PERSONALITY TYPES OF LITHUANIAN INDIVIDUAL INVESTORS

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Abstract:

Scientists explore investors' behaviour in financial markets for more than a century. Studies conducted agree that financial behaviour is the intersection of economics, psychology and sociology. Studies of investors' behaviour are important both to scientists and financial intermediaries, because investors' decisions influence not only well-being of themselves, but also the dynamics of financial market. In this paper recent researches in the field of behavioural finance are systematized. Based on M. M. Pompian methodology (2006) the study of Lithuanian individuals was conducted. The aim of this study was to determine personality types of investors. Research results showed that investors in Lithuania are rather thoughtful, but only six personality types (M. Pompian determines eight types) have been distinguished. It was found that Pragmatist Integrator Reflector, Pragmatist Framer Realist and Idealist Integrator Realist investors' types dominate in Lithuania.

Key Words: Behavioural finance, investors' behaviour, cognitive and emotional biases, investors' types

Introduction

The first scientific articles about irrational behaviour in financial markets appeared more than a century ago. G. Le Bon, French sociologist, was one of the first who observed these features. In his famous work (1896) he described "market impact" for individual decision-making process and found out that market sometimes encourages investors to act against their will, causing not only difficulties but also financial losses. However, financial behaviour as a science became especially popular after year 2002, when D. Kahneman was awarded the Nobel Memorial Prize in Economics for integration of psychological insights into economic science, especially concerning human decision-making under uncertainty. Hence, financial behaviour has become an integral part of finance and combines sciences of economics, psychology and sociology. Financial behaviour in financial markets not only determines financial well-being of individual investors but also has a huge impact on general dynamics of financial markets. Therefore, this problem attracts scientists' and market intermediaries', providing financial services to investors, attention in recent years. In Lithuania, however, these studies are fairly fragmentary, taking into account only researches of decisions of accidental investors groups. The research „Dimension of Individuals and Companies' Behavioural Finances", funded by the Research Council of Lithuania is intended to make a detailed study of all investors in Lithuanian market and identify specific types of investors. This paper presents the results of individuals' (citizens) study. In addition this paper analyses theories of financial behaviour and their impact on investors' decision-making. The aim of this article is to identify types of Lithuanian individuals respectively investment strategies they use. Results of completed survey of investors are systemized using methodology suggested by Pompian (2006), in virtue of which authors of this article distinguish characteristics of Lithuanian investors and divide all investors into several types.

The Theoretical Aspects of Behavioural Finance

According to Shefrin (2001), behaviour finance is the study of how psychology affects financial decision making process and financial markets. Since psychology explores human judgment, behaviour and welfare, it can also provide important facts about how human actions differ from traditional economic assumptions. Raiffa and Raiffa (1968), Kahneman and Tversky (1979) noted that the behaviour of the individual in theory differs from practice, and classic financial models cannot

explain or predict all the financial decisions. Therefore, earlier and now the economic rationality of human being in its behaviour finance is criticized reasonably. Kahneman and Tversky (1979) ascertained that in practice household behaviour differs from theoretical behaviour. Households are intended to make financial decisions at their own discretion rather than on the basis of mathematical calculations. Kahneman and Tversky (1979) distinguish the following cases of incorrect perception of information (Figure 1).
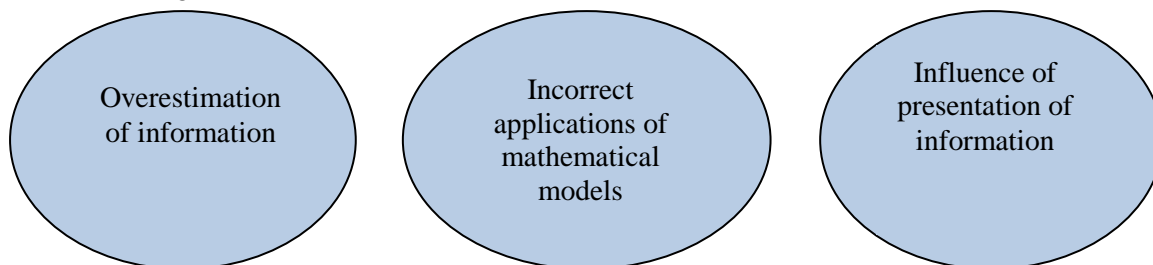

