F. Jasevičienė, Doctor Social Sciences,
K. Šlekytė-Jusienė, Master of Sciences in Economics
Vilnius University, Lithuania

THE ANALYSIS OF FEATURES AND REASONS
OF THE BANKRUPTCY OF NATURAL PERSONS

The article is dedicated to the possibilities of the application of the bankruptcy law of natural persons in Lithuania. Detailed analysis helps to disclose the factors influencing the bankruptcy of natural persons and to foresee additional means in order to avoid the insolvency and bankruptcy of natural persons. Therefore, a thorough assessment of significant circumstances is necessary, performing a multiple criteria analysis of bankruptcy experience not only in Lithuania but in other countries as well.

Keywords: natural persons, insolvency, bankruptcy, finance management, bankruptcy law.

Introduction. Natural persons participate in various deals in their daily lives: purchasing, sales, loans or disposition of available financial resources. Unfortunately, often too risky solutions are adopted, expenses lack adequate assessment or unfavourable external factors such as economic recession exert influence on the deterioration of the financial situation. The whole world has recently faced an economic crisis, which had a negative impact on global economics and market participants. Some persons got bankrupt having faced financial difficulties.

Some financial difficulties can be solved while unfortunately others cannot. When persons are not able to perform their liabilities, they become insolvent. It is noted that the status of insolvency create unfavourable circumstances as bankruptcy to the market participants. Different countries apply the bankruptcy law of natural persons in different ways. Diverse rehabilitation periods are applied (it might be from three to six years, while Lithuania applies a five year period). A different proceedings approach is applied (a fine, a debt postponement, the beginning of a new life, etc.). In some cases actions foreseen in different legal acts can be applied – debt postponement and debt remission. This article will compare bankruptcy proceedings of natural persons of several countries compared to bankruptcy proceedings based on the bankruptcy law of natural persons valid in Lithuania.

The article *objective* is to make a multiple criteria and economically based analysis of bankruptcy, to evaluate problems and to provide remark observation notice for the improvement of the law of bankruptcy of natural persons. The following tasks are to be foreseen in order to implement the objective: theoretical analysis of bankruptcy and insolvency concepts, analysis of the origin and reasons of bankruptcy, identification of factors exerting the greatest amount of influence on the bankruptcy of natural persons and offering of the possibilities of the improvement of bankruptcy law. Statistical, comparative and factor analysis have been applied in the article.

Methodology. The word "*bankruptcy*" originated from the Ancient Latin language "bancus", meaning a bench or a table and also from the word "ruptus", meaning broken (Aitis, 2013). People used to pay money on such benches in a market. When a person failed in life, he broke the bench proving that he could not perform his activities any longer.

It is maintained that bankruptcy proceeding did not exist in Ancient Greece. If a person were not able to pay his debts, his wife and children became debt slaves and had to pay it by performing physical jobs. They worked as debt slaves up to five years. (Aitis, 2013). Historically, it arouses interest that in the 19th century in France while the State Council was considering the project of the code of commerce, the third book which was for the fine-tuning of insolvency, Napoleon Bonaparte demanded a precise

separation of insolvency and bankruptcy and the consideration of a bankrupt person an insolvent one until he proved that he had no intentions to affect his lenders or until he received a court document proving his benevolence. This requirement was acknowledged as too strict and it was not included in the regulations of the code of commerce (Mikuckienė, 2008). Ziegel (2005) Kiesilainen (2008) and others define bankruptcy "as inability to pay debts". Jakimuk and others (2011) define bankruptcy "as the situation, when persons get into debts".

Vainienė (2005) maintains that bankruptcy of enterprises is "a situation when an enterprise is not able to perform its liabilities and its debts exceed the assets or a part of the amount limited by the law. Bankruptcy is related to the enterprise insolvency and bankruptcy proceedings are started, when an enterprise does not pay for the provided goods and services, does not pay salaries and necessary taxes to the state budget and funds. Bankruptcy can be fraudulent, when the enterprise insolvency is created *purposefully and fraudulently*. Criminal liability is foreseen for guilty persons *for purposeful bankruptcy*. Similar regulations could be applied to the bankruptcy of enterprises.

One more term – "insolvency" – is used in bankruptcy. One has to make a thorough analysis of its application in scientific literature in order to use the term. A precise and thorough concept of insolvency has great importance in the analysis of bankruptcy cases as the basis of insolvency makes up the basis of the whole case and the initiative of *bankruptcy proceedings*. Insolvency concept had no clear definition until the Bankruptcy Law of Natural Entities of the Republic of Lithuania came into force on the 1st of March, 2013 m. The law defines insolvency concept as "the status of a natural person who is unable to perform his liabilities, which payments are related and the amounts exceed 25 minimum monthly salaries confirmed by the Government of the Republic of Lithuania".

Bankruptcy and insolvency laws are applied in many countries: China, Egypt, Mexico, Brazil, India, Japan, Canada, Australia, Hong Kong, Taiwan, Russia, Scandinavian countries, etc.

In Latvia the Insolvency Law of the Republic of Latvia defines bankruptcy as follows:

1. It means a debtor's *adjudication of insolvency*.

2. A debtor is insolvent, if he is unable to perform his loan liabilities. It is an inability to pay debts and to change one's financial situation.

3. A debtor is a legal person unable to perform his financial liabilities.

In Estonia the bankruptcy law foresees that a debtor is a natural or legal person who has been involved into bankruptcy proceedings. Such proceedings are not applied to the state or municipal institutions.

In Poland bankruptcy and reorganisation law is valid. It foresees that a person becomes insolvent when he is unable to pay debts on a fixed date.

In England and Wales bankruptcy proceedings are regulated by the bankruptcy law. Insolvency is defined as one of the debt discard methods which can be applied in such cases when a person is unable to pay his debts.

In Czech Republic the insolvency law and its solution methods, which came into force in 2007, regulates bankruptcy and insolvency of legal and natural persons. Such concept enables the bankruptcy of natural persons to be solved by converting their property into money or paying the debts on a fixed date. This law contains such term as minor bankruptcy – a simplified bankruptcy order applicable only to natural persons who are not businessmen.

