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MODELING THE INFLUENCE OF ECONOMIC ENVIRONMENT FACTORS ON THE MARKET VALUE OF CORPORATIONS: AN EXAMPLE OF UKRAINE

Abstract. Capitalization is an important indicator of investment attractiveness, profitability and stability of enterprises in the corporate sector. In this context, analysis of the factors influencing the market capitalization of enterprises is important for managing corporate finances.The aim of the article is to determine the most significant factors of the micro- and macroeconomic environment that influence the capitalization of Ukrainian enterprises based on the example of energy enterprises through correlation-regression analysis and to suggest ways to improve corporate management and algorithms for taking into account economic factors in the strategy of growth of market capitalization. The article explains the relationship between macroeconomic indicators of Ukraine's development, financial condition of enterprises and their market capitalization based on factor and correlation analysis. A mathematical model is constructed, which shows the influence of the main macroeconomic factors and financial condition of economic entities (enterprises of the energy sector of Ukraine) on the level of their market capitalization (5 latent factors determine the level of enterprises capitalization by 93.8%). An algorithm for determining and taking into account the impact of the economic environment on the market capitalization of enterprises can improve the quality of corporate company management in the context of increasing their market capitalization are suggested.

Proposals on the need to develop a corporate governance system in the corporate sector as a guarantee of market capitalization growth are developed.In particular, a functional model of corporate governance is proposed. The use of the model will ensure the formation of an effective stable and flexible organizational structure of management, regulate the interaction between management and shareholders, will form the appropriate corporate culture and image of the company, as well as ensure the appropriate level of financing, effective dividend policy,

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high-quality management of the property and securities of the company, its financial results, investments and risks.

Keywords: capitalization, corporate management, market value, mathematical model, economic environment.

JEL Classification G32, C33

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МОДЕЛЮВАННЯ ВПЛИВУ ЧИННИКІВ ЕКОНОМІЧНОГО СЕРЕДОВИЩА НА РИНКОВУ ВАРТІСТЬ КОРПОРАЦІЙ: ПРИКЛАД УКРАЇНИ

Анотація. Капіталізація є важливим показником інвестиційної привабливості, прибутковості та стабільності підприємств у корпоративному секторі. У цьому контексті аналіз факторів, що впливають на ринкову капіталізацію підприємств, є важливим для управління корпоративними фінансами. Метою статті є визначення найважливіших факторів мікро- та макроекономічного середовища, що впливають на капіталізацію українських підприємств, на прикладі енергетичних підприємств шляхом кореляційно-регресійного аналізу і запропонувати шляхи вдосконалення корпоративного управління та алгоритмів врахування економічних факторів у стратегії зростання ринкової капіталізації. Розкрито взаємозв'язок між макроекономічними показниками розвитку України, фінансовим станом підприємств та їхньою ринковою капіталізацією на основі факторного та кореляційного аналізу. Побудовано математичну модель, яка показує вплив основних макроекономічних факторів і фінансового стану суб'єктів господарювання (підприємств енергетичного сектору України) на рівень їхньої ринкової капіталізації (п'ять прихованих факторів визначають рівень капіталізації підприємств на 93,8 %). Запропоновано алгоритм визначення і врахування впливу економічного середовища на ринкову капіталізацію підприємств, що може поліпшити якість управління компаніями корпоративного сектору в контексті збільшення їхньої ринкової капіталізації.

Розроблено пропозиції щодо необхідності розвитку системи коропративного управління в корпоративному секторі як запоруки зростання ринкової капіталізації. Зокрема, запропоновано функціональну модель корпоративного управління. Використання моделі дозволить забезпечити формування ефективної стабільної та гнучкої організаційної структури управління, регулювати взаємодію між органами управління та акціонерами, дозволить сформувати належну корпоративну культуру та імідж компанії, а також забезпечить належний рівень фінансування підприємства, реалізацію ефективної дивідендної політики, якісне управління власністю та цінними паперами компанії, її фінансовими результатами, інвестиціями та ризиками.

Ключові слова: капіталізація, корпоративне управління, ринкова вартість, математична модель, економічне середовище.

