ZESZYT NAUKOWY
Wyższa Szkoła Zarządzania i Bankowości w Krakowie

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INVESTING ON FINANCIAL MARKETS – RATIONAL AND IRRATIONAL FACTORS

Introduction

Investing on financial markets has become a common activity also among lay people. This is caused by an easier access to tools (including remote contact), the possibilities of on-going consultations with investment advisers and the access to information (including the Internet). Numerous people decide to start investing with small amounts to reduce the risk involved. The risk is not only associated with the potential gain or loss but also with some emotions and excitement. Investing gives a thrill and may increase (or lower) the investors' sense of influence and abilities. The factors that are related to investing and are beyond rationality are the object of behavioral finance.

The objective of the article is to discuss the issues of the risk related to investing and the rational and beyond-rational factors that potentially influence investors. The empirical part of the article presents selected results of the authors' comprehensive investigations that aimed at the verification to what extent the investors rely either on rational or irrational factors in their investment decision-making[1].

1. The essence of financial markets

The financial market is based on financial transactions of sales or purchase of financial instruments that operate on this market. This is one of the basic markets that operate in every economy. The buyer and the seller make a kind of a deal through a relationship that occurs during the transaction. There are three fundamental financial markets: the money market, the capital market and the currency market[2].

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[1] The theoretical analyses and investigation results presented in the article come from Anita Bil's MA thesis supervised by Dr Justyna Michniak-Szladerba. The title of the thesis was *Behavioral finance and the risk involving investments on financial markets (Finanse behawioralne a ryzyko związane z inwestowaniem na rynkach finansowych),* defended on 8.03.2022 (WSZiB).
[2] K. Jajuga, T. Jajuga, *Inwestycje. Instrumenty finansowe, aktywa niefinansowe, ryzyko finansowe, inżynieria finansowa*, Wydawnictwo Naukowe PWN, Warszawa 2006, p. 17.

The money market refers to short-term financial instruments market. The redemption period of such instruments is one year or less so it is used to finance current needs due to its short-term character[3]. The money market plays an important role in economy as it involves the movement of means of payment; there is a disposition of funds between the institutions that have a financial surplus and the institutions that temporarily have their shortage. There are such segments of the money market as unsecured and secured deposit markets. Unsecured deposits are interbank deposits that are borrowed and lent between banks without collateral, which testifies to significant mutual trust. In such cases, there are strict limits up to which funds can be lent. On the other hand, there are secured deposits where loans are secured with collateral, which results in a decrease of risk to the lending institution. The money market also includes a separate segment of short-term debt securities[4].

The capital market involves financial instruments with a medium- or long-term maturity period which is one year or more. These instruments are used mainly to finance investments[5]. The capital market attracts savings from households. On this market stocks and bonds are traded. The two basic segments of the capital market are primary and secondary markets[6]. The primary market is a market where purchases are conducted directly from issuers, which in the case of stocks are stock companies and the State Treasury in the case of bonds. The secondary market is complementary to the primary market but the issuer is not involved in operations. On both markets securities are traded[7].

The currency market is the market where currencies are traded. They are divided by the range. There are retail, wholesale, interbank and national currency markets (FOREX). International currency markets, where international transactions are held, have the widest range. The currency market involves currency risk, which is an inseparable factor, especially in the case of international operations. The instability of prices, interest rates and exchange rates have an impact on the results obtained on the market[8].

[3] S. Thiel, *Rynek kapitałowy i terminowy*, Komisja Nadzoru Finansowego, Warszawa 2010, p. 7.
[4] A. Sławiński, A. Chmielewska, *Zrozumieć rynki finansowe*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2017, pp. 43-46.
[5] S. Thiel, *Rynek kapitałowy i terminowy*, Komisja Nadzoru Finansowego, Warszawa 2010, p. 7.
[6] A. Sławiński, A. Chmielewska, *Zrozumieć rynki finansowe*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2017, p. 47.
[7] W. Tarczyński, M. Kunasz, *Rynek kapitałowy – co inwestor wiedzieć powinien*, Wydawnictwo ZARR, Szczecin 2002, pp. 7-12.
[8] M. Górski, *Rynkowy system finansowy*, Polskie Wydawnictwo Ekonomiczne, Warszawa 2007, pp. 259-265.