It is noted that the terms "bankruptcy" or "insolvency" are treated in different ways in certain countries. Some countries interrelate them with their bankruptcy laws while other countries define them in insolvency laws. There is no identical term which might be applied as natural persons' bankruptcy or insolvency. These terms are often interrelated and mixed. Therefore, it creates difficulty in realising the meaning of "bankruptcy" and "insolvency". Neither European country has a uniform law defining the insolvency of natural persons. The concepts "insolvency" and "bankruptcy" should not be identified as insolvency is a certain financial state of a debtor, which might be both temporary and permanent while bankruptcy proceedings are applied to a debtor. Consequently an enterprise or a person is adjudicated bankrupt or possessing liquid assets. The basic difference of these concepts is that their legal consequences should be acknowledged (Mikuckienė, 2008).

Results. *The analysis of the bankruptcy features and reasons.* We still have scarce information about the reasons of natural persons' bankruptcy in Lithuania though the law of bankruptcy has come into force some years ago. More information can be found about the bankruptcy reasons of legal persons. The majority of economists define the features of bankruptcy of enterprises as external and internal. The reasons of crises might be analysed based on the origin, i.e. regarding their egzogenic reasons arising in the internal activities of an enterprise and also in the external activities which are influenced indirectly (Lileikienė and others, 2009).

Januševičiūtė and others (2009) introduce the following internal and external insolvency reasons (Tab. 1).

Table 1. Internal and external insolvency reasons of crises

INTERNAL REASONS OF CRISES	EXTERNAL REASONS OF CRISES
1. The failure of the financial control of an enterprise (too great credit instruments, lack of circulating means, no financial analysis, inadequate control of cash flow).	1. Deceleration of economics.
2. Insufficient enterprise managers' competence (inappropriate managers' conception of planning, organizing, control, careless and too risky behaviour).	2. Financial and economic crises of other countries (devalvation of the USA dollar rate, Russian crisis and alike).
3. Improper market evaluation (insufficient flexibility of cost policy, unsatisfactorily evaluated competition environment, problems of provision and logistics).	3. Great taxes.
4. Fund shortage.	4. Market changes (decrease and increase of markets).
5. Incompetent business administration (inappropriate agreements or their lack).	5. Change of oil prices.
6. System and structure failure (inappropriate production structure of an enterprise, staff problems).	6. The change of laws and corruption in a public sector.
7. A slow restructurisation of big enterprises.	7. The place of business development.
8. Aggressiveness in search of new markets.	8. The failure of business partners (suppliers, secondary enterprises).
9. Disasters, cheatings, malpractice.	9. Protection AL policy, foreign competitors.
	10. The order of receiving loans.
	11. The absence of financial accountability, strict control assessing, infringement of enterprises

Sources: own case study on the basis of [3].

Scientists investigate (table 1) the bankruptcy origin reasons (insolvency), related with a complicated and permanently changing environment. It is difficult to avoid payment disturbances and serious crises situations under such circumstances (Butkus and others, 2005). Assessing the meaning of insolvency reasons, they are classified as follows:

1. Inappropriate (careless) management of financial activities (income and necessary payments), incompetent management of cash flow.

2. Insufficiently motivated need of credit resources (borrowing too great or small amounts) or / and inability to deal with loans (overdue credit or / and interest payments).

3. Inadequate evaluation of surrounding environment and risk factors (dealing with only one supplier or buyer, too risky behaviour).

4. Incompetent business administration (inappropriate agreements or their lack).

5. Cheating, (inadequate use of funds for self-service, fraud).

Aitis (2013) classifies the following insolvency reasons:
• structural and macro economical (taxes, inflation, great subsistence amounts);

• vital situations of life (accidents, divorce, spouse's death);

• inability of solving personal financial problems, analysing financial market, incomprehension of the essence of financial services);

• ethical and lifestyle (i.e. middle class persons' loans for seeking luxury which exceed their opportunity costs);

• based on viewpoints of living (in the East at first people save money, then they buy goods, while in the West first people buy goods, then they pay for them.

Every day, natural person buy, sell – without thinking at all if they use their money. Often natural person is not aware that they have little information about financial management, how to manage your money. Often this ignorance consequences loss of money. Jasinavičius (2014) emphasizes the following financial mistakes:

• surplus payment for one's real estate (research proves that 80 % of such purchases are overpaid twice or more times. It is possible to avoid that applying the methods of assessing the value of a real estate);

• saving reserve money in cash (the purchasing value of the money is affected by increasingly booming actual

inflation (not announced officially). Special deflation ways can protect from the inflation and even increase the purchasing power of one's monetary possessions);

• unaccountable family budget when a family does not possess a calculated budget and does not attempt to control it. In such cases family members spend their money unintentionally but their expenses are exceeded by 30-50 % of their adequate value.

In 20014 website Economics quoted an excerpt from Mary Hunt's book 'The Smart Woman's Guide to Planning for Retirement" where some people's financial mistakes are presented:

1. Living from loans – unsafe consumer credits like credit cards, personal and students' loans and personal planning of finances turns into cancer. Borrowing starts with small loans until it increases greatly.

2. Greater needs than possibilities (if one spends more money for necessary needs than he earns, it is the most straightforward way to a financial catastrophe);

3. Delay of saving (it is necessary to save at present. If you ask yourself when you are going to save money, you will never find a suitable time period for that).

Aitis (2013) states that insolvency of natural persons is experienced while making use of the following services:

• loans for accommodation and studies;

• consumer credits;
• leasing;
• mortgage.

Altfest(2004) classified usually made mistakes of natural persons:

• unaccountable family budget planning;
• irresponsible borrowing;
• underestimation of debt payments;
• loans for operational costs;
• refinancing of debts by new loans;
• misjudged collateral acceptance or guarantee for other persons' liabilities;
• living beyond affordable possibilities.

