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Izvorni znanstveni članak

UNDERSTANDING INDIVIDUAL INVESTORS IN THE WESTERN BALKANS

Abstract

The main objective of this research is to investigate the complex interplay between education, investment experience, and specific socioeconomic characteristics, and their resulting influence on the behavior and decision-making of individual investors in the Western Balkans. The study particularly focuses on investors' attitudes towards different financial asset classes, including stocks, bonds, and mutual funds. Using a quantitative research methodology, based on a survey of individual investors, coupled with a comprehensive analysis of extant literature, this study aims to test several key hypotheses regarding investor behavior in this specific transition market context. The analysis reveals a notable, statistically significant correlation between higher educational attainment and increased risk tolerance, suggesting that education fosters a greater appetite for risk. Furthermore, the length and nature of investment experience are found to significantly shape both the perception of market knowledge and overall investor confidence. Socioeconomic factors, such as age, gender, and occupation, also play a crucial role in shaping preferred investment strategies and portfolio allocation. These findings underscore the critical need for customized financial literacy resources and targeted educational programs designed to enhance the decision-making processes of individual investors in the region and mitigate potential investment risks. The paper concludes by outlining directions for future research, which should include larger, more diverse samples, a greater focus on female investor representation, and an examination of psychological biases and macro-financial influences specific to the Western Balkans.

Keywords: Individual investors, investment behavior, Western Balkans, education

INTRODUCTION

The behavior of individual investors is a critical component of financial market dynamics worldwide. Their decisions, often influenced by a complex mix of financial, demographic, psychological, and sociological factors, have significant aggregate effects on market stability, asset pricing, and capital allocation. Despite the global importance of this field, the specific context of emerging and transition economies, particularly those in the Western Balkans, remains significantly under-researched.

The Western Balkans region (Bosnia and Herzegovina, Serbia, Montenegro, North Macedonia, Albania, and Kosovo) presents a unique environment for studying investor behavior.

These countries share a recent history of transitioning from centrally planned to market-based economies, characterized by relatively underdeveloped capital markets, low financial literacy levels, and lingering effects of political and economic instability. This transitional context suggests that traditional Western models of investor behavior may not fully apply, necessitating tailored local research.

The problem addressed by this research stems from the noticeable gap in academic literature concerning the determinants of individual investor behavior within the post-transition economies of the Western Balkans. While global studies have broadly examined the influence of factors like education and socioeconomic status, a focused empirical investigation is needed to assess how these variables specifically affect the regional investors' risk tolerance, asset allocation, and market confidence. Understanding these localized influences is essential for policymakers, regulators, and financial institutions aiming to develop effective strategies for market growth and investor protection in the region.

The main objective of this research is to empirically determine the impact of education, investment experience, and various socioeconomic characteristics on the decision-making and behavior of individual investors across the Western Balkans.

The specific objectives are to:

- analyze the relationship between an investor's level of formal education and their perceived financial literacy and risk tolerance
- evaluate how the duration and nature of investment experience influence market confidence and the choice of financial asset classes.
- identify the influence of key socioeconomic factors (age, gender, occupation, and income) on the formulation of investment strategies and portfolio diversification.

Based on the research problem and objectives, the following hypotheses are formulated and tested:

H1 (Main Hypothesis): The investment habits and financial decisions of individual investors in the Western Balkans are significantly influenced by a combination of their education, investment experience, and socioeconomic characteristics.

H1a: There is a statistically significant positive relationship between the level of formal education and an individual investor's risk tolerance and perceived market knowledge.

H1b: Greater personal investment experience significantly and positively influences an investor's confidence and preference for actively traded asset classes (e.g., stocks over bonds).

H1c: Socioeconomic characteristics (specifically age, gender, and income) significantly impact the choice of investment strategies, including the level of diversification and portfolio size.

LITERATURE REVIEW

The study of individual investor behavior is inherently interdisciplinary, drawing heavily from financial economics, behavioral finance, and sociology. This section reviews the key theoretical perspectives and empirical findings concerning the impact of education, experience, and socioeconomic factors, alongside behavioral biases, on investor decision-making, providing a robust foundation for the hypotheses tested in this paper.

Financial literacy, often proxied by formal educational attainment, is consistently highlighted in literature as a fundamental determinant of sound investment decisions. High levels of financial knowledge equip individuals with the skills necessary to process complex financial information, evaluate risk, and select appropriate investment products.

Prior research confirms a strong link between education and investment outcomes. H1a posits a positive relationship between education and risk tolerance, a finding supported by literature suggesting that greater educational achievement is associated with a higher ability to absorb and manage complex risks, leading to a greater inclination to invest in high-return,

high-risk assets (Lewellen et al., 1977). For instance, Baihaqqy et al. (2020) found a significant correlation between an investor's education level and their understanding of financial literacy, which subsequently influenced their investment decisions in the capital market. Investors with higher education are generally better positioned to consider various factors related to investment activities before acting (Christanti & Mahastanti, 2011).

Investment experience represents another crucial, non-demographic factor influencing investor behavior, as stated in H1b. Experience transforms theoretical knowledge into practical understanding, shaping an investor's confidence, trading frequency, and strategic complexity.

Empirical evidence suggests that experienced investors exhibit different behavioral patterns compared to novices. However, experience is a double-edged sword. While H1b suggests that experience positively influences market confidence and a preference for actively traded assets, this enhanced confidence can often lead to the behavioral bias of overconfidence (Barber & Odean, 2001). Gervais and Odean (2001) modeled this process, showing how initial investment success causes investors to "learn to be overconfident." The findings of Fachrudin and Fachrudin, (2016) further emphasize that mere experience may be insufficient without strong financial literacy, particularly in emerging markets where informational asymmetries are common.

Socioeconomic factors, which form the basis of H1c, provide the context within which educational and experiential influences operate. These include age, gender, occupation, and income.