2. Investments in financial markets as risky operations

Individuals undertake investments with the prospect of the increase of welfare, the possibility of investing capital and also multiplying it[9]. However, every investment also involves risk. The risk is related with the uncertainty whether the goal will be achieved and with changes on the market. The effects of investments result from various factors including, for example, the accessibility of information that helps making appropriate decisions. In order to achieve this goal, the expected rate of return is estimated. This is done on the basis of the historic values of interest rates and is measured as the arithmetic average rate in every period t in the past. This helps the investor consider the ability to take the assumed risk in view of the expected investment effects. Nevertheless, the values obtained are only approximate[10]. Another way of protection against risk is a multicomponent portfolio of securities. As a result, the risk related to the expected rate of return breaks down (the so-called portfolio diversification) [11]. The investor may also be supported by the Capital Asset Pricing Model (CAPM) which defines a set of efficient portfolios through the analysis of the expected rate of return and the total risk. This is a model that helps investors make adequate investment decisions[12]. The model is also referred to as a capital market balance model. This is a common method of selecting an efficient portfolio of capital investment and it assumes that the investor behaves rationally. The CAPM model assumes two basic dependencies. One is the Capital Market Line (CML) which shows the relationship between the risk and the rate of return of the portfolio, while the other is the Security Market Line (SML) which represents the relationship between the beta risk measure and the rate of return of the portfolio[13].

A professional investment adviser with a sound knowledge and expertise in investing may also be helpful in making right investment decisions.

The uncertainty related to decision making processes results also from the relations between individual actors on the market. Moreover, the frailty of human nature may lead to a choice of either right or wrong decision that is caused by the intuition or beliefs of an

[9] K. Jajuga, T. Jajuga, *Inwestycje. Instrumenty finansowe, aktywa niefinansowe, ryzyko finansowe, inżynieria finansowa*, Wydawnictwo Naukowe PWN, Warszawa 2012, pp. 390-391.
[10] M. Stachura, B. Wodecka, *Alternatywne względem ujęcia Markowitza podejście do szacowania stopy zwrotu z portfela*, „Studia Ekonomiczne" 2013, No. 154.
[11] J. Górka, M. Osińska, *Analiza spektralna stóp zwrotu z inwestycji w akcje*, „Nasz rynek kapitałowy" 2003, No. 3.
[12] K. Jajuga, T. Jajuga, *Inwestycje. Instrumenty finansowe, aktywa niefinansowe, ryzyko finansowe, inżynieria finansowa*, Wydawnictwo Naukowe PWN, Warszawa 2006, p. 168.
[13] W. Dębski, *Rynek finansowy i jego mechanizmy. Podstawy teorii i praktyki*, Wydawnictwo Naukowe PWN, Warszawa 2014, pp. 529-531.

individual[14]. There are two types of motivations of decision makers in the financial system: one is egoistic and the other is altruistic. The egoistic motivation assumes that an individual with an egoistic attitude to investment has a chance to develop the investment and multiply it due to the fact that he or she pays attention to the profit and happiness understood as the return on investment[15]. In the case of the altruistic motivation the investor is focused mainly on the others. It is considered that there is a capital of social trust in the macrosystem. It is created at the moment when all market actors support one another and cooperate in organizations to achieve common security[16].

Moreover, in order to minimize uncertainty, the investor should be free from the temptation to guess future trends as the speculations may not necessarily come true. The investor should make a decision, stick to it and consistently pursue the goal as frequent change of decisions may result in bigger losses. Temporary fluctuations in prices should not make investors change their decisions[17].

3. Irrational factors affecting investors

Behavioral finance emphasizes the fact that investment decisions may be influenced by various factors. This is a fundamental difference between behavioral finance and the neoclassical theory of finance. The selection of particular portfolios can be affected both by psychological aspects and by the investor's current financial status[18].

One of the psychological determinants is the investor's mood at the time of making a decision. An individual who is in a good mood will make a more optimistic decision than a person who is pessimistic. Good mood results in making more risky decisions and leads to less caution. An individual who is in a worse mood at the moment of making an investment decision will be more careful[19]. Moreover, the investor will be accompanied by feelings of fear and greed. Fear results in building defensive portfolios. In such cases, the investor tends to protect

[14] B. Pietrzak, Z. Polański, B. Woźniak, *System finansowy w Polsce*, Wydawnictwo Naukowe PWN, Warszawa 2003, p. 23.
[15] M. N. Rothbard, *Tajniki bankowości: podręcznik akademicki*, Wydawnictwo Fijorr Publishing, Warszawa 2007, p. 195.
[16] J. K. Solarz, *Zarządzanie ryzykiem systemu finansowego*, Wydawnictwo Naukowe PWN, Warszawa 2008, pp. 26-27.
[17] M. Rogala, *Rozważny inwestor*, Wydawnictwo HELION, Gliwice 2013, pp. 248-257.
[18] H. Shefrin, M. Statman, *Behavioral Portfolio Theory*, „Journal of Financial and Quantitative Analysis" 2000, Vol. 35, No. 2.
[19] G. Loewenstein, C. Hsee, E. Weber, N. Welsh, *Risk as Feelings*, „Psychological Bulletin" 2001, Vol. 127, No. 2.