Figure 1. Possibilities of information indirect perception. Source: Kahneman, Tversky 1979

Overestimation of information means that participant of financial market makes decisions based on accumulated experience. In the other words, people are "framing" their decisions according to perception of past situations and ignore market factors that are really important. Mathematical models are often used in order to optimize financial security. They enable to evaluate the risk of securities, return of investment projects, policy of dividends, etc. However, not all mathematical models are universal; their application has some restrictions. As shown by Kahneman and Tversky (1979) not all market participants use mathematical formulas in order to assess real market situation. Moreover, information accession of market participants is affected by the way in which this information is presented. In other words, the way of presentation of information outlines primary assessment of information. Information in media as well as various visualization methods can structure this primary assessment of information for market participant. As a result the authors claimed that correct information about market situation can have both positive and negative effect on decision-making process of market participant.

Inquiries in behavioural finance were always related to individuals' impact on the market and its instrument fluctuations. Jordan and Miller (2008) explained behavioural finance via individuals' attitude and emotions in investment decision making process and market prices. Bodie *et al.* (2007) describe behavioural finance as a set of models of financial markets that emphasizes potential intervention of psychological factors into investor's behaviour. Financial behaviour was widely studied by Sewell (2007), who made an overview of the development of this science and described the most distinguished scholars. Basic behavioural factors affecting investor according to Fischer and Gerhardt (2007) are: Fear; Love; Greed; Optimism; Herd instinct; the tendency to focus on the recent experience; the tendency to overestimate oneself and one's knowledge.

Studies on financial behaviour are conducted in different countries in recent years. For example, Huei-Wen Lin (2012) analyzes interactions between types of individual investors (in Thailand), risk tolerance and deviation of crowd effect. An investigation showed that impetuous investors become herding, but rather be impacted by the mediator of risk tolerance. For the careful investors there is no significant reason to link their risk tolerance with herding bias. More anxious investors would posses lower level of risk tolerance which eventually leads to herding bias. But comparatively for the confident investors, they have higher level of risk tolerance and are less likely to form herding bias (Huei-Wen Lin 2012).

Chandra, Kumar (2011) analyzed the behaviour of investors in Indian stock market, especially psychological deviations, which affect decision-making process. Authors identified five related axis affecting individual India's investors: prudence and precautious attitude, conservatism, under confidence, informational asymmetry, and financial addiction. The results reveal some psychological axes, such as conservatism and under confidence. But the authors established some other – contrary behavioural axes reported by the multivariate analysis such as prudence and precautious attitude and informational asymmetry which are not yet considered in other literature in growing economies. These psychological components look to be influencing individual Indian investors' trading behaviour

in stock market (Chandra, Kumar 2011). According to Thomas, Rajendran (2012), financial intermediaries aim for investment pattern according to investor behaviour. In order to understand the investor behaviour, they must analyze the investor personality before offering investment plans. Hence, irrational decision making is determined by the factors of financial behaviour: cognitive considerations or considerations determined by feeling or emotions. Determination of these cognitive deviations and emotional dispositions helps to understand how they can be effectively neutralized. In order to identify them properly, these factors must be distinguished first.

According to Pompian (2006), cognitive deviations are the key statistical, information processing or memory deviations, which determine irrational decision-making. The emotional dispositions are determinants of irrational decision-making, but affected by provisions, feelings and emotions. Cognitive deviations could be removed easier than emotional. Cognitive deviations arise from incorrect reasoning, and better information or simple correct advice can reduce or totally eliminate these deviations. Whereas emotional dispositions arise from impulse or intuition and can lead to non-optimal decision-making. In this case, emotional dispositions can only be recognized and adapted. Thus, cognitive and emotional differences can help to determine when and how to adapt financial behaviour dispositions in financial decision making. Ritter (2003) explains financial behaviour through two main blocs: cognitive deviances and arbitrage restrictions. Others summarize researches of behavioural finances hypothesis of subjective irrational behaviour into two groups: theory of cognitive deviations and prospect theory (Jurevičienė, Ivanova 2012).