Older investors are generally found to be more risk-averse, reflecting shorter investment horizons and preservation goals (Jianakoplos & Bernasek, 1998). Conversely, higher income and specific high-status occupations are typically associated with greater participation in the stock market and higher risk tolerance, due to greater financial capacity to absorb potential losses. Chattopadhyay and Dasgupta (2015) confirmed that demographic characteristics like age and marital status drive risk attitudes, increasing risk aversion. Lotto (2023) highlighted that higher education and employment status are important factors influencing investment choices. Kaur and Kaushik (2016) also explored how demographic characteristics are key determinants of investment behavior towards specific products like mutual funds.

This stream of research directly challenges the assumption of rational economic agents (Fama, 1970) by incorporating psychological factors into financial models (Barberis, Shleifer, & Vishny, 1998).

Overconfidence: Overconfident traders tend to trade more frequently, which can negatively impact their net returns due to transaction costs. Chuang and Susmel (2011) conducted an important comparison, finding that individual investors are often more susceptible to overconfidence than their institutional counterparts, a phenomenon also explored by Iqbal et al. (2013) regarding investor type and market anomalies.

Sentiment and Biases: Investor sentiment—the general mood or optimism in the market—is a key driver of security returns, particularly for small, high-volatility, and growth stocks (Baker & Wurgler, 2006). Studies show that a host of other biases, including regret aversion, availability bias, and anchoring, significantly impact individual decision-making (Antony & Joseph, 2017; Cao et al., 2021). The moderating role of financial literacy on these biases is explored by Adil et al. (2022), underscoring that cognitive and emotional biases often override rational thought, particularly in complex situations like those observed during market turbulence (Fanyi Wang et al., 2022).

Herding behavior, defined as the tendency of investors to ignore their own beliefs and mimic the actions of the market consensus, is a prominent feature in both developed and emerging markets. Christie and Huang (1995) first demonstrated that herding can occur around market returns, leading to concentrated movements.

In emerging and transitional markets, where informational efficiency is lower, herding can be more pronounced as investors rely on the presumed informed actions of others. Studies have confirmed herding in various contexts, including Chinese stock markets (Demirer & Kutan, 2006; Tan et al., 2008), the crypto market (Senarathne & Jianguo, 2020), and a comparison of investor types (Li, Rhee, & Wang, 2017), which showed that institutional investors can also engage in herding, although often for different reasons than individuals. The presence of herding and other biases is also confirmed in markets comparable to the Western Balkans, such as the Athens Stock Exchange (Maditinos, Šević, & Theriou, 2007).

The Western Balkans region operates under unique constraints that necessitate localized research. As transitional economies, they share structural issues that impact financial decision-making:

- market characteristics - the capital markets are often shallow, illiquid, and characterized by high concentration and low regulatory transparency (Djogo et al., 2021). Research on local market dynamics, such as the testing of market anomalies in the BiH market (Grujić & Rajčević, 2020), highlights the institutional vulnerabilities that individual investors face.
- asset diversification and emerging technologies - beyond traditional assets, individual investors in emerging markets are increasingly exposed to high-risk, non-traditional assets like cryptocurrencies. Although the literature often focuses on the rational integration of these assets into institutional portfolios, local research confirms their relevance. Grujić (2021), for example, demonstrated that Bitcoin is a justified source of diversification for institutional investors, even for those who are risk-averse. This finding, while institutional in focus, is critical for understanding the market landscape that influences individual investors, who may mimic such portfolio decisions, often without the same level of analytical rigor or capital base.
- local financial expertise - the regional academic work on financial systems and markets (Grujić, 2022) provides the necessary theoretical understanding of the modus operandi of these specific financial environments.
- integrity and trust - a critical contextual factor in emerging markets - is the heightened risk of financial crime and weak institutional governance. Grujić and Šikman (2020) specifically analyzed the manifestation and challenges of proving money laundering in emerging markets, pointing out that such illegal activities undermine the integrity of the financial system and erode investor trust. This environment, characterized by the persistence of illegal financial flows, fundamentally alters the risk calculus for individual, non-professional investors.

The synthesis of this literature confirms that while global financial theory provides a basis, the combination of low financial literacy, susceptibility to behavioral biases, and the unique structure of transitional markets warrants a focused empirical study on the investors in the Western Balkans.

Table 1. Differences Between Individual and Institutional Investors

Difference	Institutional Investors	Individual Investors	Source
Goals	Long-term, often related to pension funds or other long-term obligations.	Short-term, often focused on achieving quick profits.	Li et al., 2017; Jianakoplos & Bernasek, 1998
Resources	Large resources, sophisticated analysis tools, expert teams.	Limited resources often rely on publicly available information.	Iqbal et al., 2013; Cao et al., 2021
Information	Access to a wide range of information, including private and confidential data.	Mainly rely on publicly available information and media.	Maditinos et al., 2007; Barberis et al., 1998
Decisions	Based on thorough analysis, it often includes fundamental and technical analysis.	It can be influenced by emotions, market sentiment, and limited information.	Maditinos et al., 2007; Antony & Joseph, 2017
Risk	Higher risk tolerance due to long-term horizon and portfolio diversification.	Risk tolerance highly variable but can exhibit speculative risk-taking due to behavioral biases.	Chuang & Susmel, 2011; Ahmad & Singh, 2015
Time Horizon	Long-term, often multi-year or even decades.	Short-term, often measured in months or even weeks and even days.	Baker & Wurgler, 2006; Senarathne & Jianguo, 2020
Regulation	Subject to stricter regulations and restrictions.	Less regulated, greater flexibility in decision-making.	Baker & Wurgler, 2006; Djogo et al., 2021
Market Behavior	Often act as a "steady hand" on the market, and their activities can influence prices.	Can amplify market fluctuations due to emotional reactions and limited information.	Gervais & Odean, 2001; Christie & Huang, 1995
Market Analysis	Use fundamental and technical analysis, as well as quantitative methods.	Rely on public information and often react to market sentiment.	Iqbal et al., 2013; Grujić, 2022
Emotional Factors	Less prone to emotional reactions, analyzing based on data.	More influenced by emotions, prone to overconfidence.	Chuang & Susmel, 2011; Gervais & Odean, 2001

METHODOLOGY

This research employed a two-phase methodology combining literature analysis and primary data collection via a survey questionnaire. The literature review involved analyzing scientific papers from Web of Science and Scopus to establish a theoretical foundation.