Financial ignorance, incomprehensibility or too great self-esteem lead to expensive financial mistakes. When people have unbearable debts they usually choose one of the two ways. The easiest way is hiding from their debts and miseries for the rest of their lives. Refinancing has to protect natural persons from bankruptcy threat. In case bankruptcy seems to be the only way out, one has to choose whether to live "under cover" or to find a more psychologically, emotionally and financially difficult way – to acknowledge one's mistakes and try to find the way out. Housing loans are one of the reasons of natural persons' bankruptcy.
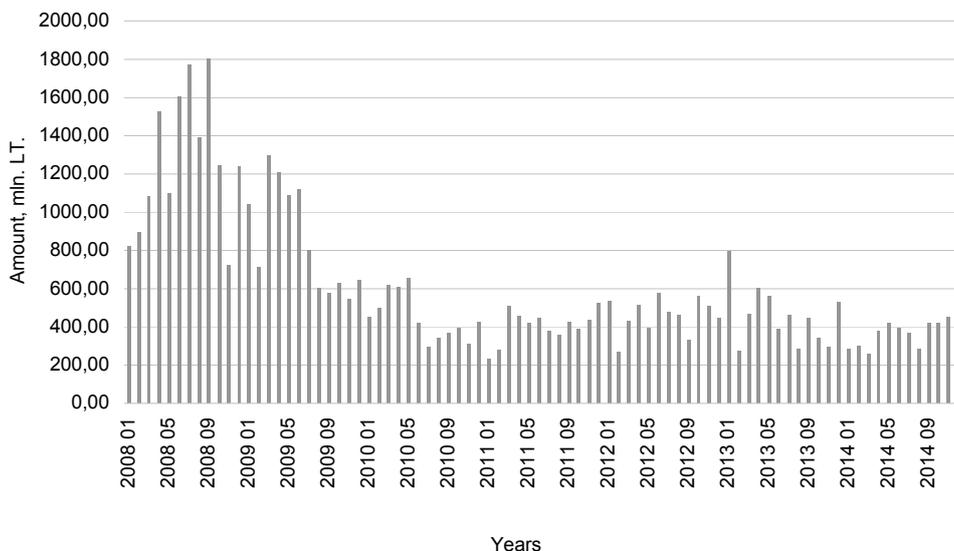

Fig. 1. Dynamics of Housing Loans in 2008-2014

Source: the *author's research based on the data of the bank of Lithuania.*

Figure 1 shows that the greatest amounts of housing loans were provided in October, 2008. Housing loans made up 1.8 billion Litas during that period while it made up about 300.000 million Litas during the same period in 2014 m. The increasing crisis of 2008 affected the trust of business and natural persons. Housing market deteriorated and unemployment increased. Furthermore, credit terms were too liberal. Commercial banks provided up to 110 % loans, i.e. loans could exceed the mortgage value. Most of developed countries of the world have been regulating the relation of the maximum loan and guarantee instruments. E.g. this relation made up to 80 % in Germany, Denmark, Italy, Switzerland and Japan. In 2011 the board of the bank of Lithuania confirmed the regulations of responsible borrowing. It is foreseen that the relation of possession loans and mortgage could not exceed 85 % of the mortgage value or its price. Applying the relation of loan and mortgage banks will have to assess the risk of currencies. In certain cases the relation of maximum loan and mortgage would be allowed to increase by 10 % items.

Adequate management of finances is of great importance in order to avoid natural persons' bankruptcy. It has been noted that wrong income estimation and management of personal finances can lead to miserable bankruptcy consequences. One has to manage and estimate his personal finances in order to avoid unexpected, undesirable and underestimated losses. People need basic resources for their lives: food, clothes, housing, transport, communication means, etc. Money is the best means to achieve all this. Money is an intermediary means to acquire all necessary resources and goodies which could be donated to other people. Money is the means of goodies exchange but not goodies themselves. National currencies have lost their internal property value and have become a more illusion payment means with a permanently decreasing purchasing power, i.e. – inflation (Jasinavičius, 2014). Developed countries pay great attention to the economics of personal finances. This subject as an essential component of finance has been included into the curriculum of colleges and cycles of

lectures delivered at the universities of the USA, Switzerland and other countries (Taujanskaitė and others, 2010).

Basic objective of a personal finance planning is to assure to save resources during a more profitable period for the insufficient income (Černius, 2011) and noted that the management of personal finances means:

• daily monetary pay offs and management;
• making of short-term and long-term plans and their implementation;
• insurance against possible unplanned expenses and losses;

• rational distribution of possessions and accumulated financial assets.

Statistical analysis of the bankruptcy of natural persons in Lithuania. On the 1st of March, 2013, when the Law of Bankruptcy of Natural persons came into force in Lithuania, 116 bankruptcy proceedings of natural persons were initiated during the period of the 1st of March – the 31st of December, 2013.

Based on the date of the application of ruling bankruptcy proceedings of natural persons are presented in figure 2.
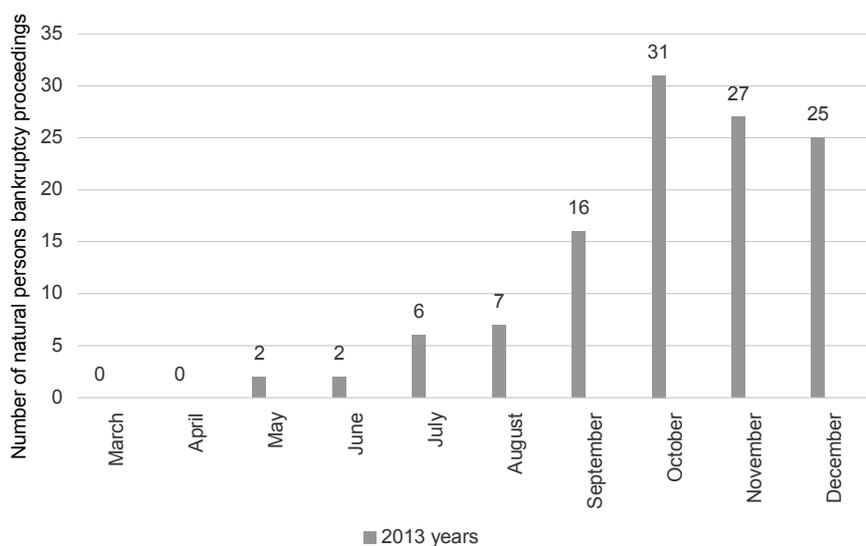

Fig. 2. Bankruptcy proceedings of natural persons

Source: author's research based on the data bankruptcy department under the the Ministry of Economy of Lithuania.