Methodology of Identifying Types of Investors

To identify types of Lithuanian investors Pompian (2006) methodology is used in this study. The empirical study was conducted in September-December 2012. 384[24] respondents were interviewed. The results of the study compared with the results of other authors' studies, investigating financial behaviour of Lithuanian investors, in order to determine deviations of behaviour and factors and causes of such deviations. Respondents were given a questionnaire consisted of three parts.

The first part of the questionnaire was designed to identify respondent's profile. In order to determine respondent's profile such criteria like gender, age, education, occupation, monthly income and assets were used.

The questions in the second part of questionnaire were designed to identify whether a respondent saves and what are the saving motives. In addition, respondents were asked to determine the amount of money which they allocate for saving per year, and if they invest.

Last – the third – part of the questionnaire was designed to determine investor's behaviour and identify predominant type of Lithuanian investors. This part of questionnaire was intended only for investing respondents.

During the study 147 respondents indicated that they are carrying out financial investments and agreed to participate in further part of investigation (to determine investors' behaviour and type).

M. M. Pompian identified three investors' personality dimensions:

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[24]The size of sample can be calculated according following formula (Schwarze, 1993):

$$n = \frac{N \times 1{,}96^2 \times p \times q}{\varepsilon^2 \times (N-1) + 1.96^2 \times p \times q}$$

where: N – size of population; p – probability that certain attribute is present in population ; q – probability that certain attribute is not present in population; ε – level of precision (probability of error).

According to Lithuanian Department of Statistics, there were 3 007 758 citizens in Lithuania in 2012. However, individuals under 20 years old must be eliminated, because they usually do not invest. As the number of individuals under 20 in Lithuania in 2012 was 2 357 698, so N = 2 357 698. To determine p the probability of the worst option is used, that is 50 %. Hence, $p = 0.5$.

Since $q = 1 - p$, so $q = 1 - 0.5 = 0.5$.

Level of precision ε (probability of error) usually is chosen 0.05, or 5 percent. So in order to clarify investment behavior of individuals in Lithuania, 384 respondents should be interviewed:

$$n = \frac{2\ 357\ 698 \times 1{,}96^2 \times 0.5 \times 0.5}{0.05^2 \times (2\ 357\ 698 - 1) + 1.96^2 \times 0.5 \times 0.5} \approx 384$$

- Idealist (I) versus Pragmatist (P);
- Framer (F) versus Integrator (N);
- Reflector (T) versus Realist (R).

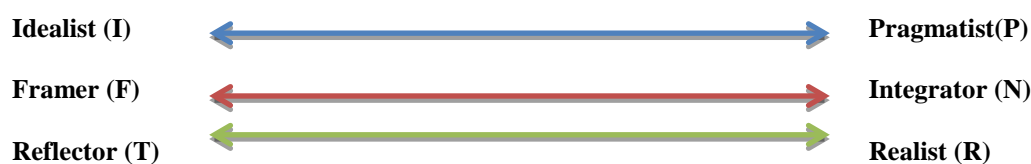The environment of types of investor is illustrated in Figure 2.

Idealist (I)	←————————————————→	Pragmatist(P)
Framer (F)	←————————————————→	Integrator (N)
Reflector (T)	←————————————————→	Realist (R)

Figure 2. The investor personality types environment. Source: Pompian (2006)

According to M. M. Pompian, individuals with dominant idealist type overestimate their own, as an investor, opportunities, assess financial markets too optimistically and do not trust information which is contradicts their point of view. They overestimate own investment abilities and often are enamoured of speculative activities in the market and fall a victim of such market. Idealists are characterized by following deviations: excessive optimism, accessibility, illusion of control, authentication, novelty testing and representativeness. M. Pompian (2006) points out that cognitive deviations by which idealists are characterized are excessive self-confidence, availability/appropriateness, attribution, illusion of control, authentication, novelty, representation and emotional – optimism.

