing real estate, as it is often associated with status and social recognition, aligning with extraverts' desire for outward validation. Conversely, marital status has a strong negative coefficient, showing that single individuals are less inclined toward real estate due to the financial and practical commitments required, which may be more suitable for families or those in stable relationships. This dynamic suggests a life cycle effect where real estate becomes more attractive as individuals age and establish long-term living arrangements.

CRSTFD vs BNKINS

The preference for cryptocurrencies, stocks, and investment funds (CRSTFD) over BNKINS is significantly positive driven by openness. Open individuals are naturally attracted to innovative and high-risk investments, reflecting their comfort with uncertainty and their curiosity about emerging financial trends. Conversely, financial literacy negatively impacts the choice of CRSTFD, suggesting that financially knowledgeable individuals might be cautious about the volatility and speculative nature of cryptocurrencies and stocks. Gender also positively influences the preference for CRSTFD, with men being more inclined toward these investments, potentially due to greater risk tolerance or societal norms that encourage men to explore novel financial opportunities.

REINV vs GOLDAV

When comparing REINV to GOLDAV, extraversion significantly increases the likelihood of choosing real estate. This reflects the appeal of real estate as a tangible and socially significant investment, particularly for extraverts who value status and public recognition. Conversely, agreeableness negatively affects this choice, suggesting that agreeable individuals may favour GOLDAV due to its symbolic, cultural, or aesthetic value, which aligns more closely with their cooperative and trusting nature. This comparison highlights a trade-off between the tangible, functional benefits of real estate and the sentimental or aesthetic appeal of gold and art.

CRSTFD vs GOLDAV

In the comparison between CRSTFD and GOLDAV, openness (OPEN) positively influences the preference for CRSTFD, emphasising the appeal of cryptocurrencies and stocks for individuals who value creativity, novelty, and technological innovation. Educational level also shows a significant positive effect, suggesting that higher education equips individuals with the analytical skills needed to navigate complex financial products like cryptocurrencies and stocks. Interestingly, risk preference does not significantly differentiate between these two categories, indicating that both GOLDAV and CRSTFD involve a comparable perception of risk, although they attract different psychological profiles.

CRSTFD vs REINV

Finally, when comparing CRSTFD and REINV, openness continues to have a significant positive influence, reinforcing the tendency of open-minded individuals to gravitate toward high-risk, innovative investments over stable, tangible ones like real estate. Educational level positively affects this choice, indicating that individuals with higher education levels feel more confident managing complex and volatile financial assets. On the other hand, age negatively influences the likelihood of choosing CRSTFD, suggesting that

younger individuals are more comfortable with high-risk investments, whereas older individuals prefer the long-term security of real estate.

Statistically Insignificant Factors

In this empirical study of individuals in Romania, several potentially logical causal relationships emerged as statistically insignificant. For instance, financial literacy (FIN_LIT) was expected to have a significant positive effect on the likelihood of choosing real estate (REINV), as financial knowledge often equips individuals to understand and manage tangible investments, yet no such effect was observed. Similarly, risk preference did not significantly differentiate between gold and art objects (GOLDAV) and cryptocurrencies and stocks (CRSTFD), despite both categories being perceived as riskier than traditional banking products. Additionally, gender (GENDER), while often associated with different risk tolerances, did not consistently influence investment choices, particularly for GOLDAV and REINV, suggesting a more nuanced dynamic in the Romanian context. These findings highlight that cultural, economic, or contextual factors may moderate expected patterns, rendering some relationships less impactful than anticipated.

The Typical Profile of Investors

Banking and Insurance Products (BNKAS). The typical investor in banking and insurance products is likely to be older and financially cautious, preferring stable and low-risk options. They tend to have higher financial literacy, which drives their preference for traditional investments with predictable returns. This group is less influenced by openness or extraversion, indicating a more conservative and risk-averse profile.

Gold, Art Objects, and Valuables (GOLDAV). Investors in gold, art, and valuables are often risk-tolerant individuals who appreciate the symbolic or aesthetic value of these assets. They are more agreeable and cooperative, suggesting an emotional or sentimental connection to their investments. However, they tend to avoid socially dynamic or practical investments, such as real estate, reflecting a unique, culturally driven investment approach.

Real Estate Investments (REINV). The typical real estate investor is older, extraverted, and often in a stable marital relationship, reflecting a preference for tangible, long-term investments that offer social status. They are not significantly influenced by risk preference but may prioritise stability and utility over novelty. This profile aligns with a practical and socially driven approach to wealth accumulation.

Cryptocurrencies, Stocks, and Investment Funds (CRSTFD). Investors in cryptocurrencies, stocks, and investment funds are typically younger, more open to new experiences, and often single. They are likely to have higher education levels but lower financial literacy, showing a willingness to take risks despite less formal knowledge of these assets. This group is drawn to innovative and high-reward opportunities, reflecting a forward-looking and adventurous investment attitude.