his or her funds against loss. A person who is driven by greed will create aggressive portfolios with the aim to maximize gain at all costs

Apart from emotions, weather conditions may influence a potential investor. More optimistic decisions will be made on a sunny day. An optimistic attitude will be associated with a risky behavior while a pessimistic approach will result in a prudent and thorough analysis and assessment of the current situation or the expected risk[20].

Potential investors may also be influenced by the advice given by other actors on the market. An individual who has some experience and knowledge of investing will recognize valuable advice. However, a person who starts the adventure of investing is in a less favorable situation as he or she will be receptive to the advice of other people without the ability to assess the information. Moreover, contradictory advice of different people may lead to the investor's confusion. On the other hand, such a situation may make the novice investor explore the problem[21] and consequently develop his/her investment skills.

4. Behavioral mistakes made during investment decisions

Individuals who are making investment decisions may be affected by non-rational perception of the situation. This is due to several behavioral mistakes that appear in the course of the decision-making process that are described in the literature on the subject. One of them is the disposition effect, which is the tendency to sell investments to gain quick profits with a simultaneous reluctance to incur losses. As a result, despite the fact that the investor has securities that are losing in value, he does not sell them in hope that their value will increase in time. This is a behavioral mistake. Investors lack in self-control to make timely decisions considering the loss of value of their investments[22]. Another mistake is the so-called sunk cost effect, which is the tendency to continue an endeavor although the failure of the investment is obvious. Any investment involves costs that are related to financial resources and the expenditure associated with time and effort. Consequently, the investor is reluctant to abandon the investment even though it is bound to be a failure. What is more, the investor is afraid of

[20] N. Schwartz, G. Clore, *Mood, Misattribution, and Judgments of Well-Being: Informative and Directive Functions of Affective States*, „Journal of Personality and Social Psychology" 1983, Vol. 45.
[21] R. Shiller, J. Pound, *Survey Evidence on Diffusion of Interest and Information Among Investors*, „Journal of Economic Behaviour and Organisations" 1989, Vol. 12.
[22] H. Kent Baker, G. Filbeck, J.R. Nofsinger, *Co każdy powinien wiedzieć. Finanse behawioralne*, Wydawnictwo Naukowe PWN, Warszawa 2021, pp. 30-31.

starting a new investment as he is concerned that it is also going to be a failure[23]. The case when the decision-maker does not make a move due to loss aversion is referred to as the ability to maintain the status quo. This is a convenient solution for the decision-maker but maintaining in this situation for a long time may result in going backwards and the generation of losses. The investor is reluctant to change the investment portfolio and when making an investment decision he usually follows ready-made solutions of other people[24]. In such cases heuristics are applied i.e. practical rules of behavior that are based on experience and common knowledge. They are applied to make decisions without a thorough analysis of particular options, which may lead to wrong investment decisions.

5. Analysis of rational and irrational factors in the investing process – based on own research

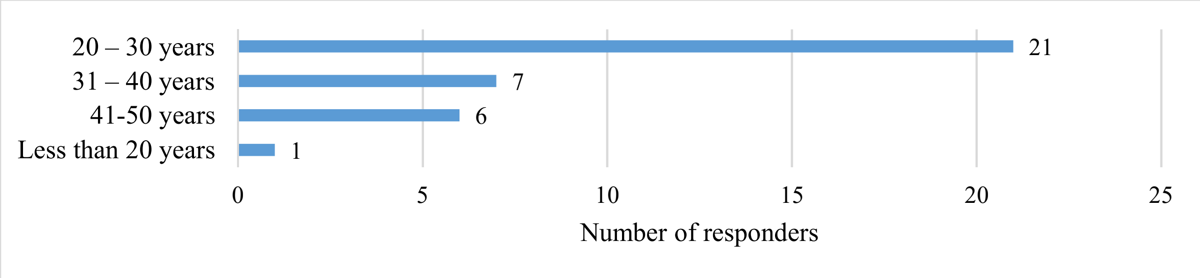
The objective of the research was to verify to what extent the surveyed individuals investing on the stock exchange are guided by specialist knowledge or experience (for the sake of the survey these factors are referred to as rational) and to what extent they follow irrational factors (such as intuition, self-confidence).