Pragmatists perceive their investment skills and limits realistically. They do not overestimate financial markets and critically evaluate their abilities and understand that investment is stochastic process. They carry out researches to support their beliefs. This type of investor does not have many deviations.

Framers tend to evaluate each of their investment separately, but do not estimate how particular investment correlates with investment portfolio. Framers are distinguished by specific cognitive deviations: anchoring, conservatism, mental accounting, framing and avoidance of uncertainty.

Integrators are characterized by holistic thinking and ability to evaluate their investment portfolio in broader context. They understand that investment portfolio must be managed as a system, the components of which can interact, complement and balance each other. Integrators understand the importance of correlation between different financial instruments and take it into account creating their investment portfolio. They flexibly adapt to fluctuations in the market and changes in securities' prices.

For reflectors it is difficult to outlive the consequences of their decisions and it is difficult for them to act in order to correct their inappropriate behaviour. They justify and rationalize their wrong actions and are hesitant to admit their mistakes. Reflectors are better characterized by emotional deviations: avoidance of loss, endowment, self-control, regret, current situation. Cognitive deviations – alleged prediction and cognitive dissonance – may also occur.

Realists are easily reconciled with negative consequences of their decisions. They are not tended making excuses and they take responsibility for their mistakes.

M. M. Pompian argues that deviations are characteristic of only three types of investors: idealists, framers and reflectors. Deviations of these types are described in Table 2.

Table 2. Biases of investors' types. Source: Pompian (2006), Bikas, Kavaliauskas (2010)

	Bias	Explanation
Idealist	Overconfidence	Unjustified confidence in individual decisions and cognitive abilities.
	Availability	Probability is calculated on the basis of past experience.
	Self- attribution	Individual assigns himself successful experience, successful events.
	Illusion of control	Person believes that an ultimate outcome is in his hands.
	Confirmation	It is a variation of selective perception when ideas that confirm individual beliefs are highlighted, emphasized. Everything that is contrary to individuals beliefs is underestimated.
	Novelty	It is a tendency to remember new observations more frequently when information received earlier.
	Representation	New experience is contributed to absolutely different experience (as it is).
	Optimism	Individual does not see facts and reality, when future, events and decisions is evaluated too optimistically.
Framer	Anchoring	Individual imagines some kind of initial value (anchor) and adapts his decision to that value.
	Conservatism	Individual adhere his previous opinion or prediction without paying attention to new information.
	Mental accounting	Tendency to encode and evaluate economic results by grouping assets into various irreplaceable mental accounts.
	Framing	Tendency to make decisions according to the situation is shown to him at that moment.
	Ambiguity	Individual hesitates in situations of uncertainty, ambiguity.
Reflector	Loss aversion	Individual feels stronger impulse to avoid loss than to earn profit.
	Endowment	Individual evaluate a particular asset more if he has the right of disposal (for example, owns it).
	Self-control	Individual consumes today at the expense of tomorrow.
	Regret	Individual does not take crucial decisive actions because he is afraid that any decision will still be non-optimal and inadequate.
	Status quo	Individual is predisposed to choose any solution that confirms existing conditions (status quo) instead of other alternatives that would bring changes.
	Cognitive dissonance	New information usually contradicts to earlier individual perceptions what leads to mental discomfort.
	Hindsight	After certain events individual believes he already knew that these events would happen.

M. M. Pompian identifies eight personality types of investors in his studies:
IFT – Idealist Framer Reflector; IFR – Idealist Framer Realist; INT – Idealist Integrator Reflector; INR – Idealist Integrator Realist; PFT – Pragmatist Framer Reflector; PFR – Pragmatist Framer Realist; PNT – Pragmatist Integrator Reflector; PNR – Pragmatist Integrator Realist.