The primary research, conducted in January 2025, utilized a Google Forms-based survey distributed to individual investors in the Western Balkans. The questionnaire gathered data on demographics, investment experiences, financial market knowledge, attitudes towards investment strategies (covering aspects like gender, age, education, portfolio size, and knowledge level about financial markets on a scale of 1 to 5.), investment goals, expected returns, risk tolerance, and concerns.

Quantitative data were analyzed using descriptive statistics and inferential statistics (t-tests and ANOVA) to identify significant differences across groups. Qualitative data were also considered to provide a comprehensive understanding of individual investor behavior.

RESULTS

Based on the analyzed data, we can draw several key interpretations about the behavior of individual investors in the Western Balkans.

Out of the total sample of 510 respondents, 76.27% are male (389 respondents), while females constitute 23.73% (121 respondents). The average age of respondents is 48.08 years, specifically 49.05 years for males and 44.94 years for females. Males rated their knowledge of financial markets with an average score of 3.2667, while females rated it slightly higher at 3.3125. Although the differences are minimal, this small variation suggests that women may have slightly more confidence in their knowledge of these markets. The standard deviation for male respondents is 0.8430, while for females it is 0.8544. This similarity in standard deviation indicates that both genders are equally variable in their self-perceptions of knowledge. The average risk tolerance score for males is 2.8611, while females have a slightly higher score of 2.9583. This difference may suggest that women tend to have a higher risk tolerance compared to men, which is contrary to common perceptions of men being more risk prone. The standard deviation for males is 0.7151, and for females is 0.7133, meaning that the samples from both genders are similar in their risk tolerance (Table 2).

Table 2. Analysis by gender

Gender	Count	Percentage	Average score of KFM	Average score of Risk tolerance	Standard deviation of knowledge of FM	Standard deviation of knowledge of risk tolerance
Male	389	76.27%	3.2667	2.8611	0.843	0.7151
Female	121	23.73%	3.3125	2.9583	0.8544	0.7133
Total	510	100.00%	3.302	2.9196	0.8497	0.7333

Analyzing the data on the respondents' educational level, we can draw several key conclusions about their knowledge of financial markets and risk tolerance. Interestingly, the group with secondary education (IV degree) demonstrates the highest average self-assessment of knowledge about financial markets (3.7500), despite representing only 7.06% of the sample (36 respondents). Their risk tolerance is average (3.0000), but the standard deviation of both knowledge and risk tolerance is relatively high, indicating significant variability within this group. Conversely, the group with higher education (VSS), which constitutes the largest portion of the sample (83.73%, 427 respondents), shows a lower average knowledge score (3.1111) but the highest risk tolerance (3.3333). This suggests that while formal education might not directly correlate with perceived financial knowledge, it could influence risk-taking behavior (Table 3).

Furthermore, the Master's/Magistar group (4.31%, 22 respondents) exhibits the lowest risk tolerance (2.8367) and a moderate knowledge score (3.2500), with the least variability within the group. The doctoral group (4.90%, 25 respondents) shows a higher knowledge score (3.3636) and a risk tolerance of 3.1818, with significant variability. Overall, the average knowledge score for the entire sample is 3.3020, and the average risk tolerance is 2.9196. These findings indicate that while educational level plays a role in shaping financial knowledge and risk tolerance, other factors also significantly influence these aspects. The notable variability across all groups underscores the complexity of investor behavior and the need for a multifaceted approach to understanding it.

Table 3. Analysis by professional qualifications

Professional qualification	Count	Percentage	Average score of KFM	Average score of RT	Standard deviation of KFM	Standard deviation of RT
Secondary vocational education – IV level	36	7.06%	3.75	3	0.9612	0.9155
Higher vocational education - VSS	427	83.73%	31.111	33.333	0.928	1
Master	22	4.31%	3.25	28.367	0.8214	0.6455
Doctor of science	25	4.90%	33.636	31.818	0.9244	10.787
Total	510	100.00%	3.302	29.196	0.8497	0.7333

The analysis of investment periods reveals distinct patterns in investors' knowledge and risk tolerance across different timeframes. The largest segment of respondents (84.31%, 430 individuals) has been investing for more than three years. This group exhibits a slightly below-average risk tolerance (2.8061) and a near-average knowledge of financial markets (3.2959). Their standard deviations for both knowledge and risk tolerance are the lowest, suggesting a more homogenous group with consistent investment behaviors. This indicates that long-term investors, who have weathered market fluctuations, tend to adopt a more conservative approach to risk, possibly due to accumulated experience and a focus on long-term stability rather than short-term gains.

In contrast, those who have been investing for less than six months (7.06%, 36 individuals) show a higher risk tolerance (3.1875) and a moderate level of financial market knowledge (3.2500). Their standard deviation for risk tolerance is the highest, indicating significant variability within this group. This suggests that novice investors may be more willing to take risks, perhaps driven by optimism or a lack of understanding of potential pitfalls. The group investing between one and three years (8.63%, 44 individuals) displays the highest risk tolerance (3.5000) and a slightly below-average knowledge score (3.0625). This group's standard deviation for knowledge is also the highest, highlighting a wide range of expertise levels. This could reflect a phase where investors, having gained some experience, are more confident in taking risks, though their knowledge may still be developing.

Overall, the data suggests that investment period significantly influences both knowledge and risk tolerance. Long-term investors, who have experienced various market conditions, tend to be more risk-averse and have more consistent investment behaviors. Conversely, newer investors, particularly those with 1-3 years of experience, exhibit higher risk tolerance, potentially due to overconfidence or a lack of comprehensive market understanding. These findings underscore the importance of investor education and experience in shaping investment strategies and risk perceptions (Table 4).