Формул: 6; рис.: 4; табл.: 5; бібл.: 26.

Introduction. The need to assess the effectiveness and efficiency of the corporate sector arises very often in the practice of financial management. The complex general criterion for effective development of an enterprise in a particular financial system appears as the level of itsmarket capitalization, since this indicator reflects the overall financial status of an enterprise and assessment of parameters relating to macro-economic development of the state.

The necessity to objectively evaluatemarket value of economic entities in the conditions of market environment occurs quite often, in particularduring investment decisions orreorganization of an entity if necessary, in the event of bankruptcy and liquidation procedures concerning the enterprise; when selling an entity as an integral property complex or selling its structural units; in case of mortgage ofpart of the property and in determining its creditworthiness; in the process of a recovery audit in assessing the recovery (reconstruction)capacity; during privatization of enterprises that are in state ownership, etc.

Considerable attention in the theory and practice of financial management is given to analysis of factors influencing market capitalization as an integral efficiency indicator of the enterprise's work (Sofat & Hiro,2011).The results of the analysis of the factors that affect the market capitalization of corporate sector enterprises can be a tool for capitalization management for managers of these entities. Therefore, the study of factors of the external and internal environment of the enterprise and modeling their impact on the value of business entities in the corporate sector is a priority in the theory and practice of financial management.

In the Western theory of analysis and in practice of applying a cost-effective approach to financial management, the main factors of increase in the value of enterprises are their effective dividend policy, increase of investment attractiveness of corporate rights, improvement of financial performance and building up reputational capital, etc (Hill, 2008).

External factors that positively affect the level of capitalization of enterprises are macroeconomic stability, moderate inflation, exchange rate stability, etc. (Chen, 2019; Gatsimbazi et al., 2018; Sagitov et al., 2019). However, the complex influence of micro- and macro indicators on the market value of economic entities is not sufficiently studied in the modern scientific literature.

Analysis of recent research and problem statement. Many works of famous scientists of the XVIII—XIX centuries were devoted to the issue of market value of enterprises.They consider capitalization as a derivative notion of the«capital», which was identified with goods and wealth at the beginning of the development of social production. The Mercantilists focused on the monetary form of capital, Jean-Baptiste Sayconsidered capital as a sum of values that enabled production (Say, 1986). Adam Smith, David Ricardo, and Karl Marx defined capital as a value that brings added value. Karl Marx pointed out that capital is labor, raw material and material products, and a certain amount of goods and means of livelihood (Marx & Engels, 1968).

In modern economic literature, the focus is on the ability of capital to bring income to its owner. In a market economy it is not possible to achieve economic growth without concentration of capital, therefore, in a classical sense, the term capitalization means the reinvestment of profits received by the firm, that is, the conversion of profits into additional capital (Andriychuk, 2005).

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Thus, taking into account the evolution of views on the concept of «capitalization» and modern approaches to its interpretation, it can be argued that capitalization reflects an assessment of the enterprise's value.

Differences in interpretation ofcapitalization of enterprises are mainly related to methods of calculation. So the evaluation of a firm value can be calculated on the basis of fixed and working capital; on the basis of market value of its shares and bonds, or based on the annual profit received.

The term «market capitalization», which is understood as the value of all shares of a joint-stock company, i. e.,the price that the market is ready to pay for a company in case of its sale, is also often used nowadays. Market capitalization is the total monetary value of all outstanding shares of a company (Chen, 2018). It differs from the value of a company (enterprise value) and does not take into account issued bonds, debts and other securities of the firm. Some scholars, referring to capitalization, mean the financial market and understand capitalization as the estimated value of securities circulating on the market.

This approach is considered correct, because a firm's value, embodied in the market value of its shares, on the one hand, can be precisely determined by available quantitative values, and, on the other hand, it includes qualitative characteristics of the firm, which affect the market value of its shares.