The profile of respondents

222 women and 156 men participated in the study of investors in Lithuania (six respondents didn't indicate there gender). 58 percent of all respondents belong to the age group 20-39 years, 6 percent of respondents are elder than 60 years. Major part of participants of the study (40 percent) was individuals with average monthly income. 8 percent of all respondents were individuals whose monthly income exceeded 6000 Lt[25]. Respondents distributed more or less equally by assets managed.

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[25] 1 euro equals 3,4528 litas.

91 percent of all respondents had higher education, 61 percent were employed workers, and 14 percent participants of research were business owners. The results of research revealed that major part of respondents save (295), but only 144 respondents make household budget and only 137 have a financial plan.

Typology of Lithuanian Individual Investors

Analysis of results revealed that most of respondents are from Pragmatist Framer Realist (27) and Pragmatist Framer/Integrator Realist (31) type of investor behaviour. The type Pragmatist Integrator Realist correspond almost equally men (11) and women (9). According to Pompian (2006), the decisions of individuals of this type are not or are almost not affected by any behavioural biases. Pragmatist Framer Realist and Pragmatist/Realist types of investor behaviour are most popular among female respondents.
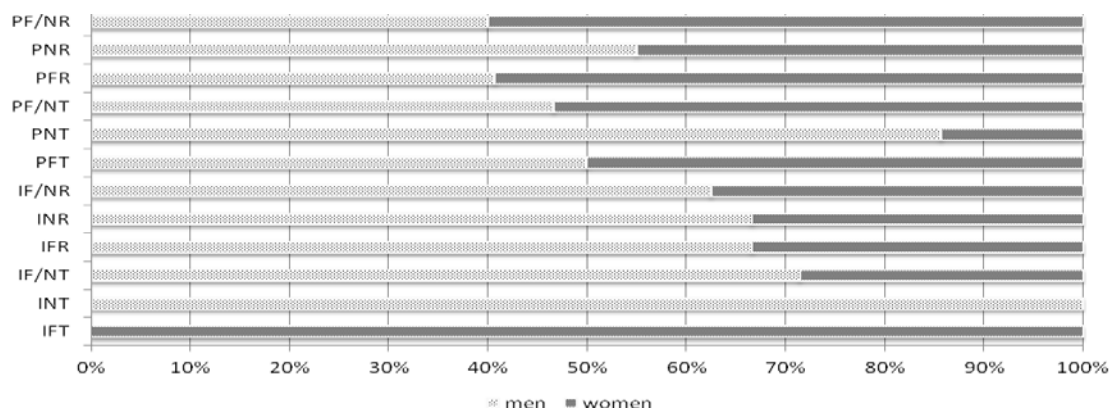

Figure 4. Types of behaviour by gender. Source: composed by authors, based on data of empirical study

Analysis of behaviour types by age revealed that Pragmatist Integrator Realist type is typical for respondents 40-59 years old. This suggests that elder individuals, possibly having investment experience, behave quite rationally and their investment decisions are not influenced by behaviour biases. Idealist Framer Reflector personality type is typical only for respondents in age group 20-29. This type is characterized as having all possible behaviour biases. It can be stated that young investors have no investing experience and more rely on a variety of opinions than on rational behaviour. However, it is noticeable that dominant type of this age group is Pragmatist Framer Realist. The key biases which this age group respondents face with are: inability to choose investment assent which could complement and diversify investment portfolio.
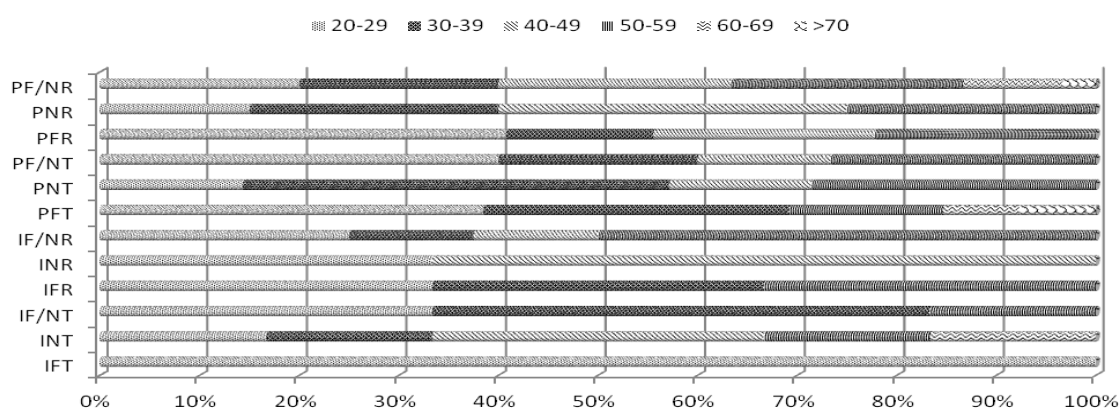