According to the data of the enterprise management bankruptcy department under the Ministry of Economy of Lithuania, 116 individuals who are the subject of bankruptcy proceedings, physical satisfaction of the claims of creditors and its solvency recovery plans were approved 12 individuals person. Average age of bankrupt natural persons is 45.7 (the eldest person under bankruptcy

proceedings was aged 74.2 and the youngest – aged 23.4). Comparing the cities during the period of the 1st of March – 31st of December, 2013 the greatest number of bankruptcy proceedings were initiated in Klaipeda, Kaunas, and Vilnius. Bankruptcy proceedings of natural persons are presented in figure 3.
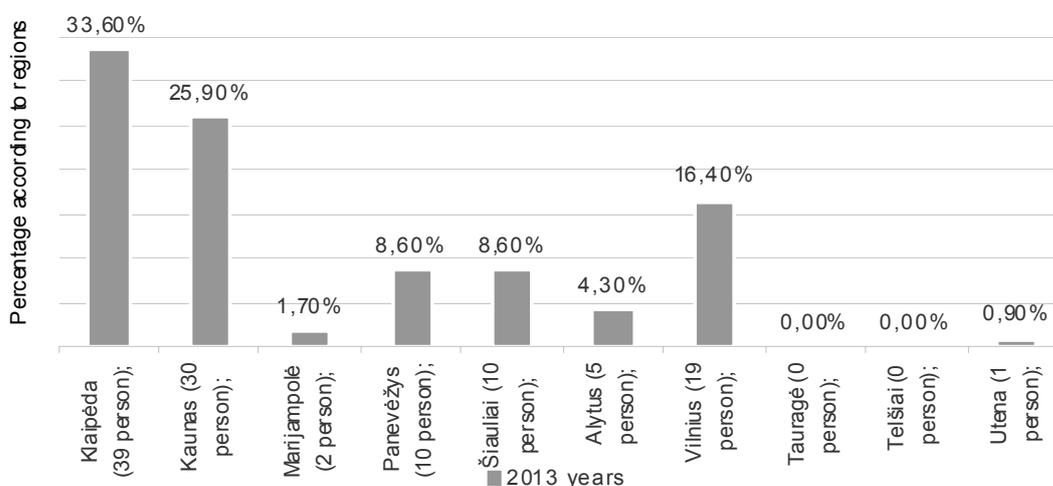

Fig. 3. Bankruptcy proceedings of natural persons in the counties of Lithuania

Source: author's research based on the data bankruptcy department under the Ministry of Economy of Lithuania.

Statistical data reveal that delayed payoffs in Klaipeda region are the greatest ones in Lithuania. According to the data of the enterprise management bankruptcy department under the Ministry of Economy of Lithuania bankruptcy proceedings might have been affected by unjustified investment projects related with the development of real estates on the seaside. The analysis presented in the accounts of the enterprise management bankruptcy department under the Ministry of Economy of Lithuania disclose the bankruptcy reasons (insolvency of natural persons and influential factors of bankruptcy (insolvency of natural persons in adjudicated bankruptcy is presented in figure 4).
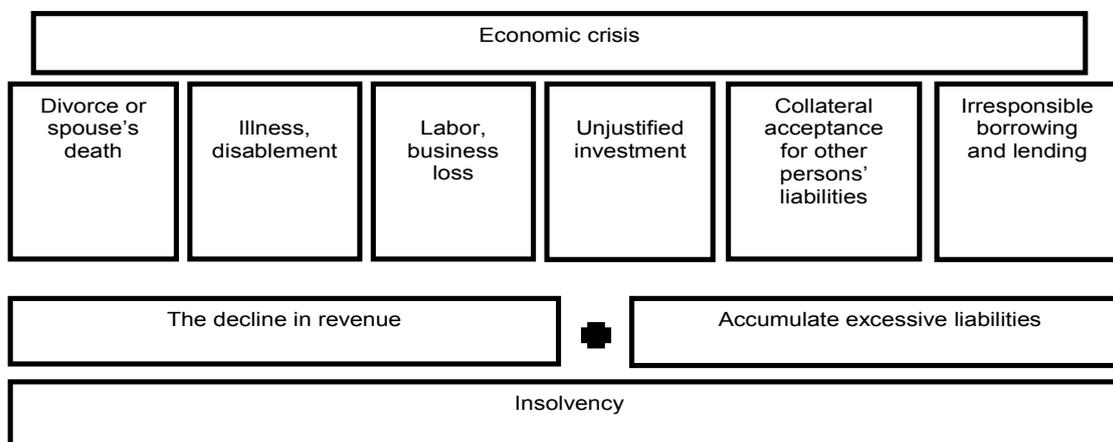

Fig. 4. Bankruptcy proceedings of natural persons in the counties of Lithuania

Source: author's research based on the data bankruptcy department under the the Ministry of Economy of Lithuania.

The enterprise management bankruptcy department under the Ministry of Economy of Lithuania maintain that a natural person becomes insolvent under the decrease of his income and its insufficiency to perform his accumulated liabilities. It has been estimated that the following factors affect the decrease of personal income of natural persons:

1. *Unemployment or business loss.* In 2013, 55 % of natural persons under bankruptcy proceedings became insolvent relating to their unemployment or decreased salaries or in case their employer became insolvent, bankrupt or business failure. According to the data usual job or business was in the sales of real estate, construction, timber processing.

2. *Disability, illness.* This field made up 10 % of all bankruptcy proceedings of natural persons. Insolvency was related with health deterioration, injuries and disability.

3. *Spouse's death and divorces.* The insolvency of more than 5 % of natural persons under bankruptcy proceedings was affected by divorce or spouse's death who earned the greater part of income and the natural person became short of his income in order to perform his financial liabilities.

The most frequent enterprises and natural persons' insolvency were affected by:

1. *Unjustified investment.* Insolvency of 10 % of all cases was related with real estate or other possessions (securities issues stock). Profitable sales and increase of prices were anticipated. Upon the decrease of the real estate prices and value, natural persons experienced hardships to perform their loan liabilities. The sales of profitable assets have become impossible.

2. *Collateral acceptance.* Collateral acceptance for persons' loans (family members), business, enterprise. Collateral acceptance by one's property. In case of bankruptcy ingathering was required from the guarantors. There were more than 25 % of such bankruptcy cases in 2013.

3. *Irresponsible lending and borrowing.* It made up about 7 % of all bankruptcy proceedings of natural persons. Basic reasons were: rapid economic development of the country during 2006-2007, liberal loan policy, unjustified expectations and lack of financial knowledge and the possibilities of performing financial liabilities on a fixed date were not estimated objectively.

Table a presents the amounts of overdue credits exceeding 25,000 Lt (7240, 50 EUR) – it is the minimum amount as foreseen in the Law of the Bankruptcy of Natural Persons of Lithuania.

