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BEHAVIORAL FINANCES OF FINANCIALLY SAVVY HOUSEHOLDS: THE TYPES OF INVESTORS

Daiva Jurevičienė[1], Olga Ivanova[2]

[1,2]Vilnius Gediminas Technical University, Faculty of Business Management, Saulėtekio ave. 11, LT-10223 Vilnius, Lithuania
Emails: [1]daiva.jureviciene@vgtu.lt, [2]olga.ivanova@stud.vgtu.lt

Abstract. The article discusses behavioural finance theories in households' decision-making process. Classical finance theories based on financial markets' rational behaviour assumption are analysed, the subjective factors influenced on households' decision-making were identified. Behavioural theories and behavioural anomalies in the decision-making process are classified; the opportunities of their application in the financial market are described. Behavioural finance theories' influence on the households' financial decisions were researched to allocate investors' types based on their behavioural characteristics. Investors' type classification could help minimize households` mistakes in the personal finance management. Taking into account households` weaknesses in the personal finance management, they could choose more effective strategy for better personal finance management.

Keywords: behavioural finance, cognitive bias theory, homo economicus, models of behavioural finance, prospect theory, traditional finance theories, types of investors.

Jel classification: A1, B0, D1, G0.

1. Introduction

Lithuanian residents have increasing interest in personal finance management due to complicated modern financial saving and investment instruments and high responsibility for own financial security. Well-informed and financially liberated households are able to make better financial decisions in order to increase their own economic security and their family's standard of living. However, the behavioural finance theories, which are based on individuals' emotions, herd instinct and other psychological motivations have a considerable impact on the personal financial management decisions. Majority of behavioural finance researchers apply irrational individuals' behaviour and cognitive biases analyzing their impact on financial markets (Mattos, Garcia 2011), fluctuation of securities Gribnikov, Shevchenko 2012) or on entire economy (Korniotis, Kumar 2011), but there are lack of investigations defining investors' types.

Behavioural finance theories help to explain the particulars of individuals' financial behaviour, so the individuals' financial weaknesses could be distinguished and the suggestions for its improvement could be made. However, education in this area is insufficient and should be popularized in the future, because only a small percentage of households are able to use available financial information effectively, others face difficulties particularly during the financial crisis, when the available information is belated and they cannot rely on it.

Sometimes, households have to make decisions in a high degree of uncertainty, when they have no appropriate information or have no resources. The data, published by Lithuanian Department of Statistics, shows that for last five years Lithuanian households costs were increased in comparing with received income, their consumption expenditure was increasing as well, so 59% of households have no enough money to start saving and investing. According to barometer's data of SEB bank 2011 year IV quarters on households' financial assets, 73% of households save money in deposits and used to buy and sell shares chaotically in the market (SEB 2012). Thus, the Lithuanian households have both short-term and long-term financial difficulties and find it impossible to assure their financial security for a long period. It proves that the Lithuanian households' financial behaviour is only partially rational as they do not always choose the best financial decision under uncertainty and risk.

This article presents the review of the behavioural finance theories, which takes into account irrational households' behaviour. The aim of the article – identifies the behavioural types of financially savvy households. In order to achieve this aim the following research methods and tools were applied: a comparative analysis, synthesis method and comparison of the various theories on financial principles; questionnaire survey; there was revealed respondents' behaviour; quantitative analysis is completed using correlation and regression analysis, modelling, summarizing the theoretical and empirical results.

2. Evolution of financial paradigms

Financial management science can be divided into two independent rational and behavioural finance paradigms (Fig. 1). The rational finance (XVIII-XX centuries' Financial Market) paradigm is focusing on study of human or human group behaviour in the different financial situations, based on the assumption that decisions of all individuals and market in general are selfish and rational. Due to this fact, the term "economic human being" was used in all classical theories and models, and the term's role in the classic finance theories was significant. The author of economic human being (lat. *Homo economicus*) conception is supporter of economic liberalism A. Smith. According to him economic human being serves the interests of entire society pursuing personal benefit, i.e. self-interested rational human being is encouraged to meet such needs of society as trade and truck without any instructions (Čiegis 2006). Thus an economic human is a motivated,

pursuing personal financial wealth and rational individual, making financial decisions.