Along with this the influence of economic environment factors on the market value of corporationsis one of the most important issues of modern management. Sar A. K. (2019) investigated the impact of competitive advantage and risk on market performance of top 20 companies those were chosen based on their rankings on market capitalization during the financial year 2016—2017. The impact of ownership structure on market valuation of firms and stock price crash riskare also researched (Yeung & Lento, 2018); Nazir & Malhotra, 2017; Garcia-Meca & Sanchez-Ballesta, 2011). Ziegler et al. (2007) examines the effect of sustainability performance of European corporations on their stock performance, measured as the average monthly stock return from 1996 to 2001. Khan N. & Jagannathan U. K. (2019) explorethe factors related to market capitalization in Indian manufacturing firms.

Gatsimbazi et al. (2018) study the effects of macroeconomic variables on stock market exchange. Multifactor regression models that allow to obtain a quantitative assessment of closeness degree concerning the relationship between the indicators of company financial stability, profitability, turnover, liquidity and market value are developed by Sagitov R. R. et al. (2019).

The aim of the article is to determine the factors of the economic environment that affect the market value of corporations in Ukraine, based on correlation-regression analysis and modeling and formulate suggestions for improving corporate management and algorithm for assessing the impact of economic factors on the market capitalization.

Methodology. A set of methods and techniques of general scientific knowledge are used in the article, namely: analysis, synthesis and theoretical generalization are applied in order to study economic essence of market capitalization of the corporate sector enterprises. In particular, the study of the concept of «capitalization of the enterprise» is studied in historical retrospect and is distinguished from other concepts of financial theory, in particular «capital» and «value of the enterprise». System approach and situational approaches —for justifying choiceof influence factors of economic environment on the market value of corporations; factor analysis, correlation analysis and mathematical modeling — in order to identify relationships between indicators of macroeconomic dynamics, financial status of business entities and their market capitalizationare used in the article.

To study impact of the main macroeconomic factors andfinancial state of economic entities on the level of capitalization of business structures, a multivariate statistical analysis of data fromenterprises ofenergy industry was conducted (PJSC Zakhidenergo, Dniproenergo, Donbasenergo, Tsentrenergo, Kyivenergo and Ukrnafta) for the period from 2009 to 2018(Official website of The SMIDA, Official website of PJSC «DTEK»).

We chose these companies to conduct our study because it is a complete list of businesses that represent the energy sector of Ukraine. The energy sector is especially important in the socio-

economic life of the state, so the capitalization of these businesses is of great practical interest. In addition, selected companies have public financial statements, which facilitates the collection of data for analysis.

The basis of the proposed methodological approach to the study of market capitalization of enterprises is the preliminary thorough statistical analysis of financial and economic activity data and macroeconomic indicators, which allows to determine the stable growth patterns of market value of economic entitiesand to substantiate the presence of hidden (latent) factors that have impact on its formation.

The key task in developing the methodology is to determine the system of indicators of financial condition and indicators of macroeconomic development of the economy, which comprehensively characterize the market capitalization of economic entities and the ability to compare indicators used for analysis (Hill, 2008). Based on the preliminary theoretical analysis to take into account the effects of internal factors on the market value of economic entities, it is proposed to identify the following groups of indicators that characterize the financial condition of the enterprise: liquidity indicators; profitability indicators; indicators of financial stability; indicators of business activity.

Using previous studies of the impact of the external (macroeconomic) environment on the market value of enterprises, it is proposed to use the following indicators: GDP; trading volume on the securities market (total capitalization of the stock market; weighted average interest rate on loans to legal entities in national currency on an annualized basis; US dollar exchange rate according to the National Bank of Ukraine.

For factor analysis, it is recommended to use only those indicators that are included as regressors in the obtained regression model. This, on the one hand, allows us to assess the independence of indicators in the regression model, and on the other — to determine their mutual structure.

The main conceptual provisions laid down in the development of the proposed methodological approach are as follows:

- statistical analysis of data that reflectfinancial and economic activity of enterprises;
- study of existing statistical laws explaining formation ofthe enterprise market value;
- substantiation of causal links between market capitalization of enterprises and indicators that reflect influence of the financial state and macroeconomic development of Ukraine's economy.

Methodological approach to the analysis of the economic environment impact on the market value of enterprise is shown in *Fig. 1*.