T a b l e 2. **Natural persons' debts**

Debtors' group	Debt limit (thousand Lt)	Number of debtors	Total amount of debt (Lt)	Debt mean (Lt)
1 group	25-150	9,820	483,020,610	49,187
2 group	151-500	1,449	404,383,993	279,078
3 group	501-900	314	207,312,097	660,230
4 group	901-2 bln.	231	295,193,669	1,277,895
5 group	>2 bln.	97	593,287,203	6,116,363
Totally:		**11,911**	**1,983,197,571**	**166,501**

Source: author's research on the "Creditinfo" data of January 1, 2014.

According to the data presented in Table 1 on the 1st of January, 2014 the number of debtors made up 11,911 natural persons, the debts increased in all debtors' groups and total amount of debts was 1,983,197,571 Litas, (debts' average made up 166,501 Litas).

***Table 3.** Data about natural persons' bankruptcy*

Debtors' group	Debt limit (thousand Lt)	Number of debtors	Total amount of debt (Lt)	Debt mean (Lt)
1 group	25-150	1,2841	641,350,678	49,946
2 group	151-500	1,920	530,020,242	276,052
3 group	501-900	557	369,602464	663550
4 group	901-2bln.	308	394,683,307	1,281,439
5 group	>2 bln.	134	784,240,745	5,852,543
Totally:		**15,760**	**2,719,897,436**	**172,582**

Source: author's research based on the "Creditinfo" data of January 1, 2015.

The increase of all groups' debtors is noted based on the data of the 1st of January, 2015 (Table 3). The number of debtors increased by 7,690 natural persons and its total amount made up 1,546,239,505 Litas comparing the period of the 1st of January, 2012 – the 1st of January, 2015.

The analysis of the questionnaire data of natural person's bankruptcy. The questionnaire of "natural persons' bankruptcy" was made up by 397 respondents from different Lithuanian towns who took part in anonymous survey. *A target respondent group was chosen – natural persons planning their bankruptcy and bankrupt ones, receivers and consultants of natural persons.* The questionnaire had many questions. Below are provided the answers to more significant questions.
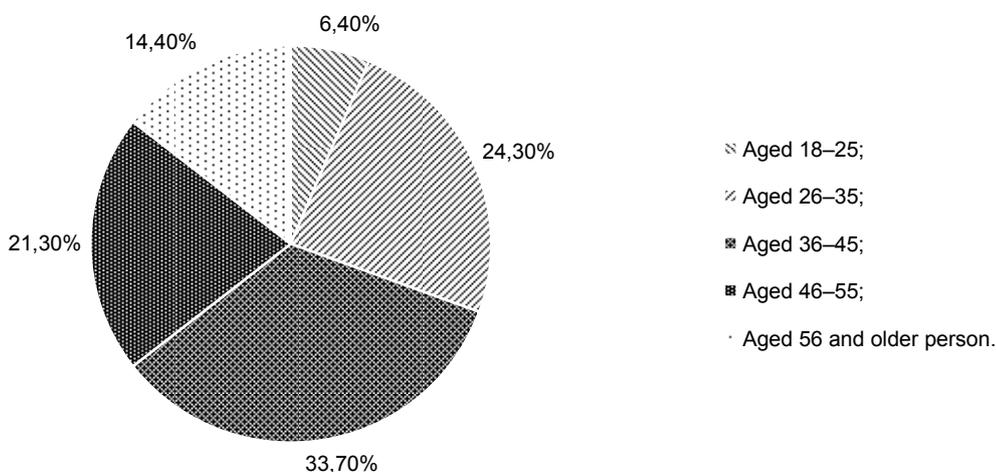

Fig. 5. Respondents' classification according to their age

Source: author's research.

The data of figure 5 reveal that the majority of persons were aged 36-45 (397 filled in questionnaires were received); they made up 33.7 % of all respondents. Persons aged 26-35 were in the second place, they made up 243 % of all respondents. Persons aged 46-55 were in the third place they made up 21.3 % of all respondents. This age group lags behind by 3 % from the group aged 26-35, but persons aged 56 and older ones made up 14.4 % of all respondents. People aged 18-25 showed the least interest in the survey. One can state from the anonymous survey that the average age of natural persons' bankruptcy was 36-45. What are internal bankruptcy factors in your opinion? The answer is in figure 7.
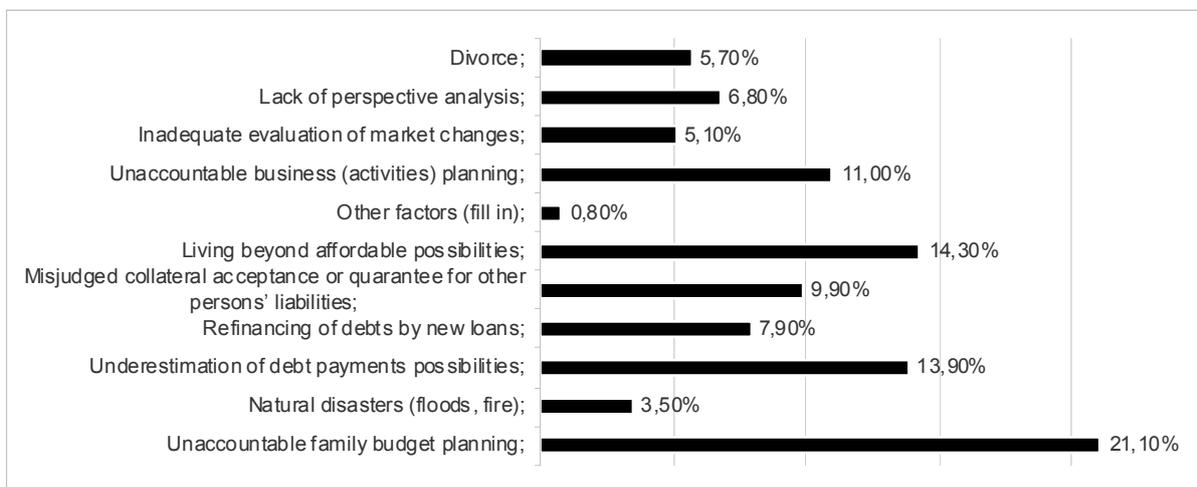

Fig. 6. Factors affecting natural persons' bankruptcy

Source: author's research.