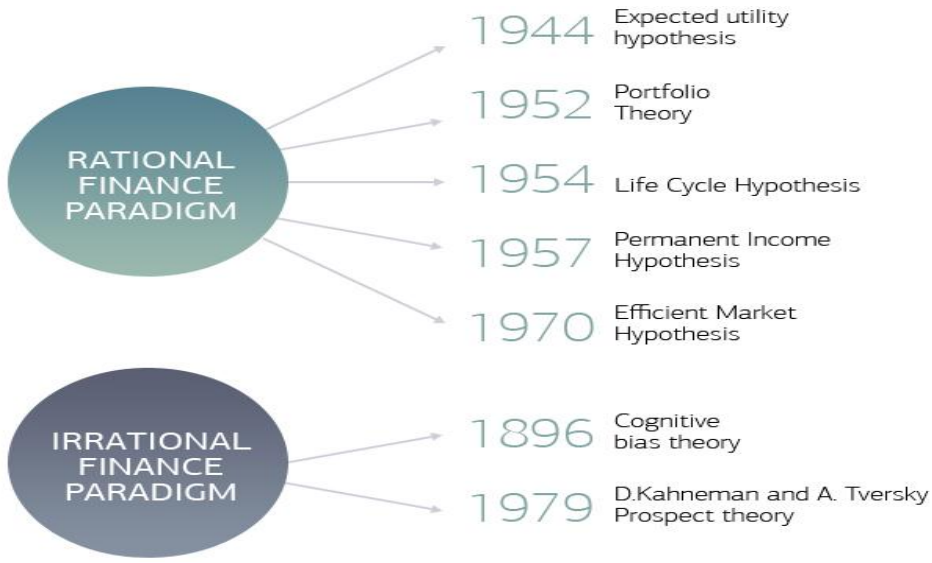

Fig. 1. Two basic paradigms in Finance Management (Bikas, Kavaliauskas 2010; Jurevičienė, Gausienė 2010; Baker 2010)

Paradigm of rational finances covers a number of theories defining sequence of decisions by economic human being due to which the following theories of rational finances were formed:

- *Expected Utility Hypothesis* by Neumann-Morgenstern (1944),
- *Portfolio Theory* by Markowitz (1952),
- *Life Cycle Hypothesis* by Modigliani and Brumberg (1954),
- *Permanent Income Hypothesis* by Friedman (1957),
- *Efficient Market Hypothesis* by Fama (1991).

The key assumption of all these theories is that activities of economic human being are rational and its main target is profit maximization. Neumann's and Morgenstern's Expected Utility Hypothesis is based on statements of Bernoulli's (1738) expected utility theory. The authors have analysed conditions of market participants' decision making. The Expected Utility Hypothesis of Neumann and Morgenstern (1944) states that rational market participant choosing one from a number of risky alternatives (e.g., lottery, where probabilities how to be in the money are predicted) tries to maximise his expected benefit of utility function following the formula:

$$A = \Sigma\, Ai*pi, \tag{1}$$

where: A*i* – expected profit, p*i* – probability to gain profit.

Expected utility hypothesis is often used to solve uncertain degree problems.

Markowitz (1952) stated that the investor has to make a decision not knowing which of the alternative investment portfolios will give more income. Therefore Markowitz claims that the investor should justify ones decisions by calculations of expected value and standard deviations.

The basic idea of Modigliani and Brumberg – a person tries to lower his consumption to ensure approximately the same level of own consumption over the whole life. The main conclusion – householders' consumption is related not only to its present income but also to future income, i.e. to income average: obtainable now and in future. Developing this theory Friedman (1957) expounded permanent income theory. His starting point was that consumer's seek more or less the same consumption level during the entire life:

$$Y = Y\rho + Y\tau. \quad (2)$$

where: $Y\rho$ – constant income, $Y\tau$ – temporary income.

Friedman emphasises that consumption is based not only on existing but also expected income. Thus, variation of expenses depends on income deviations – permanent or temporary. Constant income, according to Friedman, is such a share of income which householders try to retain in future basing on own expectations. While permanent income is such a share of income that is difficult to preserve in the future therefore they are not calculated (Jurevičienė, Gausienė 2010). Efficient market hypothesis is one of the most important financial theories which states that it is possible to make a decision about market efficiency basing on determined market prices, as prices namely reflect market situation and information available to investors and householders. Fama analysed a lot of share prices in the exchange and conclude that the market is efficient and market participants hold all necessary information for decision making. In other words, market efficiency is identified with information sufficiency and availability to all market participants including householders. No one efficient market participant could gain a higher profit than average market as the same information is available to all market participants (Fama 1991).

