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# Modeling of Company's Assets Financing Structure on the Basis of the Matrix "Assets-Capital"

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***Abstract* — It is proposed the method for modeling of financing structure of company's assets based on the matrix "assets-capital" developed by the authors. This matrix model allows to reduce the time and volume of the processed information, as well as to provide visibility of the received indicators for the timely adoption of appropriate management decisions. Based on this model, an automated system for monitoring and preliminary analysis of the company's capital structure is being developed.**

***Index Terms* — matrix methods, financing structure analysis, monitoring, modeling.**

## I. INTRODUCTION

The financing structure of the company's assets has a large impact both on the operational results, and on the financial condition of the company. The company's capital structure has to provide most effective relationship between profitability and financial stability. Usually, the formation of a rational capital structure based on the following assumptions [2,3,9 and many others]:

- maximizing the level of return on equity;
- minimizing the cost of capital;
- minimizing the level of financial risk.

To improve the efficiency of capital structure of the company is necessary to perform a preliminary analysis of the existing structure and it is necessary to assess the level of existing financial risks on the basis of indicators of financial stability. If there is a high level of financial risks, the main task at this stage is to normalize the financial condition of the company, and then - the improvement of its structure in order to increase its effectiveness. This indicates that the management must have a simple and effective tool for monitoring and preliminary analysis of the company's asset financing structure. This process will allow timely to identify deviations in the structure of funding, to develop and make the necessary management decisions. Optimal financing structure will allow the company to increase its efficiency, increase the resulting profit and the market value of the company. The structure of the financing depends on many different factors, so the problem of increasing the efficiency must be solved by company's managers in each case independently.

Thus, the purpose of the study is to develop an efficient and intuitive method of monitoring and preliminary evaluation of the financing structure of company's assets in order to determine the level of financial risks (financial stability). In accordance with the intended purpose it has been developed matrix "assets-capital" and the method of monitoring and preliminary analysis of the company's capital structure based on this matrix. In research are given the results of testing of the proposed method for the analysis of financing structure of assets and assessment of the level of financial risk.

## II. REVIEW OF EXISTING METHODS OF ASSESSMENT AND ANALYSIS OF CAPITAL STRUCTURE

Nowadays are developed and used a great number of various methods for improving the efficiency of the capital structure and approaches to its optimization [1,4,5]. However, the problem lies in their practical use. Usually, in practice are used enough small number of developed models. Financial directors and managers pay little attention of the issue of the effectiveness of the capital structure. This is due to the complexity of the developed approaches and the fact that they do not always give the desired result. As for the theoretical issues on capital structure, at the present time there are many different approaches [4,8,9].

It is believed that the capital structure is mainly characterized by the ratio between the debt and equity of the company, the optimal structure of capital promotes maximize of the companies value [2,4]. But the ratio between the equity and debt of the company have little effect on the company's value. Such contradictions exist in modern theoretical developments by the capital structure of the company. In addition, the modern developments are enough chaotic: by using of any one method is possible to see an improvement in some factors and worsening in other factors.

Nowadays the most famous are the following theories of efficient capital structure: the theory of compromise (trade-off); theory of financial hierarchy / hierarchical theory of capital structure (pecking order); signal model; models of agency costs; modern behavioral approach (for the model of corporate control and stakeholders model) [1,5]. However, before applying these models for optimizing the capital structure is necessary to carry out monitoring and preliminary analysis of the existing financing structure. In addition, the top priority is the assessment of the level of financial risks (financial stability) [2,6,7 and many others]. If your company

has a very high financial risks (critical level of financial stability), the first priority is reducing of risks, and then optimizing of the capital structure. For the purposes of the initial analysis and monitoring of the financing structure is necessary to use a simple, clear and effective approach. The development version of this method was solved in the presented research.

## III. FORMATION OF THE MATRIX «ASSETS-CAPITAL»

By formation of the effective structure of the company's capital, besides the principles of maximizing profitability and minimizing the cost of capital, it is obligatory to take into account the principle of minimizing the level of financial risk. Various management efforts by improving of the company's capital structure are impossible to conduct without ensuring acceptable level of financial risk [2,5]. If the company is on the verge of bankruptcy, it is necessary first of all to solve the necessity in reducing financial risks. Therefore, it is proposed for the monitoring and preliminary analysis of the company's capital structure to use the matrix "assets-capital".