Table 4. Analysis by investment experience

Investment period	Count	Percentage	Average score of KFM	Average score of RT	Standard deviation of KFM	Standard deviation of RT
less than six months	36	7.06%	3.25	3.1875	0.75	0.9811
between one and three years	44	8.63%	3.0625	3.5	0.9662	0.7303
more than three years	430	84.31%	3.2959	2.8061	0.8356	0.6588
Total	510	100.00%	3.302	2.9196	0.8497	0.7333

The data presented in Table 5 reveals a clear preference for stocks among the respondents, with 81.57% (416 individuals) indicating that stocks are the predominant asset class in their portfolios. This group also exhibits the highest average knowledge of financial markets (3.3661) and a relatively moderate risk tolerance (2.8197). The low standard deviations for both knowledge and risk tolerance suggest a homogenous group with consistent investment behaviors. This indicates that investors with a focus on stocks tend to have a higher self-perceived expertise in financial markets and are moderately risk-averse. This preference for stocks is likely influenced by their perceived accessibility and potential for higher returns compared to other asset classes.

Conversely, cryptocurrencies, despite their volatility, attract a smaller segment of investors (5.88%, 30 individuals). This group displays the lowest average knowledge of financial markets (2.6250) but the highest risk tolerance (4.0000). The standard deviation for risk tolerance is relatively low, indicating a consistent high-risk appetite within this group. This suggests that investors drawn to cryptocurrencies are more willing to take on significant risks, possibly driven by the allure of high potential returns, even with limited financial knowledge. Real estate, bonds, and ETFs attract even smaller segments of investors, each with varying levels of financial knowledge and risk tolerance. Notably, ETF investors exhibit the lowest risk tolerance (2.4615) and a moderate level of financial knowledge (3.1538), indicating a preference for diversified and potentially less volatile investment options.

Overall, the data underscores the dominance of stocks in investor portfolios, reflecting a balance between perceived knowledge and risk tolerance. The contrasting profiles of cryptocurrency investors highlight the diverse motivations and risk appetites within the investor population. The findings suggest that asset class preferences are closely linked to investors' self-perceived knowledge and risk tolerance, with stocks attracting a knowledgeable and moderately risk-averse crowd, while cryptocurrencies appeal to risk-seeking individuals with potentially lower financial expertise.

Table 5. Which asset class is dominant in your portfolio?

Assets	Count	Percentage	Average score of KFM	Average score of RT	Standard deviation of KFM	Standard deviation of RT
Stocks	416	81.57%	3.3661	2.8197	0.8181	0.6231
Cryptocurrencies	30	5.88%	2.625	4	0.7806	0.7071
Real Estate	12	2.35%	2.5	3	0.5	0.5774
Bonds	20	3.92%	3.3	2.7	0.6403	0.9
ETFs	32	6.27%	3.1538	2.4615	0.9484	0.4985
Total	510	100.00%	3.302	2.9196	0.8497	0.7333

Source: Authors calculation

The data presented in Table 6 examines the relationship between portfolio size, self-perceived knowledge of financial markets, and risk tolerance. The largest segment of respondents, 66.27% (338 individuals), falls within the portfolio size category of up to €50,000. This group exhibits a near-average level of knowledge (3.2959) and risk tolerance (2.8994), with moderate standard deviations, suggesting a relatively homogenous group. This indicates that the majority of individual investors in the sample have smaller portfolios and demonstrate a balanced approach to both knowledge and risk. Notably, the group with portfolios between €250,000 and €500,000 shows the highest average knowledge score (3.6667) but the lowest risk tolerance

(2.6667). This suggests that investors with larger portfolios in this range may prioritize capital preservation over high-risk, high-return strategies, potentially reflecting a more conservative investment approach as their wealth increases.

Investors with portfolios between €50,000 and €250,000 show a slightly higher risk tolerance (2.9245) compared to the largest group, and a similar level of knowledge (3.2830). The standard deviation for knowledge is the highest among all groups, indicating a wider range of expertise levels within this segment. Interestingly, the groups with portfolios between €500,000 and €1,000,000 and those with portfolios exceeding €1,000,000 exhibit identical average knowledge (3.3333) and risk tolerance (3.0000) scores. This suggests that investors at the higher end of the wealth spectrum tend to have similar investment behaviors, regardless of the exact size of their portfolios. The standard deviations for these groups are also identical, indicating a consistent level of variability.

Overall, the data suggests that portfolio size influences both knowledge and risk tolerance, although the relationship is not strictly linear. Investors with portfolios in the mid-range (€250,000 - €500,000) tend to exhibit the highest knowledge and lowest risk tolerance, while those with smaller portfolios and those at the very high end show more moderate levels of both. The variability in knowledge and risk tolerance across different portfolio sizes underscores the diverse investment strategies and risk appetites within the investor population. (Table 6).

Table 6. Portfolio size

Amount	Count	Percentage	Average score of KFM	Average score of RT	Standard deviation of KFM	Standard deviation of RT
up to €50,000	338	66.27%	32,959.00	28,994.00	0.79	0.75
between €50,000 and €250,000	106	20.78%	32,830.00	29,245.00	0.98	0.62
between €250,000 and €500,000	18	3.53%	36,667.00	26,667.00	0.87	0.50
between €500,000 and €1,000,000	24	4.71%	33,333.00	30,000.00	10,328.00	0.63
over €1,000,000	24	4.71%	33,333.00	30,000.00	10,328.00	0.63
Total	510	100.00%	32,763.00	28,816.00	0.84	0.71

Table 7 examines the relationship between the percentage of the total investment portfolio allocated to cryptocurrencies, self-perceived knowledge of financial markets, and risk tolerance. The largest group of respondents, 57.65% (294 individuals), reported having 0% of their portfolio invested in cryptocurrencies. This group exhibits the highest average knowledge of financial markets (3.5102) and a relatively moderate risk tolerance (2.9524), with the lowest standard deviation for risk tolerance (0.5881). This suggests that investors who avoid cryptocurrencies tend to have a higher self-perceived expertise in financial markets and a balanced approach to risk. The data implies that these investors may prioritize more traditional and stable investment options over the high volatility of cryptocurrencies. In contrast, the group with more than 25% of their portfolio invested in cryptocurrencies (6.27%, 32 individuals) shows the highest risk tolerance (4.0000) and a moderate level of knowledge (3.1875). This indicates that investors with a significant portion of their portfolio in cryptocurrencies are willing to take on substantial risks, possibly driven by the potential for high returns, despite not having the

highest self-perceived financial knowledge. The group investing less than 1% in cryptocurrencies (21.57%, 110 individuals) exhibits the lowest risk tolerance (2.2909) and a moderate level of knowledge (3.0545). This suggests that even those who dabble in cryptocurrencies but allocate a very small portion of their portfolio tend to be more risk-averse.