Investigators of individuals' behavioural finances Le Bon (1895), Raiffa, Raiffa (1968), Kahneman and Tversky (1979) noticed that theoretical behaviour of an individual differs from practical and classical financial models could not explain it and to predict all financial decisions. Therefore economic rationality of a human being is criticized reasonably earlier and now. The main features of criticism are as following (Vaschenko 2007):

- Rational law does not fully explain whether maximum profit should be considered in long or short term prospect.
- A human being all time feels so called "psychological income" except maximum profit. However if an individual wants to maximize profit one should often choose between financial and psychological wealth therefore

profit maximisation criteria is not rational as was indicated in the beginning.

- Profit maximization criteria could be not as important for economic human being as he wants to gain sufficient profit according its personal demands.
- Only a small share of householders uses probability theories and other mathematic calculations before making an optimal decision in everyday life.

Rational financial theories do not consider such factors as psychological motives of a person, different expectations of householders, inadequacy of information. Therefore a problem originates that rational financial theories define what theoretically optimal choice of economic individual is but they not define the real choice of an individual.

3. Theories and models of individuals' financial behaviour

Theories of individuals' financial behaviour investigate and clarify subjective factors and irrational deviations of market participant's decision making in financial market. Theories of individuals' financial behaviour analyses factors that are presented as noise in rational financial paradigm and tries to find interrelations and interdependence to expand fund markets. Therefore activities of market participants are the object of individuals' financial behaviour research (Baker 2010). Researches of individuals behaviour finances affirm that real behaviour of human being (including in financial markets) is neither absolutely rational, nor fully egoistic (Bikas, Kavaliauskas 2010). In other words, recognition of individuals' irrational behaviour does not evoke confusion in finance theories but contrary helps to structure more effective financial strategies.

Summarizing researches of behavioural finances hypothesis about subjective irrational behaviour could be brought under two groups:

- Theory of cognitive deviations;
- Prospect theory.

Human factor that conditioned overestimation and incorrect understanding of information is attributed to the first group, i.e. false estimations of market situation and as consequences wrong financial and investment decisions. Hypothesis and models that investigate investors' viewpoint to risk are attributed to the second group (Baker 2010). The basic idea of cognitive theory is that individual's behaviour is determined by his ideas, i.e. thoughts and self-perception of a human being determines his behaviour and emotions (Beck 2008). For easier characterization of aggregate cognitive deviations they could be dispersed into four main groups: heuristic, framing, emotions, and market influence (Fig. 2).

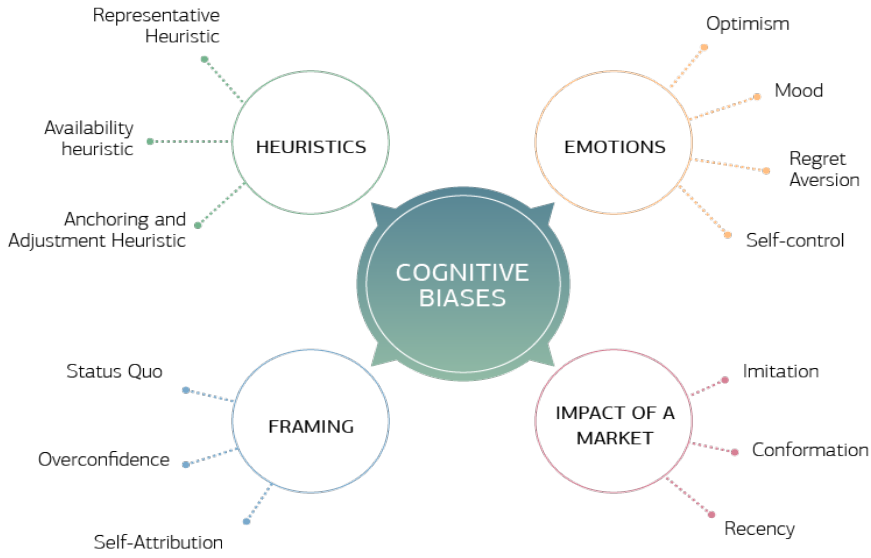

Fig. 2. The set of cognitive biases (Baker, 2010; Jurevičienė, Gausienė 2010; Bikas, Kavaliauskas 2010)

