The Role of Personality Traits in Investment Decisions of Young Adults

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Abstract. This paper studies the relationship between the Big five personality traits, socio-economic characteristics and the investment choices of young adults. The data used in the analysis was obtained from a survey which aimed to identify individual's personality traits, risk aversion and preferred investment strategy. To estimate the effect of personality traits, risk aversion on individual's investment strategy we used a probit model. The results show that personality traits and certain socio-demographic variables influence individuals' choice of preferred investment strategy. We find that more extroverted people were identified as more likely to diversify their investments, however, people more open to new experiences came out as more conservative in their investments. Considering individual socio-economic characteristics, men chose a conservative investment strategy with a lower probability than women. Also, marital and employment status were found to statistically significantly affect preference towards a conservative investment strategy.

Keywords: Personality traits, Investment decisions, Behavioural finance

JEL classification: *D91, D14, G11.*

1   Introduction

According to behavioural economics, individuals do not always act optimally, and their choices and decisions deviate from rationality. This is may be due to several reasons – people do not have access to all relevant information, they can make decisions that are normatively unacceptable and are subject to behavioural biases, which can lead them to make sob-optimal decisions. The behavioural approach points out that these irrational decisions are not random but systematic (i.e., the heterogeneity in their behaviour may be due to, for example, genetic predisposition, previous experience and the like). The behavioural approach is essentially an interdisciplinary approach which has penetrated several areas of economics and other social sciences, and has attracted

significant attention in finance, where it contributed to the birth of behavioural finance. Behavioural finance examines the psychological factors that affect investment decisions of individual as well as institutional investors. In addition, behavioural finance studies behavioural biases and factors that affect investment decisions and subsequent investment returns.

The behavioural approach also focuses on studying and analysing the behaviour of individual investors on the financial market. Individual investors often act under the influence of behavioural biases that can lead them to make investment mistakes. In a situation where more and more individuals are investing in companies' equity and on the stock market, it is very important to understand their behaviour and actions. The transaction costs associated with investing are lower than ever before, and because information is freely available online, trading in assets is very simple. As the cost of entering the stock market has decreased in recent years and the number of individuals investing in equities has increased, many individuals take the opportunity to actively trade with a low collateral requirement.

Retirement savings are also a global trend (e.g., the second pillar savings in Slovakia or the so-called 401-plan in the USA). This type of investment is often carried out in cooperation with the employer, when the employer sets up accounts for each employee. The future returns on this investment then vary depending on the amount of the investment, but also on how investors manage their portfolio. However, individual portfolios are often not efficient enough, which then causes a problem in terms of the final pension and the amount saved for retirement.

Individual investors can choose to invest themselves or delegate their investments to external asset managers. In the case of delegation, it is also possible to speak of double delegation, where firstly individual investors (i.e., pension savers) delegate their investment decisions to pension fund managers and then the managers of these funds either invest directly or delegate the investment to external managers.

In our study, we analyse, whether the personality traits – extraversion, agreeables, conscientiousness, nervousness and openness to experiences – socio-economic characteristics and risk aversion affect investment decisions of young adults. Young adults have a long investment horizon in front of them, therefore it is important that they manage their finances and investments correctly, so that they do not forego gains for their future pensions. We carry out the analysis using the data from a survey carried out among a sample of young adults which measures the individual personality traits, risk aversion and collects information on respondents' socio-economic characteristics.

The paper is structured as follows: first, we review the relevant literature; then, we discuss the data and the methodological approach used to estimate the relationship between studied variables and investment decisions of individuals. In the following section, we present and evaluate the results of the data analysis. Finally, we discuss the results and conclude the paper.

2 Literature review

Behavioural finance highlights that individuals do not always act optimally, and their choices often deviate from rationality. According to the behavioural approach, this is for several reasons, e.g., because people do not take into account all available information, they make decisions that are normative and socially acceptable, even if they are not in their best interests. In this regard, significant attention is paid to the attitudes of individuals towards risk and the factors that affect it. In their work Kahneman and Tversky (1991) showed that individuals are loss averse. They showed that people feel a loss about twice as much as a return of the same value, as higher investment risk is associated with a higher probability of loss. Therefore, much of the research in behavioural finance focuses on analysing the factors that influence individuals' attitudes to risk.

Similarly, myopic loss aversion occurs when an investor feels more the losses than profits and tends to frequently evaluate and monitor his or her investment results. Based on an experimental approach, Thaler et al. (1997) concluded that investors who received more frequent feedback on the performance of their investments were less likely to take risks and therefore forgo an appreciation in the value of their investments. The aversion to short-term losses suggests that excessive information and performance monitoring of an investment portfolio is associated with higher risk aversion and lower portfolio performance.