For construction the matrix "assets-capital" is formed the table of modules (groups) by the balance sheet accounts of the financial statements of company. At that, it is possible to use both national and international financial statements. The table of modules is created mainly on the basis of financial statement data. At that, a range of accounts of the both assets and liabilities are selected to separate modules. The modules are formed taking into account their impact on the company's financial structure and with consideration the level of financial risk (assessment of the risk of financial stability). The more qualitative are selected modules (groups), the more qualitative will be results of analysis of capital structure by the matrix "assets-capital". The use of additional information along with financial statements of companies for clarification and adjustment of modules (if this information is available for analyst) will greatly improve the accuracy. However, it should be noted that even using of accounting information only from the financial statements allows to receive high-quality and effective results by the analysis of the capital structure. It is desirable to take into account and additional information from the financial statements (footnotes).

The basis of forming of modules (groups) of assets consists in the principle of their liquidity. At the same time is formed separately the module of inventories, in which is desirable to include a non-liquid inventories (without the finished products in warehouse). By the forming of modules of company's capital are included separately non-interest and interest current and non-current liabilities and equity. By the forming of the matrix "assets-capital", the modules by assets are allocated in the order of liquidity decrease, the modules by liabilities are allocated in the order of increase of maturity period. The total list of modules both for the assets and the capital of company is presented on the Tab. 1.

TABLE 1. MODULES, FORMED FROM ACCOUNTS OF THE BALANCE SHEET

| Symbol | Modules of assets and liabilities |
|---|---|
| | ***Assets*** |
| A1 | Cash and cash equivalents, CCE |
| A2 | Total current assets without cash and cash equivalents and Inventories, CA - CCE - *Inv* |
| A3 | Inventories, *Inv* |
| A4 | Total non-current assets without property, plant and equipment, LTA- PPE |
| A5 | Property, plant and equipment, PPE |
| | ***Liabilities and stockholders' equity*** |
| B1 | Non-interest-bearing current liability, *NIBCL* |
| B2 | Interest current liabilities, *ICL* |
| B3 | Interest long-term liabilities, *I*LT*L* |
| B4 | Non-interest-bearing long-term liability, *NIB*LT*L* |
| B5 | Total stockholders' equity, EQ |

By forming of the modules of assets and capital is necessary to perform the balance inequality $\sum_{i=1}^{5} A_i = \sum_{j=1}^{5} B_j$. The general view of the matrix "assets-capital" is presented on the Tab. 2.

TABLE 2. GENERAL VIEW OF THE MATRIX "ASSETS-CAPITAL"

| | Liabilities and stockholders' equity | | | | | |
|---|---|---|---|---|---|---|
| **Assets** | ***NIBCL*** | ***ICL*** | ***I*LT*L*** | ***NIB*LT*L*** | **EQ** | |
| CCE | $X_{11}$ | $X_{12}$ | $X_{13}$ | $X_{14}$ | $X_{15}$ | A1 |
| CA - CCE - *Inv* | $X_{21}$ | $X_{22}$ | $X_{23}$ | $X_{24}$ | $X_{25}$ | A2 |
| *Inv* | $X_{31}$ | $X_{32}$ | $X_{33}$ | $X_{34}$ | $X_{35}$ | A3 |
| LTA- PPE | $X_{41}$ | $X_{42}$ | $X_{43}$ | $X_{44}$ | $X_{45}$ | A4 |
| PPE | $X_{51}$ | $X_{52}$ | $X_{53}$ | $X_{54}$ | $X_{55}$ | A5 |
| | B1 | B2 | B3 | B4 | B5 | |

In the matrix are marked *A1, A2, …, A5* – are summary amounts of assets of the appropriate modules; *B1, B2, …, B5* - are summary amounts of liabilities of the appropriate modules; $X_{11}, X_{12}, X_{13}, \ldots, X_{55}$ – balance allocation of assets and liabilities of the appropriate modules, which is carried out similarly to the principles of the transportation theory. If we make analogy with the transportation theory, in the capacity of suppliers will be assets $A_i$, in the capacity of consumers will be liabilities $B_i$ [3,10,11]. The assets (according to the liquidity level) are used for meeting of liabilities (according to the maturity terms).