Figure 5. Types of behaviour by age. Source: composed by authors, based on data of empirical study

Monthly income of respondents, in fact, has no significant impact on type of investor. However, it should be distinguished that among investors with monthly income 1500-4000 Lt are Pragmatist Framer Realist and Pragmatist Framer/Integrator Reflector types are dominant.
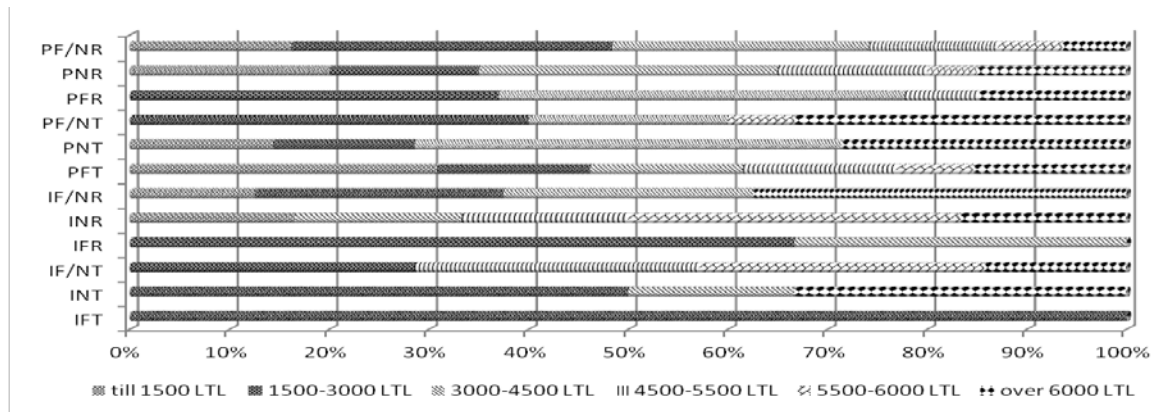
Figure 6. Types of behaviour by monthly income. Source: composed by authors, based on data of empirical study

Analyzing distribution of respondents by type of activity it is seen clearly (Figure 7) that characteristics of Idealist-Framer-Reflector are specific only to employees. Business owners usually have features of Idealist-Integrator-Realist and significant part of owners has Pragmatist Framer/Integrator Reflector features. Public servants have most characteristic features of Idealist Framer Realist type.
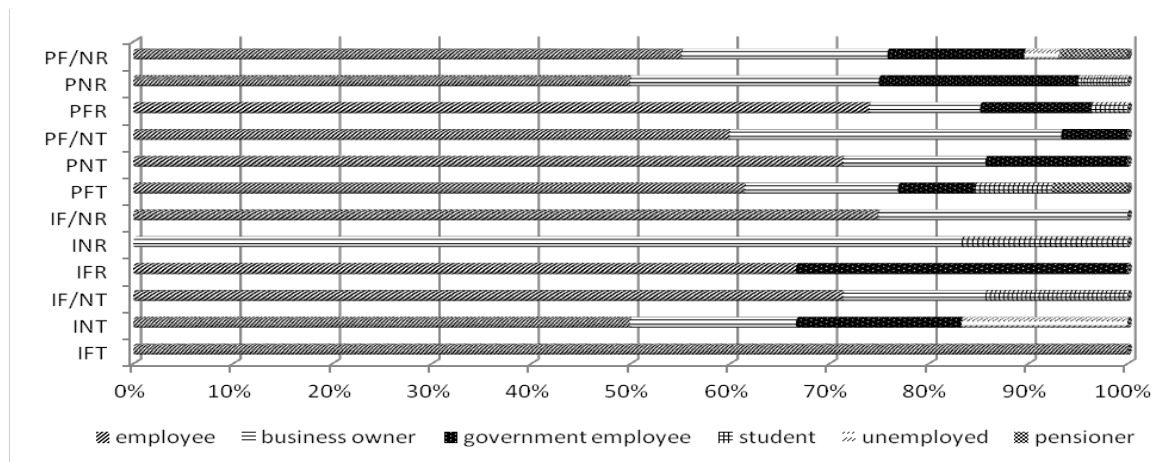