The behaviour and decisions of individuals are also influenced by the ways in which the available options are presented to them (so-called framing). The concept introduced by Kahneman and Tversky (1979) into behavioural economics has gained great acclaim in their work on prospect theory which has found widespread application in practice. Framing has been used in various situations (e.g., when designing retirement savings investment strategies) and it has led to positive outcomes in various areas (e.g., in improving the collection of taxes, when letters with information that most people pay taxes has been sent to taxpayers). An important finding is also the aversion to loss, which documents that people consider loss to be more painful than a benefits of the same size, and therefore they will try to avoid such loss. Behavioural science also points to the influence of social norms on the behaviour and decision-making of individuals (Ariely, 2008). If members of a group, such as work teams, family or friends behave in a certain way or have a certain belief, their friends and family will behave similarly and have similar values.

The aim of behavioural economics is to improve predictions by forming more realistic assumptions about individuals' behaviour and also to specify how individuals' economic decisions can be improved. This effort is usually based on behavioural interventions and nudging. A better understanding of the causes of individuals' irrational behaviour and behavioural biases they are subject to, can help economic agents make better decisions.

Some studies (e.g., Benartzi and Thaler, 2001) show that individual investors often invest in the company in which they are employed or in the pension funds of this company. Both factors expose investors to idiosyncratic location risk, which is also likely to be correlated with their career prospects. This trend in the behaviour of

individual investors can be explained by the aversion of individuals to the unknown and their inclination to the known. These studies show that many investors use investment strategies that are very simple, such as assigning 1/N savings to each of the N available investment options, regardless of the nature of the investment options (Benartzi and Thaler, 2001).

Behavioural finance also studies for instance the role of personality traits, demographic factors such as age, education, gender, income and marital status in investment decisions of individuals. Jaggia and Thosar (2000) examined the relationship between the investment horizon (the age of the investor) and the willingness to take risks. The results of the expected utility model simulation showed that the willingness to take risk decreases with the length of the investment horizon (i.e. with the age of the investor). In their study, Watson and McNaughton (2007) also pointed to a significant positive relationship between age and the level of risk aversion. Therefore, in the empirical analysis of risk aversion, the age of an individual is usually controlled for.

Eckel and Grossman (2008) showed that women's and men's investment behaviour shows systematic differences in risk attitudes – the authors showed that women have a greater risk aversion than men. Eckel and Grossman (2008) argue that it is important whether men and women systematically differ in their choices against risk. If women are more sensitive to changes in risk than men, this attitude should influence all aspects of their decision-making, including career choices and investment decisions.

Similarly, empirical studies by Watson and Robinson (2003) and Larsson and Säve-Söderbergh (2010) document that women have a higher risk aversion. The higher risk aversion can be explained by the fact that women usually have a lower income than men and have longer life expectancy (Hersch, 1996). Other studies that have shown that women have a higher aversion to financial risk than men include Palvia et al. (2015) and Hoang et al. (2019). Palvia et al. (2015) examined gender differences in the context of US banking during the Great Recession. They found that banks with women in management positions assessed the risk that a given bank faced more conservatively. The departments led by them held a higher level of equity, thus reducing the likelihood of bankruptcy during the financial crisis.

Mayfield et al. (2008) examined the influence of personality characteristics (extraversion, agreeables, conscientiousness, nervousness and openness to experience) (Goldberg, 1992) on short-term and long-term investing. The authors found that more extroverted individuals tend to invest in the short term. On the other hand, individuals with higher nervousness were shown to avoid short term investments and instead invest in the long run. These results also suggest that individuals who are risk averse do not tend to invest in the long run, but rather prefer short term investments. Moreover, Mayfield et al. (2008) showed that people who are more open to experience are more likely to focus on long-term investment activities (however, this personality trait was not statistically significant when it came to short-term investing).

In studying the determinants of financial risk tolerance by individuals in financial decision-making, Pinjisakikool (2018) used the Big five personality traits to examine their impact on household financial behaviour and their financial risk tolerance. The results of this study show that all five personality traits significantly predicted the

degree of financial risk tolerance and at the same time, as instrumental variables, were able to indirectly predict the financial behaviour of households.

Aumeboonsuke and Caplanova (2021) investigated the determinants of financial risk tolerance in the financial decisions of individual investors, focusing on its determinants, especially on the influence of personality traits using Goldberg's personality model and mindfulness on individuals' risk aversion. This factor analysis shows that pleasant and emotionally stable people are less risk averse, while people characterized by conscientiousness and openness are significantly more risk averse. Analysis of the interaction between attention and risk aversion suggests that more susceptible individuals tend to be more risk averse. In addition, the attentive state of mind has an important mediating role between personality traits and risk aversion. Although research suggests that emotional stability has a direct negative effect on risk aversion, on the other hand, it has a significant positive effect on mindfulness, which has a statistically significant positive effect on risk aversion. The authors also note that older people and women have a higher risk aversion, men and married individuals have a lower risk aversion.