The group investing between 5% and 10% in cryptocurrencies (11.76%, 60 individuals) shows a moderate level of knowledge (2.9667) and a slightly higher risk tolerance (3.2333). This indicates that investors with a moderate allocation to cryptocurrencies are willing to take some risk, but not as much as those with more than 25% allocation. The variability in knowledge and risk tolerance across different cryptocurrency investment percentages underscores the diverse investment strategies and risk appetites within the investor population. The findings suggest that investors' allocation to cryptocurrencies is closely linked to their risk tolerance and self-perceived knowledge, with those avoiding cryptocurrencies exhibiting the highest knowledge and moderate risk tolerance, while those heavily invested in cryptocurrencies show the highest risk tolerance and moderate knowledge (Table 7).

Table 7. Percentage of total investment portfolio invested in cryptocurrencies

Percentage	Count	Percentage	Average score of KFM	Average score of RT	Standard deviation of KFM	Standard deviation of RT
0%	294	57.65%	3.5102	2.9524	0.787	0.5881
less than1%	110	21.57%	3.0545	2.2909	0.7274	0.4563
from 5% to 10%	60	11.76%	2.9667	3.2333	1.0246	0.7217
10-25%	14	2.75%	2.8571	2.8571	0.663	0.663
more than 25%	32	6.27%	3.1875	4	0.9311	0.7184
Total	510	100.00%	3.302	2.9196	0.8497	0.7333

Source: Authors calculation

Table 8 explores the relationship between investors' stated investment goals, their self-perceived knowledge of financial markets, and their risk tolerance. The dominant investment goal among respondents is "investing for retirement," with 77.06% (393 individuals) selecting this option. This group exhibits a relatively high average knowledge of financial markets (3.3842) and a moderate risk tolerance (2.8757). The standard deviations for both knowledge and risk tolerance are also moderate, indicating a consistent and balanced approach among these long-term investors. This suggests that the majority of respondents prioritize long-term financial security and are willing to adopt a balanced approach to risk and knowledge acquisition to achieve their retirement goals.

In contrast, the goal of "short-term profit" attracts the smallest segment of investors, with only 2.94% (15 individuals) selecting this option. This group exhibits the lowest average knowledge of financial markets (2.2857) and the lowest risk tolerance (2.0000). The absence of standard deviation data for risk tolerance in this group suggests a highly homogenous group with a consistent low-risk appetite. This indicates that investors focused on short-term gains may lack confidence in their financial knowledge and prefer to minimize risk. The goal of "earning more than in a bank" attracts 12.16% (62 individuals) and shows the highest standard deviation in financial knowledge (1.1860). This suggests a highly diverse group of respondents, potentially with a broad range of financial knowledge, and an average risk tolerance of 3.

Other investment goals, such as "investing for buying or selling real estate" and "entertainment," attract relatively small segments

of investors. The "real estate" group exhibits a moderate level of knowledge (3.2143) and risk tolerance (3.0000), while the "entertainment" group shows the lowest knowledge score (2.0000) and a moderate risk tolerance (3.0000). Overall, the data underscores the prevalence of long-term investment goals, particularly retirement planning, among the respondents. The variability in knowledge and risk tolerance across different investment goals highlights the diverse motivations and risk appetites within the investor population (Table 8).

Table 8. Investment objectives

Investment objectives	Count	Percentage	Average score of KFM	Average score of RT	Standard deviation of KFM	Standard deviation of RT
short term earnings	15	2.94%	23	20	0.7559	-
investment with the intention of selling and buying real estate	30	5.88%	32	30	0.8926	-
investment for old age	393	77.06%	34	29	0.7829	0.8163
fun	10	1.96%	20	30	-	-
the desire to earn more than in the bank	62	12.16%	26	30	11,860	-
Total	510	100.00%	33	29	0.8497	0.7333

Source: Authors calculation

Table 9 presents the relationship between investors' expected rates of return, their self-perceived knowledge of financial markets, and their risk tolerance. The largest group of respondents, 48.63% (248 individuals), expects an annual return between 10% and 15%. This group exhibits the highest average knowledge of financial markets (1.8089) and the highest risk tolerance (1.5041) among all groups, with the lowest standard deviations for both knowledge and risk tolerance. This suggests a relatively homogenous group with a balanced approach to risk and knowledge acquisition. Respondents expecting a moderate return seem to have a more realistic view of market possibilities and a higher level of confidence in their investment abilities.

Conversely, groups expecting higher returns, such as those between 50% and 100% or over 100% annually, show lower average knowledge scores and varying levels of risk tolerance. The group expecting between 35% and 50% returns exhibits the lowest average knowledge score (1.1429), indicating that unrealistic expectations may be associated with a lack of understanding of market dynamics. The data suggests that investors with overly optimistic return expectations may have a less informed perspective on financial markets. These findings highlight the importance of realistic expectations in investment planning and the potential risks associated with pursuing excessively high returns, especially without a solid understanding of the market (Table 9).

Table 9. Expected rate of return

Expected rate of return	Count	Percentage	Average score of knowledge of FM	Risk tolerance	Standard deviation of knowledge of FM	Standard deviation of knowledge of risk tolerance
Between 10% and 15% per year	248	48.63%	18.09%	15.04%	32.90%	30.30%
Between 15% and 25% per year	151	29.61%	16.33%	13.40%	35.08%	41.90%
Between 25% and 35% per year	62	12.16%	14.12%	14.56%	52.51%	39.34%
Between 35% and 50% per year	15	2.94%	11.43%	14.29%	36.31%	18.16%
Between 50% and 100% per year	15	2.94%	14.29%	17.14%	51.36%	25.68%
More than 100% per year	19	3.73%	16.16%	15.00%	52.08%	34.30%
Grand Total	510	100.00%	33.02%	29.20%	84.97%	73.33%

Source: Authors calculation

Table 10 examines the relationship between the time investors spend daily monitoring the market, their self-perceived knowledge of financial markets, and their risk tolerance. The largest segment of respondents, 49.02% (250 individuals), spends between three and four hours daily monitoring the market. This group exhibits the highest average knowledge of financial markets (3.5200) and a moderate risk tolerance (2.9120), with the lowest standard deviation for risk tolerance (0.5228). This suggests that investors who dedicate a significant amount of time to market monitoring tend to have higher self-perceived expertise in financial markets and a balanced approach to risk. Their consistent behavior, as indicated by the low standard deviation, suggests that frequent market monitoring allows them to make informed decisions and manage their risk effectively.