Figure 6 shows that 21.1 % of respondents designated unaccountable family budget planning as one of the most dangerous factors affecting bankruptcy. 14.3 % of respondents maintained that living beyond affordable possibilities was the second important factor. 13.9 % of respondents maintained that underestimation of debt payments possibilities was the third important factor. Then 11 % of respondents designated unaccountable business planning, 9.9 % of respondents designated misjudged collateral acceptance or guarantee for other persons'

liabilities, 7.9 % – refinancing of debts by new loans, 6.8 % – lack of perspective analysis, 5.7 % – divorce, 5.1 % – inadequate evaluation of market changes, 3.5 % – natural disasters (floods, fire). Respondents were asked an open question about bankruptcy factors. 5 respondents indicated spouse's death, 1 respondent – economic situation, 3 respondents – unemployment, 1 respondent – enterprise bankruptcy, restructurisation (redundancy). 0.9 respondents answered the question. What changes have to be made in the Law of Bankruptcy of Natural Persons of Lithuania?
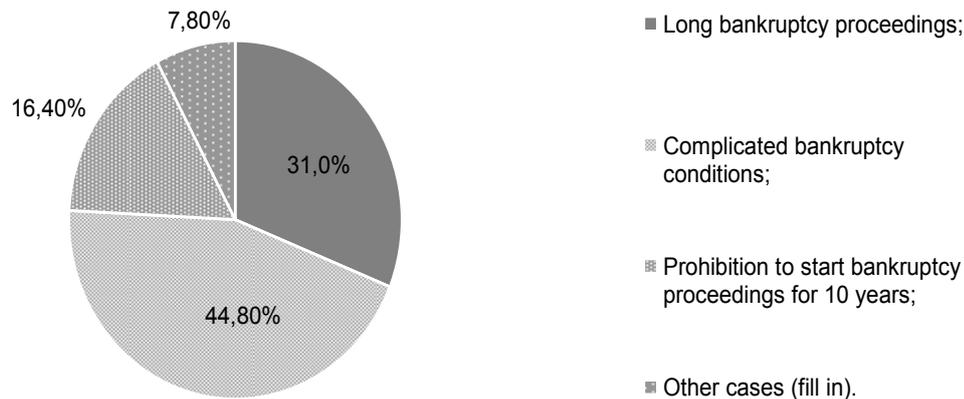

Fig. 7. Improvement propositions of the Bankruptcy Law of Natural Persons of Lithuania

Source: author's research.

In the opinion of 44.8 % (the majority) of respondents the law should be improved (fig. 7) for complicated bankruptcy circumstances. 31 % of the respondents considered that the law contained a too long bankruptcy period; for 16.4 % of the respondents this was an open question in order to find out their opinion about the propositions of the improvement of the bankruptcy law; 21 respondents indicated that great taxes were applied to receivers; 1 respondent considered to limit the dismiss of bankruptcy proceedings; 1 respondent indicated that there was no legal salary for receivers for their services during the period of solvency. The law of bankruptcy was adopted based on corrupt banking relations and is not active. 1 respondent maintained that the law had to be readopted. Altogether 7.8 % of respondents provided their propositions.

Based on the analysis of the law of bankruptcy of natural persons of other countries one can state that that improving the bankruptcy of Lithuania it is necessary to determine a shorter period of the accomplishment of lenders' requirements for natural persons and to determine the period of payoff plans reinstatement up to 3 years. Thus, more favourable circumstances would be created for earlier liquidation debts until bankruptcy proceedings of honest bankrupt natural persons and to reinstate their solvency. E.g. Ireland has a 3 year bankruptcy proceedings; the United Kingdom – 1 year; Latvia decreased this period to 3.5 years, Estonia – 5 years; Germany – 6 years, but it is considered to decrease this period to 3 years. That would encourage Lithuanians to start bankruptcy proceedings and to avoid bankruptcy of Lithuanian natural persons in other countries.

We assume that responsibility should be determined in the bankruptcy law of natural persons of Lithuania in such cases if it turned out during bankruptcy proceedings that a

natural person had concealed important bankruptcy information intentionally and / or provided fraudulent data. A certain fine should be charged for "fraud" and obliging such a person to pay all expenses for "cheating" lenders and court during bankruptcy proceedings. That would decrease the number of "fraudulent" court actions and cheating persons in Lithuania.

The analysis and substantiation of the factors affecting of natural persons' bankruptcy. A client survey was carried out to identify criteria that affect choice of using the model of factor analysis. Factor analysis is based on a model when one or two not directly observable variables affect several observable variables. This type of analysis is not as popular as the wide-spread co-relation, regression, data envelopment analysis methods, but is still applied in the banking sector with some success.

The mathematical model of factor analysis relates k of variables $X_1, X_2, \ldots X_k$ with m of factors $F_1, F_2, \ldots, F_m$ and is defined as follows:

$$
\begin{aligned}
X_1 &= \lambda_{11}F_1 + \lambda_{12}F_2 + \ldots + \lambda_{1m}F_m + e_1 \\
X_2 &= \lambda_{21}F_1 + \lambda_{22}F_2 + \ldots + \lambda_{2m}F_m + e_2 \\
X_k &= \lambda_{k1}F_1 + \lambda_{k2}F_2 + \ldots + \lambda_{km}F_m + e_k
\end{aligned}
\qquad (1)
$$

where: λ_{k1} is referred to factor weight; $m<k$, the number of factors is less than the number of variables; *x* are the observables; *F* are the interpreted factors.

Here we should identify the purpose of this study to help us identify the factors that describe the behaviour of variables and reduce the volume of variables that need to be analysed. In this case the choice of the commercial bank by ethical criteria can be affected by many elements that appear in the analysis as observable variables.

Ta b l e 4. **Identified observable variables**

IDENTIFIED OBSERVABLE VARIABLES
Unaccountable family budget planning
Living beyond affordable possibilities
Underestimation of debt payments possibilities
Unaccountable business (activities) planning
Misjudged collateral acceptance or guarantee for other persons' liabilities
Refinancing of debts by new loans
Lack of perspective analysis
Divorce
Inadequate evaluation of market changes
Natural disasters (floods, fire)

Source: author's research.

The purpose of the factor analysis is to identify variables – common factors having the greatest effect on the bankruptcy of natural persons.

Basic stages of factor analysis:
- data checking and testing for the analysis suitability;
- distinguishing factors;
- factor rotation with *Varimax*;
- estimation of factor values.

The data checking and testing stage is defined by its underlying characteristic that observable variables X must correlate, because factor analysis cannot be used with non-correlated data. The correlation of variables is estimated using Barlett's test of sphericity.