Conclusions

This study highlights the significant influence of personality traits, risk preferences, financial literacy, and demographic factors on investment behaviour in Romania. Key findings reveal that traits like openness and extraversion guide preferences for high-risk and tangible assets, respectively, while financial literacy and education levels play a crucial role in shaping informed decisions. Urban residents and younger individuals are more inclined toward innovative investments like cryptocurrencies, whereas older, risk-

averse investors prefer stable options such as banking products and real estate. These insights underline the diverse drivers of investment decisions, reflecting complex psychological and contextual dynamics.

The study's findings may be influenced by regional and cultural specifics, limiting the generalizability to other contexts. Possible factors such as family influences or macroeconomic conditions, which could impact investment decisions, were not included. Additionally, the sample over represents urban, educated respondents, which may skew insights toward specific socio-demographic groups.

Future research should explore longitudinal designs to capture changes in investment behaviours over time. Including macroeconomic variables, such as inflation rates or market volatility, could provide a broader understanding of external influences. Expanding the study to other emerging markets would enhance the applicability of the findings and allow for cross-cultural comparisons.

The results suggest the need for tailored financial education programs to address gaps in literacy and promote informed investment decisions. Policymakers should consider incentives to encourage long-term, stable investments, particularly among younger investors drawn to high-risk assets. Financial institutions could use these insights to develop advisory services targeting diverse demographic groups. Finally, enhancing access to financial products in rural areas could reduce the urban-rural disparity in investment opportunities, fostering more inclusive economic participation.

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INVESTICINĖS VEIKLOS TYRIMAS: ASMENYBĖS BRUOŽŲ, RIZIKOS PIRMENYBĖS, FINANSINIO RAŠTINGUMO IR DEMOGRAFIJOS POVEIKIS

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Santrauka. Tyrime nagrinėjamas asmenybės bruožų, rizikos pirmenybių, finansinio raštingumo ir demografijos poveikis investicinei veiklai Rumunijoje siekiant pašalinti šių veiksnių sąveikos spragą rinkos, kuri formuojasi, sąlygomis. Pasitelkus 1 171 respondento apklausos duomenis, tyrimo metu pritaikyta daugianarė logistinė regresija analizuojant pirmenybę akcijoms, kriptovaliutoms, nekilnojamajam turtui ir bankiniams produktams. Tyrimas originalus tuo, kad jame integruojami psichologiniai bruožai ir socialiniai bei ekonominiai veiksniai, daugiausia dėmesio skiriant didelės rizikos turtui, pavyzdžiui, kriptovaliutoms, o ši tema esamuose tyrimuose išnagrinėta nepakankamai. Rezultatai atskleidė, kad atvirumas ir ekstraversija reikšmingai skatina inovatyvaus ir materialaus turto pirmenybę, o finansinis raštingumas svarbus skatinant pagrįstus investicinius sprendimus. Miestiečiai ir jaunesni investuotojai linksta į inovatyvias investicijas, o vyresni ir rizikos vengiantys asmenys teikia pirmenybę tradiciniams būdams. Politikos atžvilgiu siūloma teikti pirmenybę kryptingam finansiniam švietimui, kad būtų didinamas raštingumas, ir skatinti įtraukias investavimo galimybes, kad būtų mažinami skirtumai tarp demografinių grupių.

Reikšminiai žodžiai: investicinė veikla; finansinis raštingumas; asmenybės bruožai; rizikų tolerancija; daugianaris logitinis modelis.

Appendix 1

Table 1A. The Correlation Matrix of Explanatory Variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
EXTRA (1)	1												
AGREE (2)	0.42	1											
CONSC (3)	0.13	0.27	1										
NEURO (4)	0.23	-0.05	-0.07	1									
OPEN (5)	0.53	0.22	-0.02	0.05	1								
MACHI (6)	0.15	0.05	0.06	0.04	0.23	1							
RISK_PREF (7)	0.26	0.09	-0.13	0.18	0.27	0.12	1						
FIN_LIT (8)	-0.01	-0.03	0.02	0.00	-0.04	0.00	-0.02	1					
AGE_YRS (9)	0.03	0.03	0.02	-0.06	-0.05	-0.02	-0.12	0.02	1				
GENDER (10)	0.05	0.00	-0.05	0.04	0.1	0.02	0.18	-0.01	-0.03	1			
INC_LVL (11)	-0.02	0.01	-0.04	-0.01	0.05	0.02	0.05	0.21	-0.02	0.19	1		
EDU_LVL (12)	0.09	0.02	-0.02	0.08	0.10	0.00	0.24	0.37	-0.04	0.11	0.33	1	
MARITAL (13)	-0.17	-0.19	-0.04	0.05	-0.16	-0.01	0.02	0.00	-0.37	0.01	0.07	0.04	1
URB_RES (14)	-0.04	0.03	0.06	-0.05	-0.02	-0.05	0.09	0.19	-0.03	0.04	0.22	0.25	-0.03

Source: created by the authors.