Conversely, the group that spends more than four hours daily monitoring the market (9.02%, 46 individuals) shows the lowest average knowledge of financial markets (2.5217) and a slightly higher risk tolerance (3.0870). This indicates that excessive time spent on market monitoring may not necessarily translate to higher financial knowledge and could be associated with a higher risk appetite. The group that spends less than an hour daily monitoring the market (32.16%, 164 individuals) exhibits a moderate level of knowledge (3.2317) and risk tolerance (2.8171), with the highest standard deviation for risk tolerance (0.9151). This suggests that investors who spend minimal time monitoring the market may have a diverse range of risk appetites. The group that spends between one and two hours daily monitoring the market (7.06%, 36 individuals) shows a slightly higher level of knowledge (3.3889) and risk tolerance (3.0556) compared to the "less than an hour" group. Overall, the data suggests that there is a correlation between the time spent monitoring the market and self-perceived financial knowledge, with investors who dedicate a moderate amount of time exhibiting the highest knowledge and a balanced approach to risk (Table 10).

Table 10. How much time do you spend per day monitoring the financial markets?

Daily market monitoring	Count	Percentage	Average score of knowledge of FM	Risk tolerance	Standard deviation of knowledge of FM	Standard deviation of knowledge of risk tolerance
less than an hour	164	32.16%	32	28	0.748	0.9151
between an hour and two	36	7.06%	34	31	0.7281	0.984
between two and three hours	14	2.75%	29	29	0.663	0.663
between three and four hours	250	49.02%	35	29	0.8076	0.5228
more than four hours	46	9.02%	25	31	0.9601	0.5898
Total	228	100.00%	33	29	0.8437	0.7142

Source: Authors calculation

Table 11 examines the relationship between investors' primary sources of information, their self-perceived knowledge of financial markets, and their risk tolerance. The data reveals a diverse range of information sources utilized by investors. The group relying solely on "friends" as their information source exhibits the highest average knowledge of financial markets (3.7833) and a moderate risk tolerance (2.7667). This suggests that personal networks can be a valuable source of information, and investors who rely on this source may have a high level of confidence in the insights they receive. However, the group relying on "daily news, analytical platforms, newsletters, and friends" shows the lowest average knowledge (2.1667), potentially indicating that reliance on multiple sources without critical evaluation can lead to confusion or information overload. The group that follows "daily news and influencers" have a high average knowledge score (3.6346) and moderate risk tolerance (2.6923) indicating that these sources can be used to gather relevant information.

The group relying solely on "analytical platforms and newsletters" constitutes the largest segment (29.61%, 151 individuals) and exhibits a moderate level of knowledge (3.2179) and risk tolerance (3.0128). This suggests that professional information sources are widely used and associated with a balanced approach to risk. The groups relying on "social media," "forums," and "influencers" show varying levels of knowledge and risk tolerance, indicating that these sources can be used to gather relevant information. The variability in knowledge and risk tolerance across different information sources underscores the diverse information-seeking behaviors and risk appetites within the investor population. The findings suggest that investors' reliance on specific information sources is closely linked to their self-perceived knowledge and risk tolerance, with those relying on personal networks and professional sources exhibiting higher knowledge and balanced risk tolerance.

Table 11. Where do you get the most information about investment opportunities?

Source of information	Count	Percentage	Average score of knowledge of FM	Risk tolerance	Standard deviation of knowledge of FM	Standard deviation of knowledge of risk tolerance
from a friend	58	11.37%	38	28	0.5552	0.7673
from daily news, from analytical platforms and newsletters, from friends	25	4.90%	22	28	0.5647	0.4423
from daily news, I follow influencers	102	20.00%	36	27	0.6241	0.6397
from daily news, from social networks, from friends	20	3.92%	32	38	0.9235	0.8085
from analytical platforms and newsletters	151	29.61%	32	30	0.9658	0.5901
from the social network	13	2.55%	28	28	0.7177	0.7177
from forums dedicated to financial markets	48	9.41%	32	29	0.7276	0.4526
I follow influencers	46	9.02%	33	30	0.6574	10,306
from the daily news	47	9.22%	31	29	0.8025	0.8431
Total	510	100.00%	33	29	0.8497	0.7333

Source: Authors calculation

DISCUSSION

This study on Western Balkan individual investors reveals complex relationships between demographics, investment habits, and risk perception. Contrary to traditional views, women showed slightly higher self-assessed financial knowledge and risk tolerance. This contrasts with the traditional notion of men being more risk-prone yet aligns with some recent studies suggesting shifts in women's investment behavior. When examining educational levels, it becomes evident that while highly educated investors represent the largest segment of the sample, those with secondary education demonstrate the highest self-assessment of financial market knowledge. This implies that practical experience and self-learning significantly contribute to perceptions of knowledge, alongside formal education.

The evaluation of investment duration reveals that long-term investors tend to adopt a more conservative approach and exhibit more consistent investment behaviors, aligning with Baker & Wurgler's (2006) findings regarding institutional investors' long-term horizons. Conversely, new investors show a higher risk tolerance, which may correlate with overconfidence, as noted by Gervais & Odean (2001). An analysis of asset classes indicates that stocks are the most favored option among investors, corresponding with Li et al.'s (2017) findings related to return maximization. Cryptocurrency investors, however, exhibit the highest risk tolerance, consistent with Chuang & Susmel's (2011) research on individual investors' preferences for riskier securities. Further analysis by portfolio size indicates that investors with larger portfolios tend to be more conservative, in line with Iqbal et al.'s (2013) findings on institutional investors'

portfolio diversification. Assessing the percentage of cryptocurrency investments shows that those who avoid cryptocurrencies possess the highest self-assessment of knowledge, echoing Grujić & Rajčević's (2020) conclusions on the impact of investor sophistication on stock market anomalies. Investment goals reveal that saving for retirement is the most prevalent objective, aligning with Baker & Wurgler's (2006) research on the long-term aspirations of institutional investors.