The survey was conducted among 35 respondents in November-December 2021. A diagnostic survey method was used; in the survey technique the author's own research tool was applied – a survey questionnaire. The presented survey results are a part of the material collected during more extensive research within the framework of an unpublished MA thesis of one of the Authors.

The majority of respondents were young people (21 respondents aged 20-30), with incomplete higher education (18 individuals) or with higher education (11 respondents). Detailed information is given in Graph 1 and Graph 2.

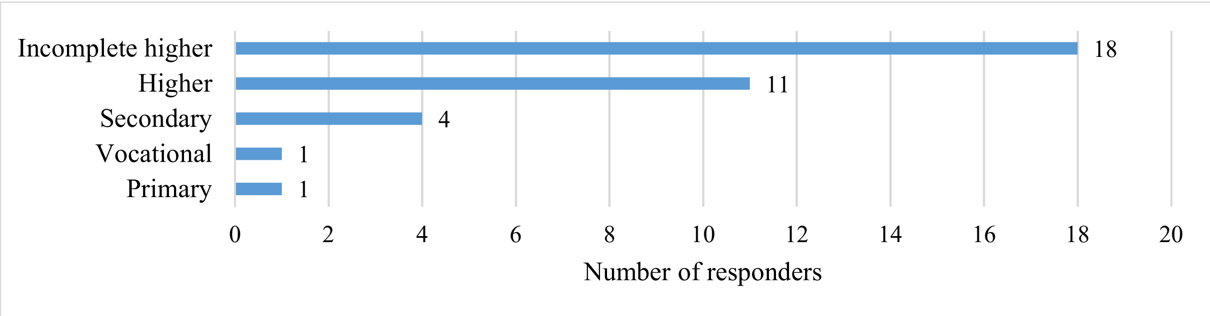
[23] M. Elvin, *Financial Risk Taking: An introduction to the Psychology of Trading and Behavioural Finance*, John Wiley & Sons, 2004,pp. 94-95.
[24] A. Cieślak, *Behawioralna ekonomia finansowa. Modyfikacja paradygmatów funkcjonujących w nowoczesnej teorii finansów* „Materiały i Studia NBP" 2003, No. 165.

Graph 1. Age of respondents



Source: Authors' research.

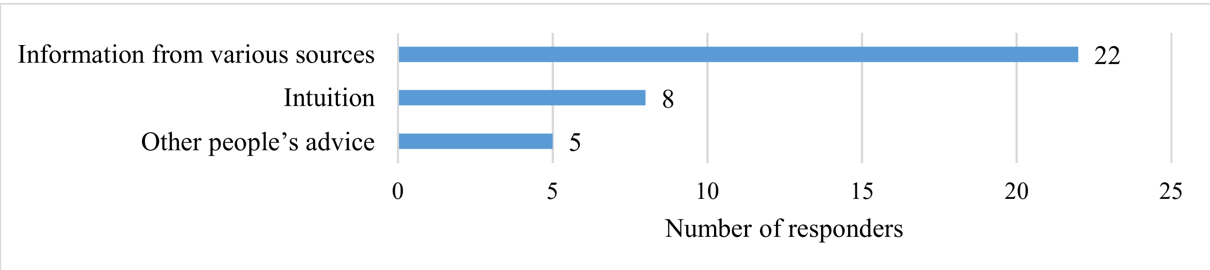
Graph 2. Education of respondents



Source: Authors' research.

The survey indicated that when making investment decisions the respondents were guided mainly by information from various sources (content factor). However, 8 respondents indicated that they followed their intuition (irrational factor). Detailed results are given in Graph 3.

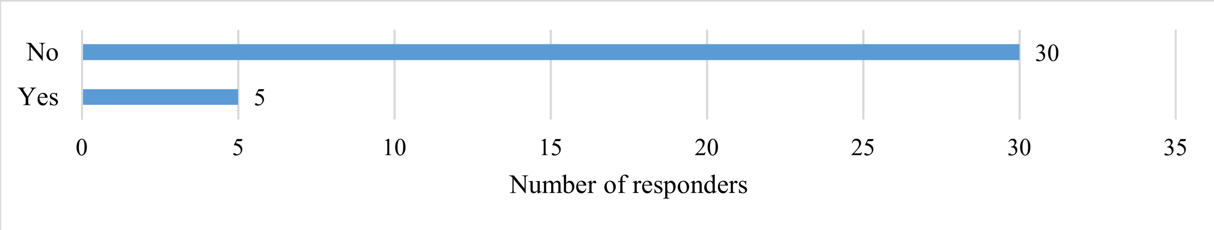
Graph 3. Sources of investment decisions



Source: Authors' research.