Another widely recognised criterion for making data checks is the Kaiser – Meyer – Olkin (KMO) measure of sampling adequacy. The sample adequacy measure established the measure of adequacy of every variable; that means that variables with low sample adequacy values should be eliminated from the analysis for the sake of higher precision and reliability of results. Mathematical expression:

$$KMO = \frac{\sum\sum_{\neq} r_{ij}^2}{\sum\sum_{\neq} r_{ij}^2 + \sum\sum_{\neq} a_{ij}^2} .$$

Identification of factors is done in the process of the principal component analysis, when the correlation of many variables can be appraised with variation coefficients. This analysis establishes linear combinations of non-correlated variables.

Varimax rotation is one of the tools that facilitate data interpretation, because the initial weight matrix does not explicitly identify the solution itself. A variable can be tied to as many as several factors with a weight ratio of at least 0.4, and that is where *Varimax* rotation comes in. Application of this rotation method can alter the results of the interpretation, but that will also mean that it can be understood more easily.

Calculation of factor values does not follow any clear and well-defined approach, and therefore values are usually calculated using the smallest square method or regressive analysis.

For the purposes of this survey, factor analysis was done using statistical package for the social sciences (SPSS).

Application of Factor Analysis and its Results for Private Individuals. The results of our survey were assessed using factor analysis, and the results and their interpretations are presented in this chapter. The first stage of factor analysis was to test the data of *private individuals* for suitability and adequacy as far as further factor analysis is concerned. The tests use the KMO adequacy measure, the compatibility criterion Chi-square, and the Barlett's test of sphericity (see Table 5).

Ta b l e 5. **Assessing suitability of private individual data – KMO and Barlett's test**

Kaiser–Meyer–Olkin measure of sampling adequacy		0,420
Bartlett's test sphericity	Approx. Chi-square	19499
	df	10
	Sig.	0,373

Source: made by the author using SPSS application, based on survey results.

On the basis of our private individual data suitability tests, we can say that these data are suitable and adequate for further factor analysis. Notably, the KMO value is 0.420, which only supports the suitability of these data (typically, the KMO value should not be below 0.5).

Table 6 shows the common characteristics of the initial data for private individuals. Based on these data, we can decide which variables should be eliminated. In this case, only the data that have the lowest value (below 0.2) can be eliminated. Since the lowest value here is 0.304, no variables need to be eliminated from this study.

Ta b l e 6. **Similarities of natural persons' variables**

	Initial	Extraction
Unaccountable family budget planning	1.000	0.846
Improper evaluation of one's possibilities (living beyond affordable possibilities)	1.000	0.681
Underestimation of debt payments possibilities	1.000	0.913
Unaccountable business (activities) planning	1.000	0.016
Misjudged collateral acceptance or guarantee for other persons' liabilities	1.000	0.636
Refinancing of debts by new loans	1.000	0.710
Lack of perspective analysis	1.000	0.539
Divorce	1.000	0.751
Inadequate evaluation of market changes	1.000	0.304
Natural disasters, (floods, fires)	1.000	0.674

Source: made by the author using SPSS application, based on survey results.

One can see that the meanings of the similarities of variables are rather high (Table 6). One can maintain that the data suitability for further analysis is rather high. It confirms that the data are suitable for further analysis and for the next stage – factor clustering. No variables are to be eliminated as the least meaning is 0.016. Based on the data of table 4 one can presume that the meanings of generalities of variables are high.

The data presented in Table 7 show natural persons' factor matrix. The matrix shows the correlation of variables and factors. It is notable that that frequently the variable is of the same weight according to one or several factors so it is difficult to interpret them (Jasevičienė, 2013).

T a b l e 7. Natural persons factor matrix

Factor matrix	Factors		
	Social responsibility factor	Unexpectancy and non-planning factor	Insufficient financial and other education
Unaccountable family budget planning	0.876	0.281	0.349
Improper evaluation of one's possibilities (living beyond affordable possibilities)	0.727	-0.392	0.246
Underestimation of debt payments possibilities	0.382	0.875	0.741
Unaccountable business (activities) planning	-0.120	-0.034	0.057
Misjudged collateral acceptance or guarantee for other persons' liabilities	0.651	-0.461	0.217
Refinancing of debts by new loans	-0.167	0.826	0.146
Lack of perspective analysis	-0.526	0.512	0.159
Divorce	0.734	0.461	0.045
Inadequate evaluation of market changes	-0.169	-0.525	0.286
Natural disasters (floods, fires)	0.821	-0.023	0.056

Source: made by the author using SPSS application, based on survey results.

Natural persons' factor matrix is the final stage of research. The data disclose the following basic factors which affect natural persons' bankruptcy:
- social responsibility factor;
- unexpectancy and no planning factor;
- insufficient financial and other education.

Social responsibility factor is the dominating one. It becomes evident in case of the wrong family budget planning or living beyond affordable possibilities.

Responsibility is the necessity and duty to be responsible for one's acts. Responsibility is classified into: social, moral, economical and legal. It creates consequences in case of persons' ill-treatment. Responsibility conditions – guilt, tortuous acts, behaviour contradicting to social rules. They can be condoned, under special circumstances – in case of adjudication of bankruptcy, receivers assist for 5 years solving financial problems dealing with bankrupt persons.

Conclusions. It has been noted from the analysis of the experience of bankruptcy of natural persons of other countries that both bankruptcy and insolvency of natural persons are treated in a similar way. A usual definition is that a person goes bankrupt when he reaches a fixed date of his liquidated debt.

The analysis of bankruptcy proceedings revealed *internal* reasons of crises (too great creditors' liabilities, inappropriate cash flow management, the need of insufficiently justified resources, a marked overpay for the real estate and alike) and external reasons of crises (economical deceleration, financial and economic crises in other countries, GDP, unemployment, inflation.

The survey reveals a negative viewpoint for natural persons initiating bankruptcy proceedings. Consequently, such persons have no inclination to discuss this matter frankly. It is explicable by a recent possibility to go bankrupt. It is still considered a novelty as the law of bankruptcy of natural persons of Lithuania has come into force in 2013.

Different reasons influence the decisions of natural persons to go bankrupt and all persons' experiencing bankruptcy wish to start a new lifestyle. All debts are written off and neither lenders, nor bailiffs can claim active debts. It is worth mentioning that in such cases all property has to be sold. Such cases are important to married couples sharing property. Therefore both spouses make up the decisions of bankruptcy.