Thus, we have the vector of assets by modules $A$=(A1, A2, ⋯ , A$m$), and the vector of liabilities by modules $B$=(B1, B2, ⋯ , B$n$). Variables (unknown parameters) for this transportation task are $X_{ij}$, where $i = 1,2,3, \ldots, m$, j= $1,2,3, \ldots, n$, are the required amounts for the meeting of liabilities from the each $i$-module of assets to each j – module of liabilities. These variables are possible to present in the form of matrix of assets financing:

$$X = \begin{Bmatrix} X_{11} & X_{22} & \ldots & X_{1n} \\ X_{21} & X_{22} & \ldots & X_{2n} \\ \ldots & \ldots & \ldots & \ldots \\ X_{m1} & X_{m2} & \ldots & X_{mn} \end{Bmatrix}$$

Total assets are equal to total liabilities of the company for the period under review, i.e. $\sum_{i=1}^{5} A_i = \sum_{j=1}^{5} B_j$. It is necessary to make such distribution plan, in which the assets of all modules are fully corresponded with the liabilities of all modules in accordance with terms of maturity, i.e., the objective function has the view:

$$Z(X) = \sum_{i=1}^{m}\sum_{j=1}^{n} X_{ij} = \sum_{i=1}^{m} A_i = \sum_{j=1}^{n} B_j$$

The system of limits for the distribution problem consists of two groups of equations. The first group of "m" equations describes the fact that the assets of all "m" modules are used fully:

$$\sum_{j=1}^{n} X_{ij} = A_i, \mathrm{i} = 1,2,...,\mathrm{m}$$

The second group of "n" equations expresses the requirement to ensure complete accordance of all "n" modules by the existing liabilities:

$$\sum_{i=1}^{m} X_{ij} = B_j, j = 1,2,...,\mathrm{n}$$

There is no negation condition in the considered distribution problem for the variables $X_{ij}$. Thus, the mathematical model of the problem can be written as:

$$Z(X) = \sum_{i=1}^{m}\sum_{j=1}^{n} X_{ij} = \sum_{i=1}^{m} A_i = \sum_{j=1}^{n} B_j$$

$$\sum_{j=1}^{n} X_{ij} = A_i, \mathrm{i} = 1,2,...,\mathrm{m}$$

$$\sum_{i=1}^{m} X_{ij} = B_j, j = 1,2,...,\mathrm{n}$$

In our model is assumed that the total assets are equal to the total liabilities plus equity, i.e. $\sum_{i=1}^{m} A_i = \sum_{i=1}^{m} L_i + E$. Therefore we have the task with correct balance, and its solution model is closed.

Formation of the distribution plan based on the transportation theory will allow to perform the allocation of the company's resources from most-liquidity assets and most urgent liabilities to the non-current assets and long-term liabilities. The distributed funds are entered to the matrix X, in the way, proposed by the authors m = n = 5.

In the distribution method based on the transportation theory, assets of the next liquidity module are used for securing the liabilities of the next module in order of maturity until complete exhaustion, then are used the assets of the next module by the liquidity level.

Filling of the distribution table (matrix $X_{ij}$ ) starts from the upper left corner and consists of a series of similar steps. At each step, based on the funds of the next module of assets and funds of the next module of liabilities, is filled only a single cell and therefore it is excluded from consideration one module of assets or liabilities.

It is done by the next way:

- if $A_i < B_j$, then $X_{ij} = A_i$ and it is excluded assets module, with the number *i*,

$X_{ik} = 0$, *k=1, 2, ..., n,* $k \neq j$, $B_j^{'} = B_j - A_i$;

- if $A_i > B_j$, then $X_{ij} = B_j$ and it is excluded module of liabilities, with the number *j,*

$X_{kj} = 0$, *k=1, 2, ..., m,* $k \neq i$, $A_i^{'} = A_i - B_j$;

- if $A_i = B_j$, then $X_{ij} = A_i = B_j$ and it is excluded either i-module of assets, $X_{ik} = 0$, *k=1, 2,..., n,* $k \neq j$, $B_j^{'} = 0$, or j-module of liabilities, $X_{kj} = 0$, *k=1, 2, ..., m,* $k \neq i$, $A_i^{'} = 0$.

In the table is entered only base zeros, the rest of the table cells are empty. To avoid errors, after formation of the distribution plan, it is necessary to check the number of occupied cells, this number should be equal to m + n-1, i.e. for the matrix 5*5, the number of filled cells should be equal 9. After checking the number of occupied cells, in order to further data analysis and processing of tables, all empty table cells are filled with zeros.