Prospect theory proposes the following five characteristic features that lead in the financial decision making (Vascheno 2007):

1. market participants tend to value distance from datum point instead of absolute worth of alternatives;
2. market participants tend to avoid risk decisions if they not suffer financial difficulties;
3. market participants endow more value to lose worth instead of asset procurement;
4. market participants award priority for reliable information instead of probability of event;
5. market participants overvalue probability of success even if the probability of that event is too low.

In addition prospect theory substantially describes how investors perceive profit and loss. Making experiments and empirical investigations Kahneman and Tversky (1979) stated that main element of prospect theory – value function – is of S shape and asymmetric, i.e. shows that investors grace the different value for two symmetric points – profit and loss, that are equal, but opposite and scilicet lesser – for profit.

It could be stated that rational financial theories determine that market participants estimate risk and its probability. It's seen that individuals more often

overvalue risk probability and their behaviour is rational with reference to prospect theory. However behavioural finance is often criticized due to its obscurity. The prime critic of behavioural finance is Fama – founder of efficient market hypothesis. Fama (1998) stated that discrepancies among traditional finance theories could be found very rarely; on the other hand, some factors could be underestimated applying behavioural finance theories with reference to one behaviour frame and the same factors overestimated – with reference to another frame. Notwithstanding behavioural finance is criticized, certain market fluctuations were determined and explained with their help.

Deviations from rational behaviour of individual market participants' allow dividing investors into the groups according to criteria they satisfy and identify certain types of investors. There are a lot of different classifications of market participants based on behavioural biases in the foreign literature. The Barnewall model − one of the first and commonly used − distinguishes investors by their view to the wealth creation into two (passive and active investors) groups (Pompian, Longo 2004). If we would like to find out more about investors characteristic, this model is insufficient, because it's only based on a different investor's approach to wealth. Investors not only have created their wealth differently, they also span a multitude of personalities; moreover, they are gendered. The modern investment era demands a better model. The other investor type's classification was proposed by Bailard, Biehl and Kaiser (Pompian, Longo 2004). According to this model, it could be possible to identify five types of investors. This model neither scientifically describes personality type nor links investor behaviour with recently identified investor biases, limiting its utility.

Another proposed model is called the Myers-Briggs indicator model (Pompian, Longo 2004). According to it, the 16 investor types could be identified, depending on whether the person is making decision − relying on own intuition or it is based on mathematical calculations. In spite of usefulness in business, the Myers-Briggs indicator model is often criticized, because a lot of people should be interviewed to make the survey's results representative. It is difficult to apply the Myers-Briggs indicator model in practice, so Pompian, Longo (2004) had corrected this model. According to Pompian's – Longo's questionnaire (which contains fewer questions than the original Myers-Briggs indicator model) it is possible to find out the 8 types of investors. However, the Schweser's studies (2008) apply simpler models of investors' personality types. According to him, investors could be divided into four general categories according to attitude on risk and behaviour result from the questionnaire. Through the process investors are classified as cautious, methodical, spontaneous or individualistic, due to their strategies in the market, i.e. their risk tolerance and with reference to wherewith financial decisions are made.

All above mentioned models could be used in practice. However Myers-Brings indicators' and Bailard, Biehl, Kaiser models are rarely used due to their complex application in practice. Individuals' financial behaviour considering their

mentality and habits is widely investigating in foreign countries, so it is valuable to estimate Lithuanians' financial behaviour either.

4. Financial behaviour of financially savvy households

Peculiarities of behavioural finance of householders' who have financial education, have studied similar disciplines or have an experience in financial sector are determined by various factors such as activities in finance, sufficient financial sophistication, mentality of inhabitants and habits will be analysed further. The aim of investigation is to determine basic features and slopes of behavioural finance in concordance with households' financial decisions. Survey method was applied to ascertain financial behaviour of a particular group due to some reasons. Selection of respondents is undenominational.