Persons under bankruptcy proceedings usually have a damaged loan history what consequences the possibility not to receive loans or to receive them under unfavourable circumstances. Based on the Law of Legal Defence of Personal Data of the Republic of Lithuania, credit bureaus might accumulate the information about the bankrupt natural persons up to 10 years. Past this term it is not allowed to accumulate such data, so it is no difficulties to get loans for different purposes.

It is necessary to improve the law of bankruptcy of natural persons as it has had certain gaps since its adoption.

Factor analysis disclosed the following basic factors affecting the bankruptcy of natural persons: social responsibility; unexpectedness and no planning; insufficient financial and other education.

Social responsibility factor is the dominating one. It usually becomes evident in cases of unaccountable family budget planning or living beyond affordable possibilities. Responsibility is also an important factor, i.e. the necessity and duty to be responsible for one's behaviour.

References
1. Aitis, T., 2013. Bankruptcy of natural persons (e-book).
2. Altfest, L., 2004. Personal financial planning: origins, developments and plan for future direction. England and Wales law of bankruptcy. [online] Available at: <http://www.justice.gov.za/legislation/acts/1936-024.pdf)>.
3. Butkus, K., ir kt., 2005. Applied research report. Analysis of solutions of natural persons insolvency methods. [online] Available at: <http://www.ukmin.lt/uploads/documents/Nemokumo%20samprata.doc>.
4. Černius, G., 2011. Control of household finances. p. 25, MRU.
5. Estonian bankruptcy law. [online] Available at: <http://www.legaltext.ee/text/en/X70024K1.htm>.
6. Įmonių bankroto valdymo departamentas prie Ūkio ministerijos. Analysis of bankruptcy reasons. [online] Available at: <http://www.bankrotodep.lt/Doc/FaBankrotoPriezasciuAnalize.pdf>.
7. Jakimuk, J., Žigienė, G., 2011. Influence of inflation on precision of bankruptcy prognosis models. Ekonomika ir vadyba: aktualijos ir perspektyvos, 1 (21), pp. 26-36.
8. Januševičiūtė, A., Jurevičienė, D., 2009. Essentials of bankuptcy: theory and practice. Mokslas – Lietuvos ateitis, 1 tomas, Nr. 3, p. 31.
9. Jasevičienė, F., 2014. Commercial banking: analysis and evaluation. Vilniaus universiteto leidykla.
10. Jasinavičius, R., 2014. Materials of seminar. How to avoid 3 most expensive financial mistakes. [online] Available at: <http://webseminarai.lt/jasinavicius-kaip-isvengti-3-ju-brangiausiai-kainuojanciu-finansiniu-klaidu/>.

11. Kiesiläinen, N.J., Henrikson, A.S., 2008. Report on legal solution to debt problems in credit societies. p. 27; [online] Available at: <http://www.coe.int/t/dghl/standardsetting/cdcj/CJSDEBT/CDCJ-BU_2005_11e%20rev.pdf>.

12. Kiyak, D., Labanauskaitė, D., Reichenbachas, T., 2011. Types of financial crisis and their comparative analysis in Lithuania. Regional formation and development studies, [online] Available at: <http://journals.ku.lt/index.php/RFDS/article/viewFile/552/pdf>. (seen 2014 m. kovo 25 d.").

13. Latvian administration of insolvency. [online] Available at: <http://www.mna.gov.lv/lv/normat_akti/Likumi/>.

14. Lileikienė, A., Kulyčienė, R., 2009. Analysis of reasons of constructional sector companies bankruptcy. Vadyba (Journal of Management), 14, No. 2, p.16.

15. Mackienė, J., Poškaitė, D., Molienė, O., 2008. Gross sales profitability methods of complex analysis. Ekonomika, t. 81, p. 74-80.

16. Mikuckienė, V., 2008. Conception of bankruptcy process. Jurisprudence, 7 (109), p. 35.

17. Miseso, L., Haberlerio, G., Rothbardo, M.N., ir kt., 2009. The Austrian Theory of the Trade Cycle. Vilnius, Lietuvos laisvos rinkos institutas, p. 47.

18. Polish law of bankruptcy and reorganisation. [online] Available at: <http://isap.sejm.gov.pl/DetailsServlet?id=WDU20030600535>.

19. Taujanskaitė, K., Jurevičienė, D., 2010. Pecularities of private finance management in conditions of economical instability. Mokslas – Lietuvos ateitis, 2 tomas Nr. 2, p. 104, VGTU.

20. The American Economist, No. 48(2) p. 53.

21. Vainienė, R., 2005. Dictionary of economical terms. Vilnius: Tyto alba. p. 24.

22. Ziegel, J., 2005. The challenges of comparative consumer insolvency. Penn state international state international law review [online] Available at: <http://law.psu.edu/_file/IACCL/12th_Biennial_Meeting.pdf>.

Ф. Джасевіцейне, д-р соц. наук,
К. Слекіте-Джусейне, магістр наук в галузі економіки
Університет Вільнюса, Вільнюс, Литва

АНАЛІЗ ОСОБЛИВОСТЕЙ І ПРИЧИН БАНКРУТСТВА ФІЗИЧНИХ ОСІБ

Статтю присвячено можливостям застосування Закону про банкрутство фізичних осіб в Литві. Детальний аналіз надає можливість розкрити чинники впливу банкрутства фізичних осіб, а також передбачити залучення додаткових коштів для унеможливлення неплатоспроможності та банкрутства фізичних осіб. Таким чином, здійснення ретельної оцінки вагомих чинників впливу на банкрутство є необхідним не тільки в Литві, але і в інших країнах.

Ключові слова: фізичні особи, неплатоспроможність, банкрутства, управління фінансами, законодавство про банкрутство фізични осіб.

Ф. Джасевицейне, д-р соц. наук,
К. Слеките-Джусейне, магистр наук в области экономики
Университет Вильнюса, Вильнюс, Литва

АНАЛИЗ ОСОБЕННОСТЕЙ И ПРИЧИН БАНКРОТСТВА ФИЗИЧЕСКИХ ЛИЦ

Статья посвящена возможностям применения Закона о банкротстве физических лиц в Литве. Детальный анализ позволяет раскрыть факторы влияния банкротства физических лиц, а также предусмотреть привлечение дополнительных средств для предотвращения неплатежеспособности и банкротства физических лиц. Таким образом, проведение тщательной оценки весомых факторов влияния на банкротство необходимо не только в Литве, но и в других странах.

Ключевые слова: физические лица, неплатежеспособность, банкротства, управление финансами, законодательство о банкротстве физических лиц.