Subsequently, having in mind the aim of the research, the respondents' level of specialist knowledge was verified. The survey showed that only 5 respondents declared specialist knowledge of investing on financial markets (cf. Graph 4)

Graph 4. Declaration of specialist knowledge in the area of investing

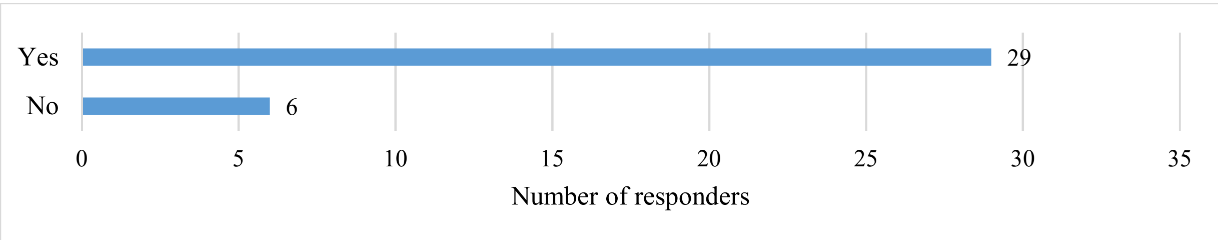


Source: Authors' research.

Slightly more than half of the respondents (16 individuals) indicated that they had experience in the area under investigation. The same number of respondents (16) admitted that they could not assess in practice the possible gain and loss on investment.

However, irrespectively of the above results, only 6 respondents indicated that they did not believe in their investment skills (cf. Graph 5). 23 respondents indicated that at the moment of the investment decision-making they though the investment would incur a profit.

Graph 5. Declaration of self-confidence level in investment skills



Source: Authors' research.

6. Conclusions and directions of further research

The research showed that information is the main source for the investors' decisions. An insignificant number of respondents (8) indicated intuition as the source of investment decision. The majority of the group under survey were young people with higher or incomplete higher education. Most of them declared a lack of knowledge and experience in investing on financial markets and 16 of them admitted that they could not practically assess a potential gain on investments. Thus, it can be concluded that content-related factors were not crucial in the respondents' investment decision-making process. The survey also showed that the majority of respondents (29) believe in their investment skills and effectiveness as they expect gains on investments (23 respondents). Thus, their self-confidence, which is not based on knowledge and experience, is an irrational factor. Consequently, it can be concluded that despite the lack of knowledge and experience in investing on financial markets and the resulting inability to conduct reasonable assessment of potential profit or loss on investment (rational factors), the investors under survey are ready to believe in their investment skills and the gains on them (irrational factors).

Further research should be conducted after the introduction of the following modifications:

- increasing the group under survey;
- determining the age range of the group within 18 – 30 years (young people);
- determining the education level of the respondents (possibly including the field of study);
- determining the assessed level and source of income (the respondents' own income or financial dependence on parents/guardians).

The above modifications will make it possible to conduct further research on behavioral motives of young investors. In the opinion of the Authors, the age and the financial status of the respondents may have a significant impact on the freedom of decision-making processes and the susceptibility to irrational factors.

Recapitulation

Behavioral finance deals with the issue of investing on financial markets with the focus on the psychological aspects of the process. The obvious risk that accompanies investing involves particular emotions. As a result, investing goes beyond its rational scope. The research showed that despite the fact that the majority of investors under survey lacked either specialist knowledge or experience (rational factors), they were convinced about their investment effectiveness and the skill to predict investment results. This sole conviction and the self-confidence in their skills makes them make financial decisions. Nevertheless, the survey was conducted among young people so a new variable appeared, i.e. the age, which may have an impact on the respondents' attitude presented in the survey results. This is an interesting direction for further investigations.

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[8] Loewenstein G., Hsee C., Weber E., Welsh N., *Risk as Feelings*, „Psychological Bulletin" 2001, Vol. 127, No. 2.

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Abstract

The article discusses the issue of risk related to investing on financial markets. The approach of behavioral finance was adopted in the analysis. The research included both rational and beyond-rational factors that influence investors in their decision-making processes. The presented investigation results are a part of the research conducted within MA thesis and indicate the possibility of further investigations in the area of behavioral finance.

Key words

behavioral finance, investing, financial markets, investor, risk, behavioral mistakes, rate of return