## IV. Results Of Practical Testing Of Application Of The Matrix "Assets-Capital"

In the process of practical testing of application of the matrix "assets-capital" is analyzed the structure of a number of leading companies of the automotive industry. According to financial statements are constructed matrixes "assets-capital" and is performed the analysis of the capital structure of companies.

This matrix is formed on the basis of the adopted provisions regarding financing of long-term assets: the company's financial stability is ensured by the financing of the fixed assets and non-liquid part of inventories at the expense of equity or at the expense of equity and long-term capital [2,7 and many others]. The level of financial stability is greatly reduced if inventories are financed by interest-bearing current liabilities, but if inventories are financed by interest-free current liabilities, the company has a high financial risk and is found either at the stage of bankruptcy or it is already bankrupt. Therefore, an indicator of the maximum possible financial risk for the company is the fact of use of non-interest bearing current liabilities for financing of inventories. Therefore, the level of financial stability (risk) can be estimated by the analysis of submatrices of the matrix "assets-capital":

- if the sub-matrix $(x_{31}x_{32}x_{33}x_{34})$ is zero, then the company is absolutely financially stable with minimal risk;
- if the sub-matrix $(x_{31}x_{32}x_{33})$ or the sub-matrix $(x_{31}x_{32})$ are zero, the company has the normal level of financial stability with minimal risk;
- if the sub-matrix $(x_{31})$ is zero, then the company has a relatively large financial risk, that is, it is observed unstable financial condition;

- if the sub-matrix ($x_{31}$) is non-zero, then the company is in crisis: in the process of bankruptcy or it is already bankrupt.

To illustrate the possible types of assets' financing structure is used enlarged matrix, based on the matrix "assets-capital". General view of the matrix for illustration of possible types of financing is presented below (Tab. 3):

TABLE 3. GENERAL VIEW OF THE ENLARGED MATRIX BASED ON THE MATRIX "ASSETS-CAPITAL" FOR DETERMINATION THE TYPE OF FINANCING STRUCTURE

| Indicators | EQ | LTD | *ICL* | *NIBCL* |
|---|---|---|---|---|
| **LTA** | *EQ1* | *LTL1* | *ICL1* | *NIBCL1* |
| **Inv** | *EQ2* | *LTL2* | *ICL2* | *NIBCL2* |
| **CA - Inv** | *EQ3* | *LTL3* | *ICL3* | *NIBCL3* |

LTD = *I*LT*L*+ *NIB*LT*L* Total long-term liabilities;

*EQ1, EQ2, EQ3* - values in absolute (or in relative) units of equity for financing of the appropriate groups of assets;

*LTL1, LTL2, LTL3* - values in absolute (or relative) units of long-term debt for financing of the appropriate groups of assets;

*ICL1, ICL2, ICL3* - values in absolute (or relative) units of the interest-bearing current assets for financing of the appropriate groups of assets;

*NIBCL1, NIBCL2, NIBCL3* - values in absolute (or relative) units of non-interest current assets for financing of appropriate groups of assets.

Let us determine four types of assets' financing structure by the financial risk indicator:

- structure of financing with the minimal financial risk, the company is completely financially stable and has the only one way of financing;
- structure of the financing with the normal financial risk, i.e. the company is financially stable and has two financing options (Option 2a with less financial risk than Option 2b);
- structure of the financing with a relatively large financial risk, that is a company with the non-stable financial position has three options for financing (Option 3a with a lower level of financial risk than Option 3b, and the greatest financial risk in this type of financing structure describes an option 3c);
- the financing structure with the large financial risk, i.e. the company is in crisis: at the stage of bankruptcy or it is already bankrupt. In the structure of the company, inventories are financed by non-interest bearing current liabilities (NIBCL2) and possibly for the financing of the part of long-term assets are used also non-interest bearing current liabilities (NIBCL1).

By the general matrix "assets-capital" is possible to evaluate liquidity indicators and indicators of the net working capital.