3 Data and methodology

In this section, we outline the data, methodology and the empirical approach used to analyse the relationship between personality traits and socio-economic characteristics on investment decisions of young adults. In particular, we focus on studying whether individuals in our sample choose a conservative or a diversified, more risky, investment strategy.

3.1 Data

To obtain data, we conducted a research in the form of a questionnaire survey. The aim of the survey was to identify the personality traits and socio-demographic characteristics of the participants and their choice of investment strategy.

The sample size is equal to 100 responses, most of them representing students and young adults. Table 1 provides an overview of the sample characteristics. The data shows that almost 61 percent of the survey participants are represented by women. The average age of the respondents is approximately 26 years, so the sample is representative mainly for young adults. Given the growing importance of investing at a young age, it is important to analyse and examine the investment decisions of this age group and to identify possible behavioural biases in their behaviour that may affect their investment decisions in general, but also affect their future retirement savings.

Table 1. Sample characteristics.

	Col. 1	Col. 2
	Proportion [in %]	Average/number
Gender		

Woman	60.8	
Man	39.2	
Marital status		
Single	80.4	
Married /living together/cohabitation	19.6	
Level of education attained		
NA	5.88	
Bachelor	31.4	
Master	49.0	
PhD	13.7	
Educational backgorund		
NA	5.88	
Technical science	9.8	
Humanities	3.9	
Social science	76.5	
Natural science	3.92	
Employment status		
Unemployed	64.7	
Employed	35.3	
Average monthly income [in eur]		
NA	23.5	
Less than 500	29.4	
501-1000	23.5	
1001-2000	15.7	
2001-3000	3.92	
3001-5000	1.96	
More than 5000	19.6	
Average age		25.98
Number of students		94
Sample size, N	**100**	

Source: Author's own calculations.

As can be seen from Table 1, 49 percent of respondents are master's degree students, while bachelor and doctoral students represent 31.4 percent and 13.7 percent of the sample respectively. About 6 percent of respondents noted that they were not enrolled in university studies.

Data also shows that the vast majority of respondents have an education in the social sciences (e.g., economics, political science, psychology). Almost 10 percent of participants have an education in technical sciences, approximately 4 percent of respondents have academic background in humanities as well as in natural sciences.

35 percent of respondents stated that they were employed full time, which means that some students work full time while studying. The remaining 65 percent of respondents noted that they were unemployed, however, some of them were employed part-time.

Given that the majority of the sample was represented by students, it could be assumed that their income is limited. Data in Table 1 however shows that 23.5 percent of respondents do not have an active source of income. Almost 30 percent of respondents had an average monthly income of less than 500 euros, while more than 41 percent of respondents had an average monthly income of more than € 1,000, and more than 19 percent of survey participants noted that they earned more than € 5,000 per month. However, it is important to note that the sample includes respondents from several countries where the average income may be higher than in Slovakia.

It is important to also note that the data are not representative of the overall population of savers, since students and young adults have the largest representation in the sample. There is also a dominant representation of women in the sample. However, the aim of the research was not to carry out a representative analysis, but to examine characteristics that influence young people's investment decisions.

3.2   Methodology

To identify and measure individual's personality traits we used Goldberg's Big Five personality traits – i.e., conscientiousness, agreeableness, neuroticism, openness to experience, and extraversion (Goldberg, 1990; 1992). Since its inception, Goldberg's Big five personality concept has been widely used in research in psychology, but also in other social sciences (Gow et al., 2005). Number of researchers have used it to examine the influence of personality traits on decision-making in both economic and non-economic areas. Examples of such studies are Aumeboonsuke and Caplanova (2021), Sahinidis et al. (2020), Müller and Schwieren (2020) and Pinjisakikool (2018).

The respondents of our survey were asked to evaluate the statements related to each of the personality traits on a scale from 1 to 5, with 1 being a very inaccurate statement and 5 a very accurate statement. In addition, we also measured the level of risk aversion by using a risk profile assessment consisting of 10 multiple-choice questions. The measurement of risk aversion was focused on attitudes towards alternative investments with different levels of risk. An investor who is not prone to risk would prefer a lower risk option (i.e., a more conservative, lower return investment strategy).

The methodology and empirical strategy used to estimate the causal relationship between personality traits and individuals' preferred investment strategies is based on the model specified below. To take into account the nature of the data, we analysed them using a relevant analytical tool (the so-called survey tool) in the STATA program.