To obtain presentable results with 99% probability and 10% 171 respondents were interviewed: 148 women and 23 men. The first group of questions was directed to reveal individuals' weaknesses in personal finance management and the second one – to define psychological and emotional factors that fate householders' financial decision making. One of the most important features is that respondents have high financial literacy (86%) and medium or low arithmetic capabilities (46%). Nevertheless respondents have high financial literacy or experience in financial sector more than half (54%) of them have difficulties calculating inflation rate. However majority (91%) of respondents consider that financial calculations are important before making financial decisions. Interviewed individuals save (63%) or save chaotically (9%) and 28% meet difficulties in saving money. Worst in savings are young 20-30 years old due to low income, so they are lack of money both in saving and investing. Assessing saving and investment behavior of respondents show disposition to behavioral finance theories, i.e. loss aversion (this explains choice of saving (72%) instead of investing (21%) to protect funds).

The issue of conscious and non-conscious risk biases had shown that majority of respondents (60%) are non-conscious risk takers in financial decisions and 27% are conscious. Such behavioural finance deviation shows that respondents could not explain themselves financial motives and are making inconsistent decisions.

Similarly to Samuelson and Bazerman experiments a great majority of respondents (67%) demonstrated winner's curse effect, when individuals having all necessary information non-consciously overestimated securities' price (Rudyk 2004). The trap effect experiments, taken from Arkes and Blumer's (1985) study about anomalies in behavioural finance, had shown that if the funds have been already invested, respondents (77%) inclined to assume this financial obligation and subjectively evaluate possible financial return comparing to the situation, where they have no financial obligations. According to Kahneman and Tversky's (1979) research, the market impact is often appearing in the decision-making process and is typical to about 60% of the market participants. There is no market

impact to Lithuanian households in personal finance management because only 35% of respondents could possibly imitate the behaviour of other market participants.

All mentioned details made it possible to divide respondents into groups according Schweser (2008) model using behavioural biases and identify their investor types (Fig. 3).

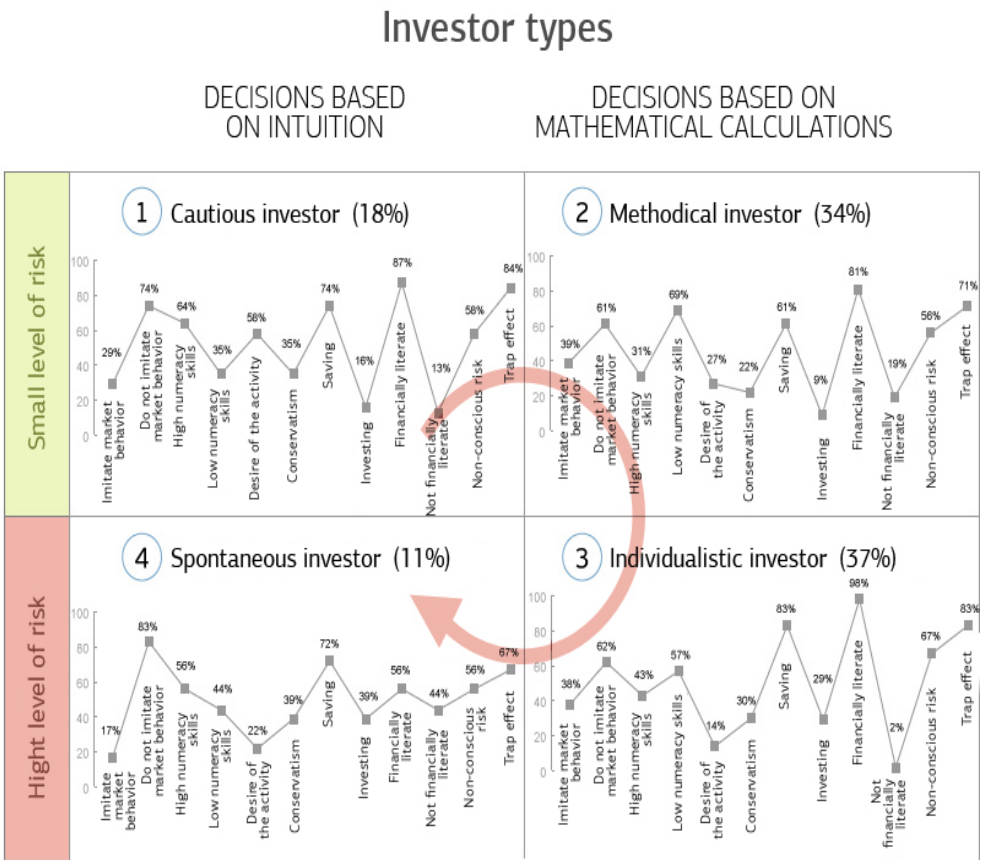

Fig. 3. Investor types classified by risk taking and the way of making financial decisions (Source: compiled by authors)