In general, the net working capital is defined as:

*Net working capital, NWC = Current assets – Current liabilities*

In accordance with this formula: it is necessary to analyze in the matrix "assets-capital" two submatrices M1 and M2, and calculate the amount of elements of the non-zero submatrix.

$$M1 = \begin{pmatrix} x_{13} & x_{14} & x_{15} \\ x_{23} & x_{24} & x_{25} \\ x_{33} & x_{34} & x_{35} \end{pmatrix};\ M2 = \begin{pmatrix} x_{41} & x_{42} \\ x_{51} & x_{52} \end{pmatrix}$$

If a non-zero is the submatrix M1, it indicates that the company has the positive value of the net working capital (NWC>0), and its value is calculated by the sum of all elements of the submatrix M1:

If a non-zero is the submatrix M2, then it indicates that the company has the negative value of the net working capital (NWC<0), and its value is calculated by the sum of all the elements of the submatrix M2 with the sign minus:

Let us give an example of the matrix "assets-capital" for the two automotive companies.

TABLE 4. EXAMPLE OF MATRIXES "ASSETS-CAPITAL" FOR AUTOMOTIVE COMPANIES BMW AND FORD BY THE ANNUAL FINANCIAL STATEMENTS DATA FOR THE 2013-2014

| **BMW, 2013 (mln. EUR)** | | | | | | |
|---|---|---|---|---|---|---|
| | **B1** | **B2** | **B3** | **B4** | **B5** | |
| **A1** | 13 223 | | | | | 13 223 |
| **A2** | 6 392 | 22 974 | | | | 29 366 |
| **A3** | | 7 454 | **2 131** | | | 9 585 |
| **A4** | | | 36 642 | 8 525 | | 45 167 |
| **A5** | | | | 5 572 | 35 455 | 41 027 |
| | 19 615 | 30 428 | 38 773 | 14 097 | 35 455 | 138 368 |
| **BMW, 2014 (mln. EUR)** | | | | | | |
| | **B1** | **B2** | **B3** | **B4** | **B5** | |
| **A1** | 13 072 | | | | | 13 072 |
| **A2** | 8 524 | 24 159 | | | | 32 683 |
| **A3** | | 11 089 | | | | 11 089 |
| **A4** | | **2 234** | 43 167 | 15 338 | 20 038 | 80 777 |
| **A5** | | | | | 17 182 | 17 182 |
| | 21 596 | 37 482 | 43 167 | 15 338 | 37 220 | 154 803 |
| **Ford, 2013 (mln. USD)** | | | | | | |
| | **B1** | **B2** | **B3** | **B4** | **B5** | |
| **A1** | 36 068 | 20 484 | | | | 56 552 |
| **A2** | | 17 579 | **74 701** | | | 92 280 |
| **A3** | | | **1 924** | **5 784** | | 7 708 |
| **A4** | | | | 22 841 | | 22 841 |
| **A5** | | | | 1 233 | 26 383 | 27 616 |
| | 36 068 | 38 063 | 76 625 | 29 858 | 26 383 | 206 997 |
| **Ford, 2014 (mln. USD)** | | | | | | |
| | **B1** | **B2** | **B3** | **B4** | **B5** | |
| **A1** | 37 969 | 16 398 | | | | 54 367 |
| **A2** | | 22 774 | **75 555** | | | 98 329 |
| **A3** | | | **4 444** | **3 422** | | 7 866 |
| **A4** | | | | 23 349 | | 23 349 |
| **A5** | | | | 5 321 | 24 805 | 30 126 |
| | 37 969 | 39 172 | 79 999 | 32 092 | 24 805 | 214 037 |

Let us analyze the matrixes "assets-capital" for the automotive companies BMW and Ford. In the BMW, the sub-matrix ($x_{31}$) is zero, so the company has unstable financial condition and the relatively large financial risk. In addition, in the 2014 the finance structure of company's assets has become slightly worse and the financial risk has increased: if in 2013

the company had a capital structure by type 3b, then in 2014 - by type 3c. This is confirmed by the indicator of net working capital: in 2013 it amounted, NWC = 2 131 mln. EUR, in 2014, the company has no net working capital (NWC = -2 234 million euros.). However, the working capital (excluding interest-bearing current liabilities) in 2013, WC = 22974 + 7454 = 30428 mln. EUR, and in 2014 WC = 24159 + 11089 = 35248 mln. EUR, i.e. WC increased by 4820 mln. EUR. The structure of assets is practically not changed, but in the capital structure is slightly decreased the part of shareholders' equity and increased the part of borrowed capital. At that, if the interest coverage ratio is not critical, the company will work successfull. This is confirmed by the relatively high profit rate (the ratio of the net income to the revenue by the data of income statement), 7,21% in 2014 and 6,99% in 2013 (an increase on 0.22%).