Since the dependent variable is a binary variable that has a value of 1, if an individual chooses a conservative investment strategy, otherwise it is equal to 0, we will analyse the empirical data using the probit regression method:

$$Pr(i\ conservative) = \delta + \theta_1 E_i + \theta_2 C_i + \theta_3 A_i + \theta_4 N_i + \theta_5 O_i + \theta_6 Risk_i +$$
$$\sigma X_i + \varepsilon_i \ (2)$$

Where the dependent variable indicates whether the individual is a conservative investor, E_i is the measure of extraversion of the individual i, C_i is the measure of conscientiousness, A_i is the measure of agreeables, N_i is the measure of nervousness and O_i is the measure of openness to experience and $Risk_i$ is the measure of risk aversion of individual i. X_i is a vector of control variables including gender, age, marital status, average monthly income, employment status, level of education attained, and binary variable that acquires a value of 1 if the individual has background in social science, and 0 otherwise. ε_i is the standard error.

Based on the existing studies in this area, we expect that some of the Big five personality traits will statistically significantly influence the investment decisions of individuals. For example, we expect extroverted people to be less inclined to invest conservatively. In addition, we assume that socio-economic characteristics will also statistically significantly affect the investment decisions of individuals in our sample.

4 Results

In this part we present the estimation results based on the methodology outlined in the previous section.

Table 2 summarises the estimated results of the relationship between personality traits, individual characteristics and the chosen investment strategy, i.e., whether they choose a conservative or less conservative investment strategy.

As can be seen from Table 2, individuals who are more extroverted are less likely to engage in a conservative investment strategy and are more likely to diversify their investment portfolio and invest in more risky assets. However, this estimate is weakly significant at the 10 percent level of significance. Openness to experience statistically significantly influences respondents' choice of investment strategy. People who are more open to new experiences are more likely to prefer a conservative investment strategy, while this relationship is significant at the 10 percent level of statistical significance.

Table 1. The impact of the Big five personality traits and individual characteristics on the choice of preferred investment strategy.

Dependent variable – preferred investment strategy	Col. 1
Extraversion	-0.0928*
	(0.0491)
Conscientiousness	0.110
	(0.0993)
Agreeables	-0.0166
	(0.0590)
Nervousness	-0.0858
	(0.0738)
Openness to new experiences	0.141*
	(0.0739)

Risk aversion	0.130
	(0.136)
Gender (1=woman)	-1.619***
	(0.534)
Age	-0.00941
	(0.0229)
Married/living together/cohabitation	1.049*
	(0.599)
Education degree	-0.477
	(0.305)
Employed	1.024*
	(0.535)
Average monthly income	-0.356
	(0.238)
Student of social science	0.502
	(0.589)
Constant	-2.211
	(3.201)
Sample size, N	**100**

Source: author's own calculations.
Note: Standard errors are in parenthesis.
*, **, *** statistically significant at 10, 5 and 1 percent level of statistical significance.

The results in Table 2 show that gender is statistically significant at the 1 percent level. In particular, the results show that men are less likely to engage in a conservative investment strategy than women. Men are more likely to keep their funds in a diversified portfolio than women, which is also in line with the findings of other research and trends observed in investment strategies of men and women.

The results also show that respondents living in a marriage or living in a household with other people are more likely to invest conservatively, however, this estimate is statistically significant at 10 percent level of statistical significance. This may be due to the fact that married people have to think not only about their income or loss, but also about their family. Therefore, in order to prevent or mitigate financial losses that could affect them, they prefer to choose a conservative investment strategy.

Individuals who are employed are also shown to be more likely to engage in a conservative investment strategy than unemployed individuals (this estimate is significant at the 10 percent level of significance). This finding is not in line with our expectations, so the reasons for this conclusion need to be analysed in more detail in future studies.

Overall, in line with our expectations, we found that certain personality traits statistically significantly affect young adults' investment decisions. In addition, we found that socio-economic characteristics influence prefered investment strategies of individuals, i.e., whether they choose to invest conservatively or whether they choose to diversify their portfolio in more risky assets.

5 Discussion and conclusion

The research showed that individuals are influenced by personality characteristics and socio-demographic variables in relation to their preferred investment strategy.

When making investment decisions, we found that extraversion and openness to new experiences influence the choice of investors' portfolio statistically significantly. More extraverted people are less likely to invest in a conservative portfolio and are more likely to diversify their investments. On the other hand, people who are more open to new experiences are more conservative when it comes to investment decisions.

Considering socio-demographic characteristics, the results show that men are less likely to choose a conservative investment strategy than women. Family and employment status also statistically significantly and positively effect individual's preference over a conservative investment strategy.

Understanding the impact of personality traits and individual characteristics on investment decisions can help us understand the reasons why individuals often do not make optimal investment choices. This can help policy makers identify appropriate behavioural nudges and interventions that could be used to make individuals behave more rationally, for example, in the context of pension savings. Given that the vast majority of developed countries are facing or already experiencing population aging, improving pension investment decisions of individuals can enable individuals to have higher investment returns as well as lower the burden on public finances.

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