Figure 7. Types of behaviour by occupation.

Source: composed by authors, based on data of empirical study

Individuals' with higher (university) education investment behaviour is distributed through all types of investors. However, major part of respondents belongs to types Pragmatist Framer Realist (23) and Pragmatist Framer/Integrator Realist) (27). It should be noted that Pragmatist Integrator Realist type (without behaviour biases) is specific to respondents who have only secondary education as well.
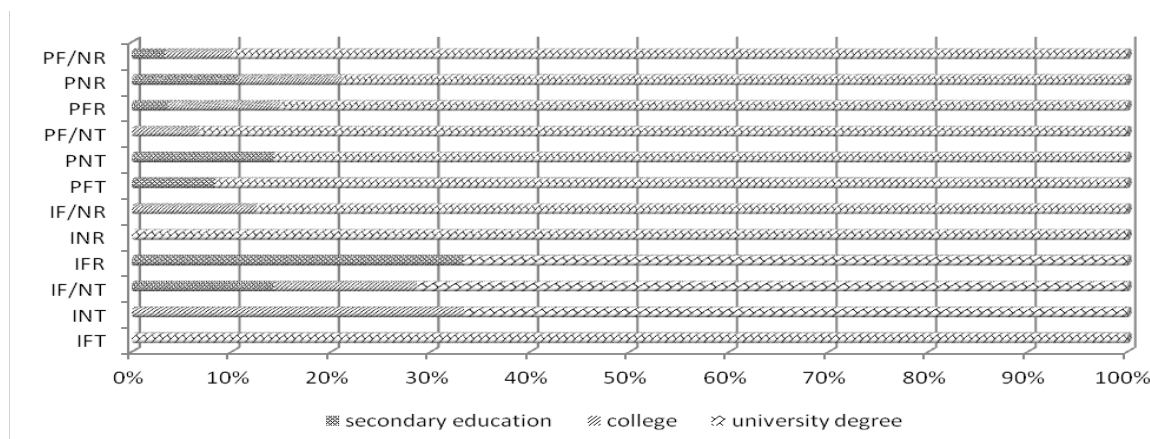
Figure 8. Types of behaviour by education. Source: composed by authors, based on data of empirical study

Concluding the study it can be stated that investors in Lithuania have quite realistic way of thinking, but majority does not comply with eight M. M. Pompian's types (Figure 9). 21 percent of respondents are between: Idealist Framer/Integrator Reflector; Idealist Framer/Integrator Realist; Pragmatist Framer/Integrator Reflector. 21 percent of respondents distributed equally between Pragmatist Framer and Integrator Realist.
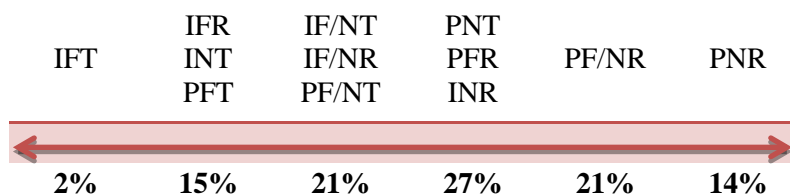
IFT	IFR INT PFT	IF/NT IF/NR PF/NT	PNT PFR INR	PF/NR	PNR
2%	**15%**	**21%**	**27%**	**21%**	**14%**