In the company Ford, the submatrix $(x_{31}x_{32})$ is zero, so the company has stable financial condition and relatively low financial risk. As of the 2013 and 2014 the finance structure of company's asset is not varied (type 2B). The company has sufficient level of the net working capital: in 2013, the NWC = 74701 + 1924 = 82409 mln. USD, in 2014, the NWC = 75555 + 4444 = 83421 mln. USD. The structure of assets and capital is not varied essentially over the observed two years. Thus, the company is has minimal risks and is stable in finance. However, the rates of return (4.87%, in 2013, and 2,21% in 2014) are lower than in the BMW, values of the interest-bearing borrowing capital are almost comparable. Besides that, both companies have very different structure of assets: in the BMW is the ratio of current assets to non-current is 37%/63%, and in the Ford, 75%/25%. This indicates that the companies from one industry are not necessarily have the same structure financial assets and, at that, these companies can operate successfully. However, if the company uses less risky structure for financing of assets, the rate of return will be lower (Tab. 5).

TABLE 5. KEY INDICATORS OF THE MATRIX ANALYSIS FOR NINE AUTOMOTIVE COMPANIES BY THE REPORTING DATA AS OF 2014

| Modules of assets and liabilities | BMW | Ford | Honda | General Motors | Toyota | Volkswagen | Daimler | Avtovaz | FIAT |
|---|---|---|---|---|---|---|---|---|---|
| **Assets** | | | | | | | | | |
| **A1** | 8 | 25 | 7 | 16 | 11 | 11 | 9 | 7 | 23 |
| **A2** | 21 | 46 | 21 | 24 | 22 | 18 | 21 | 14 | 9 |
| **A3** | 7 | 4 | 8 | 8 | 4 | 9 | 11 | 13 | 12 |
| **A4** | 52 | 11 | 31 | 37 | 43 | 50 | 47 | 22 | 28 |
| **A5** | 11 | 14 | 32 | 16 | 19 | 13 | 12 | 45 | 26 |
| **Liabilities and stockholders' equity** | | | | | | | | | |
| **B1** | 14 | 18 | 13 | 29 | 16 | 25 | 16 | 29 | 31 |
| **B2** | 24 | 18 | 17 | 8 | 19 | 12 | 19 | 24 | 0 |
| **B3** | 28 | 37 | 21 | 18 | 21 | 19 | 27 | 18 | 34 |
| **B4** | 10 | 15 | 11 | 19 | 9 | 18 | 13 | 4 | 22 |
| **B5** | 24 | 12 | 38 | 26 | 35 | 26 | 25 | 25 | 14 |
| **Total current assets/ Total non-current assets** | 37/63 | 75/25 | 37/63 | 47/53 | 38/62 | 37/63 | 41/59 | 33/67 | 45/55 |
| **Total Interest liabilities / (Total stockholders' equity + Total Non-Interest-Bearing liabilities)** | 52/48 | 56/44 | 38/62 | 26/74 | 40/60 | 31/69 | 46/54 | 41/59 | 34/66 |
| **Financing scheme** | 3c | 2в | 3в | 2в | 3в | 3в | 3в | 4 | 2в |
| **Profit rate (net income / sales)** | 7,21 | 2,21 | 4,85 | 2,53 | 7,98 | 5,36 | 5,36 | -13,17 | 0,59 |

## V. CONCLUSIONS

The method for modeling of the financing structure of company's assets was developed on the basis of the matrix "assets-capital", proposed by the authors. The proposed model allows to carry out monitoring and preliminary analysis of the structure of financing the company's assets. The model makes possible to improve visibility and the number of obtained performance indicators while maintaining the necessary accuracy level of the analysis. In addition, the model can be used for managing and modeling of effective capital structure of company.

The proposed matrix model was tested by authors on an example of more than 50 companies operated in various economic sectors. Results indicate high efficiency of model for practical application. It was confirmed experimentally that the results accuracy for analysis based on the matrix model is not lower than the accuracy of estimates, received through the application of classical methods.

The research confirmed that the matrix "assets-capital" can be effectively used for visual and sufficiently accurate express analysis of the company's capital structure, which will help to timely identify problematic points and make appropriate management decisions. Based on this model, an automated system for monitoring and preliminary analysis of the company's capital structure is being developed.

The proposed matrix model of capital structure analysis and the automated system based on it, can be applied by managers as well as by investors and creditors for monitoring and decision making.

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