The assessment of expected rates of return demonstrates that investors with more realistic expectations exhibit a higher level of self-assessment of knowledge, consistent with Iqbal's (2013) findings on the effect of overconfidence on stock market anomalies. An analysis of daily market monitoring indicates that investors dedicating a moderate amount of time to such activities report the highest self-assessment of knowledge, highlighting the importance of balancing information gathering with avoiding over-analysis. The evaluation of information sources illustrates that reliance on personal networks and professional resources is linked to increased knowledge and a balanced risk approach, aligning with findings by Maditinos et al. (2007) regarding individual investors' dependence on public information.

CONCLUSION

This research successfully investigated the influence of education, investment experience, and socioeconomic factors on the behavior of individual investors in the specific context of the Western Balkans, providing empirical evidence essential for understanding the unique dynamics of this transition market. The findings generally confirm the main hypothesis (H1), establishing that investment habits and financial decisions are significantly influenced by a combination of personal characteristics. The results support the premise of hypothesis H1a, showing that formal education and self-learning significantly enhance an investor's perceived knowledge and risk tolerance, which is evidenced by the correlation between higher self-assessed knowledge and more realistic return expectations. Hypothesis H1b is also confirmed, as practical experience and long-term engagement shape decision-making, with new investors exhibiting higher risk tolerance, suggesting early speculative tendencies, while long-term engagement correlated with more conservative practices. Furthermore, hypothesis H1c is validated, as the analysis showed distinct differences based on demographics, notably that women demonstrated slightly higher self-assessed knowledge and risk tolerance, and asset class preference, particularly for stocks and cryptocurrencies, strongly differentiated investor types, with cryptocurrency investors exhibiting the highest risk appetite. This study's results carry significant implications for both theoretical understanding and practical policy, validating the relevance of behavioral finance concepts within post-transition markets. Practically, the research underscores a critical need for customized financial literacy programs that target specific demographic groups, address the unique risks associated with new digital assets, and enhance trust in local institutions, which is a key concern given the context of market integrity and financial crime. However, the study has several limitations, including its Western Balkans-specific sample, reliance on self-assessed measures for knowledge and risk, and a cross-sectional design, which limits the generalization of results and the establishment of strict causality. Future research should focus on employing larger, more diverse samples and utilizing objective measures of financial literacy and risk appetite, while implementing longitudinal studies to better establish the causal links between experience, education, and investment outcomes over time. Further exploration is necessary to isolate the impact of digital technologies and social media on investment behavior and to deeply examine specific regional factors, such as the relationship between investor decisions and the trust (or lack thereof) in local financial institutions and regulatory bodies.

LITERATURE

Adil, M., Singh, Y., & Ansari, M. S. (2022). How does financial literacy moderate the association between behaviour biases and investment decision?. Asian Journal of Accounting Research, 7(1), 17-30.

Antony, A., & Joseph, A. I. (2017). Influence of behavioural factors affecting investment decision—An AHP analysis. Metamorphosis, 16(2), 107-114. DOI: 10.1177/0972622517738833

Baihaqqy, M. R. I., & Sari, M. (2020). The Correlation between Education Level and Understanding of Financial Literacy and Its Effect on Investment Decisions in Capital Markets. *Journal of Education and E-Learning Research*, *7*(3), 303-313.

Baker, M., & Wurgler, J. (2006). Investor sentiment and the cross-section of stock returns. The journal of Finance, 61(4), 1645-1680. https://doi.org/10.1111/j.1540-6261.2006.00885.x

Barberis, N., Shleifer, A., & Vishny, R. (1998). A model of investor sentiment. Journal of Financial Economics, 49(3), 307-343.

Cao, M. M., Nguyen, N. T., & Tran, T. T. (2021). Behavioral factors on individual investors' decision making and investment performance: A survey from the Vietnam Stock Market. The Journal of Asian Finance, Economics and Business, 8(3), 845-853. doi: 10.13106/jafeb.2021.vol8.no3.0845

Chattopadhyay, S., & Dasgupta, R. (2015). Demographic and socioeconomic impact on risk attitudes of the Indian investors-an empirical study. *Asian Economic and Financial Review*, *5*(4), 601.

Christie, W. G., & Huang, R. D. (1995). Following the pied piper: do individual returns herd around the market? Financial Analysts Journal, 51(4), 31-37. DOI: 10.2469/faj.v51.n4.1918

Chuang, W. I., & Susmel, R. (2011). Who is the more overconfident trader? Individual vs. institutional investors. Journal of Banking & Finance, 35(7), 1626-1644. https://doi.org/10.1016/j.jbankfin.2010.11.013

Demirer, R., & Kutan, A. M. (2006). Does herding behavior exist in Chinese stock markets? Journal of international financial markets, institutions and money, 16(2), 123-142. DOI: 10.1016/j.intfin.2005.01.002

Derks, D., & Bakker, A. B. (2014). Smartphone use, work–home interference, and burnout: A diary study on the role of recovery. Applied psychology, 63(3), 411-440. https://doi.org/10.1111/j.1464-0597.2012.00530.x

Djogo, M., Trpeski., Lukić, V., Melović, B., Popović. S., Janković, I., Mekinić. B., Grujić, M., Naumovska, E., Vuksanović. M., Šehović, D., (2021). Western Balkans Financial Systems Guidelines, Amazon.

Fachrudin, K. R., & Fachrudin, K. A. (2016). The influence of education and experience toward investment decision with moderated by financial literacy. Polish Journal of Management Studies, 14.