1. Cautious investor (18% of respondents) exhibits a strong desire for financial security and is the most risk-averse. He focuses on the very safe investment vehicles with little potential for loss. These households are categorized as overly careful investors tend to over-analyse investment opportunities. Due to this fact, the cautious investor may miss opportunities due to indecision, over analysis or imitation of other market's participants' behavior. His portfolio

exhibits low turnover and low volatility and his financial success depends on the overall financial market situation.

2. Methodical investor (34% of respondents) researches markets, industries and firms for potential investment and does not imitate other market participants' behaviour. His investment decisions are based on the previous financial experience. The households of this group have high level of financial literacy and intermediate arithmetical skills, so they objectively assess accurate information about situation in the financial markets. The methodical investor's investment decisions tend to be a conservative nature.

3. Individualistic investor (37% of respondents) as methodical investor has high level of financial literacy and intermediate arithmetical skills. His financial decisions are based on own financial experience and he does not imitate others market behaviour. However, his risk tolerance is higher than the risk tolerance of methodical investor and they could make financial decision involving medium risk. Moreover, results of survey show that his decision making motives are based on a high level of non-conscious risk.

4. Spontaneous investor (11% of respondents) – is less risk averse and makes decisions based on feelings. This investor type is characterized by low arithmetical literacy level. As its name suggests, spontaneous investor tends to change his minds easily, and is constantly adjusting his investment portfolios. He responds quickly to changing market conditions, and can feel uncomfortable when he does nothing. As a consequence, spontaneous investor is often the victim of the latest rumors and speculations. He also tends to incur high cost from the constant switching of investments.

5. Conclusions

Regardless the fact that the article contains disadvantages of behavioural finance it still helps to understand certain financial decisions, especially in unstable economy. Furthermore, behavioural finance doesn't contradict to the efficient market hypothesis, but rather helps to deeper understand the process of financial decision-making and suggests making efficient financial decision.

After survey of financially savvy householders' it was found, that:

1. A lot of respondents (37% of respondents) are individualistic investors. This investor type has high level of financial literacy and intermediate calculating skills and could make financial decision involving medium risk. The survey shows that there are less spontaneous investors (11% of respondents) and cautious (18% of respondents). Such situation is good, because financial decisions spontaneous investors are based on intuition and could cause problems in the long-term run. The financial success cautious investor depends on the overall financial situation of the market. The methodical investor (34% of respondents) is more relevant to the term

of economic human being, so there are only third financially savvy householders, who make rational finance decisions.

2. Probably the results are likely better than average across Lithuania as the respondents were financially savvy or have studied similar disciplines. Most likely that the results investigation of randomly chosen respondents might be worse.
3. Determination of investor's type could help to find the weaknesses in the personal finance management. Knowing own investment type it is possible to separate out the best financial management strategies considering defined financial goals and decide whether to manage finances oneself or to appeal to investment adviser for services. This could help householders to managing effectively personal finances and increase personal wealth.
4. Such model could help financial institution to manage their clients' finances. Knowing weaknesses of clients' desires and financial management they could propose more attractive financial management strategy. Determination of investors' types could help to concentrate weaknesses of individuals and could increase the number of investors along with profit gained.

Thus by determining deviations of behavioural finance irrational behaviour of householders is justified in making financial decisions. Sequencing effective decisions householders must estimate the role of behavioural finance theories throughout.

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Daiva JUREVIČIENĖ. Doctor of Social Sciences. Assoc. Prof. of Department of Finance Engineering**,** Vilnius Gediminas Technical University. Research interests: personal finances, behaviour finances, investments, banking, risk management.

Olga IVANOVA. Master student at Faculty of Business Management, Vilnius Gediminas Technical University. Research interest: behavioural finance, investments.