Figure 9. Respondents' distribution behaviour type. Source: composed by authors, based on data of empirical study

When comparing results with previous studies under similar methodology (Bikas, Kavaliauskas 2010 and Jurevičienė, Jermakova 2012) it is seen that during the crisis the behaviour of investors was distributed fairly equally between Idealist Framer Realist, Idealist Integrator Reflector, Pragmatist Framer Reflector – 39 percent and Pragmatist Integrator Reflector, Pragmatist Framer Realist, Idealist Integrator Realist – 40 percent, which means that 53 percent of respondents are rational, partly resistant to emotions, demonstrating rational behaviour with some irrational impurities and totally irrational investors – 47 percent; the behaviour 13 percent of Lithuanian investors is not related with irrational behaviour at all (Bikas, Kavaliauskas 2010).

IFT	IFR INT PFT	PNT PFR INR	PNR
8%	**39%**	**40%**	**13%**

Figure 10. Lithuanian investors' distribution by behaviour type (Bikas, Kavaliauskas 2010)

Jurevičienė, Jermakova (2012) have conducted a study according methodology presented by M. M. Pompian in 2008 (Pompian 2008). In this methodology M. M. Pompian has associated previously mentioned patterns with factors of financial behaviour and determined four (BIT`s) types of investors: Passive Preserver, Friendly follower, Independent Individualist and Active accumulator. Jurevičienė, Jermakova (2012) discovered that in general Lithuanian residents are characterized as friendly follower investors. Such investor type is characterized by:
- Passive investing and having no own investment ideas;
- Being in the track of friends and colleagues, herd instinct;
- Tendency to agree with meaningful-looking proposals;
- Choosing of popular investment instruments regardless to and long-term plan;

- Overestimation of risk tolerance.

Friendly followers are passive investors who usually do not have their own investment ideas and, in most cases, follow the example of friends or colleagues in making investment decisions, and, finally, choose the most popular investment strategies despite of long term plan. Ionescu et al. (2009) called this phenomena herd feeling. Herd feeling occurs when an investor takes over other investors' strategies because one believes that information obtained from others can help them to make better investment decisions. Moreover, friendly followers are also characterized by the fact that they constantly overestimate risk tolerance. Therefore, finance advisers should be careful when offering popular strategies, because customer may agree to invest in all of them. Financial decisions of friendly follower are determined by cognitive biases: templates, propensity for innovations, cognitive discrepancies, dislike of ambiguity.

Conclusion

Irrationality in behaviour of investors has been observed more than a century ago, despite that researches in this area are still popular, especially in recent years, when dissemination of information has intensified. Various authors in different countries are trying to identify the most typical personal features that determine investment choices. These researches are very important for financial intermediaries, directly serving customers by advising to choose one or another investment facility.

Cognitive biases and emotional factors leading to different investment decisions are usually mentioned in the researches. However, some authors additionally distinguish as separate group's - limitations of arbitrage and prospect theory, which affect irrational choices.

This paper analyzes individual investors in Lithuania and identifies their personality type according to methodology of M. M. Pompian presented in 2006. The results of study showed that investors in Lithuania have quite realistic way of thinking, but majority does not comply within eight types identified by M. M. Pompian's. 21 percent of respondents are between: Idealist Framer / Integrator Reflector; Idealist Framer / Integrator Realist; Pragmatist Framer / Integrator Reflector. 21 percent of respondents spread equally between Pragmatist Framer and Integrator Realist.

Comparing these results with other studies under similar methodologies, it can be stated that during the crisis the number of investors of types Idealist Framer Realist, Idealist Integrator Reflector, Pragmatist Framer Reflector decreases more than twice (from 39 percent in 2009 to 15 percent in 2012), and the number of investors of types Pragmatist Integrator Reflector, Pragmatist Framer Realist, Idealist Integrator Realist decreased less than twice (from 40 percent in 2009 to 27 percent in 2012).

Hence, it was not possible to identify two types among Lithuanian investors ascertained by M. Pompian because answers in presented investigation distributed equally.

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