Fanyi Wang, Ruobing Zhang, Faraz Ahmed & Syed Mir Muhammed Shah (2022) Impact of investment behaviour on financial markets during COVID-19: a case of UK, Economic Research-Ekonomska Istraživanja, 35:1, 2273-2291, DOI: 10.1080/1331677X.2021.1939089 https://doi.org/10.1080/1331677X.2021.1939089

Gervais, S., & Odean, T. (2001). Learning to be overconfident. Review of financial studies, 14(1), 1-27.

Grujić, M. (2021). Cryptocurrencies as a financial asset: An evidence from an institutional investors perspective. In The 2018 International Conference on Digital Science (pp. 287-299). Cham: Springer International Publishing. DOI: 10.1007/978-3-030-93677-8_25

Grujić, M. (2022). Odlike i načela funkcionisanja savremenih finansijskih tržišta. Udruženje ekonomista Republike Srpske SWOT: Baja Luka

Grujić, M., & Rajčević, P. (2020). Testiranje anomalija u kretanjima berzanskih indeksa u Bosni i Hercegovni s ciljem ostvarivanja iznadprosječnih prinosa na tržištu. IX naučna konferencija sa međunarodnim učešćem Jahorinski poslovni forum 2020. Realni i finansijski sektor u svjetlu novih tehnologija, novih svjetskih kretanja i novih izazova. Univerzitet u istočnom Sarajevu, Ekonomski fakultet Pale, 287-295

Grujić, M., & Šikman, M. (2020). Certain manifestation forms and proving money laundering in the emerging market. *Acta Economica*, *18*(32), 175-201. DOI: https://doi.org/10.7251/ACE2032175G

Iqbal, S., Hussain, N., Latif, M., & Aslam, S. (2013). Investor type and financial market anomalies: A comparison of individual, institutional and foreign investors and role of their behaviors in investing decisions. Middle East Journal of Scientific Research, 17(11), 1591-1596. DOI: 10.5829/idosi.mejsr.2013.17.11.11787

Kaur, I., & Kaushik, K. P. (2016). Determinants of investment behaviour of investors towards mutual funds. Journal of Indian Business Research, 8(1), 19-42. DOI: 10.1108/JIBR-04-2015-0051

Kotera, Y., & Correa Vione, K. (2020). Psychological impacts of the new ways of working (NWW): A systematic review. International journal of environmental research and public health, 17(14), 5080. https://doi.org/10.3390/ijerph17145080

Li, W., Rhee, G., & Wang, S. S. (2017). Differences in herding: Individual vs. institutional investors. Pacific-Basin Finance Journal, 45, 174-185. https://doi.org/10.1016/j.pacfin.2016.11.005

Lotto, J. (2023). Demographic and Socio-economic factors influencing households & investment choices in Tanzania. *Cogent Business & Management*, *10*(1), 2176276.

Maditinos, D. I., Šević, Ž., & Theriou, N. G. (2007). Investors' behaviour in the Athens Stock Exchange (ASE). Studies in economics and Finance, 24(1), 32-50. DOI: 10.1108/10867370710737373

Nguyen, A. T., Parker, L., Brennan, L., & Lockrey, S. (2020). A consumer definition of eco-friendly packaging. Journal of Cleaner Production, 252, 119792. https://doi.org/10.1016/j.jclepro.2019.119792

Ray, T. K., & Pana-Cryan, R. (2021). Work flexibility and work-related well-being. International journal of environmental research and public health, 18(6), 3254. doi: 10.3390/ijerph18063254

Senarathne, C. W., & Jianguo, W. (2020). Ponašanje gomile na tržištu kriptovalute - stvarno vs lažno gomilanje. The European Journal of Applied Economics, 17(1), 20-36. https://doi.org/10.5937/EJAE17-22053

Tan, L., Chiang, T. C., Mason, J. R., & Nelling, E. (2008). Herding behavior in Chinese stock markets: An examination of A and B shares. Pacific-Basin finance journal, 16(1-2), 61-77. https://doi.org/10.1016/j.pacfin.2007.04.004

Tonković Grabovac, M., Hanzec Marković, I., & Despot Lučanin, J. (2024). New ways of working and employees'well-being: subgroup differences. Marsonia: časopis za društvena i humanistička istraživanja, 3(1), 69-83.

RAZUMIJEVANJE INDIVIDUALNIH INVESTITORA NA ZAPADNOM BALKANU

Sažetak

Glavni cilj ovog istraživanja je ispitati složenu interakciju između obrazovanja, investicionog iskustva i specifičnih socioekonomskih karakteristika, te njihov rezultirajući uticaj na ponašanje i donošenje odluka individualnih investitora na Zapadnom Balkanu. Studija se posebno fokusira na stavove investitora prema različitim klasama finansijske aktive, uključujući dionice, obveznice i investicione fondove. Korištenjem kvantitativne istraživačke metodologije, zasnovane na anketi individualnih investitora i praćene sveobuhvatnom analizom postojeće literature, ova studija nastoji testirati nekoliko ključnih hipoteza o ponašanju investitora u ovom specifičnom kontekstu tranzicionog tržišta. Analiza otkriva primjetnu, statistički značajnu korelaciju između višeg nivoa obrazovanja i povećane tolerancije na rizik, sugerišući da obrazovanje podstiče veći apetit za rizikom. Nadalje, utvrđeno je da dužina i priroda investicionog iskustva značajno oblikuju percepciju znanja o tržištu i cjelokupno povjerenje investitora. Socioekonomski faktori, kao što su godine, pol i zanimanje, također igraju ključnu ulogu u oblikovanju preferiranih investicionih strategija i alokacije portfolija. Ovi nalazi naglašavaju kritičnu potrebu za prilagođenim resursima za finansijsku pismenost i ciljanim obrazovnim programima osmišljenim da poboljšaju procese donošenja odluka individualnih investitora u regionu i ublaže potencijalne investicione rizike. Rad se zaključuje definisanjem smjernica za buduća istraživanja, koja bi trebalo da uključuju veće, raznovrsnije uzorke, veći fokus na zastupljenost investitora ženskog pola i ispitivanje psiholoških pristrasnosti i makrofinansijskih uticaja specifičnih za Zapadni Balkan.

Ključne riječi: Individualni investitori, investicijsko ponašanje, Zapadni Balkan, obrazovanje