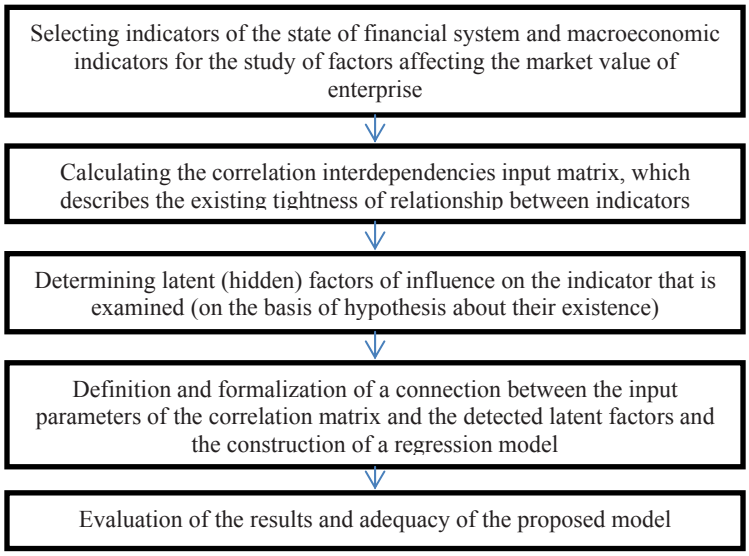

Fig. 1. **Methodological approach to analysis of the impact indicators of the financial state of enterprise and macroeconomic development on the market capitalization of enterprise**

Source: developed by the authors.

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If the output data is written as a matrix $V = (v_{ij})$, where i is a number of attribute ($1 \le i \le I$), and j is a number of observation ($1 \le j \le J$), the standardized values of the attributes can be written in the form of matrix Z, elements of which are calculated using the formula (1):

$$z_{ij} = \frac{v_{ij} - \bar{v}_i}{s_i}, \quad (1)$$

where $\bar{v}_i = \frac{1}{J}\sum_{j=1}^{J} v_{ij}$ is the average value of the observed attributes; s_i is standard deviation of the attribute v_i.

The factor model represents Z matrix of standardized observations in the form of a product (2):

$$Z = AF, \quad (2)$$

where $F = (f_{pj})_{k \times J}$ is matrix of valu ek ($k << I$) of statistically independent latent factors f_p for each observation, and $A = (a_{ip})_{I \times k}$ is a matrix offactor loads (factor pattern) that is calculated using a correlation (3):

$$R = AA^{\mathrm{T}}. \quad (3)$$

Under condition that the factors f_p are independent, the square of the coefficient a_{ip}^2 shows which fraction of the dispersion i-attribute determines the p-factor, and the sum $\lambda_p = \sum_{i=1}^{m} a_{ip}^2$ is the fraction of the aggregate dispersion of all attributes, which is predetermined by the p-factor. It should be noted that λ_p arethe first k own values of the correlation matrix R, and their sum represents the share of aggregate dispersion, which is explained by this factor model.

To select the most significant and informative indicators, the principal components method was used, for the practical implementation of which the Statistics 8.0 package was used (module Factor Analysis) (Khalafian, 2007). List of variables for the research is shown in *Table 1*.

Table 1

List of the financial status of enterpriseindicators and indicators of macroeconomic development that were analyzed to assess their impact on the level of market capitalization of enterprises

Designation of variables	Factor
logROE	Return on equity intheexamined enterprises
logBC	Volume of economic entities'borrowed capital
logEC	Amounts of formed equity capital of enterprises
logTLR	Total liquidity ratio (coverage ratio)
logEC/A	Share of equity of the enterprise in the structure of funding sources (autonomy coefficient)
logRT	Receivable turnover
logBC/EC	The ratio of borrowed and own financial resources in the balance sheet structure of the entity
logGDP	Gross domestic product of Ukraine
logTVSM	Trading volumes on the Ukrainian securities market (total market capitalization)
logWAIR	The weighted average interest rate on loans granted to legal entities in national currency on an annual basis
log$	Dollar exchange rate according to the National Bank of Ukraine

Source: developed by authors.

These ratios of financial status and macroeconomic dynamics were selected for analysis as they fully reflect the financial position of companies and changes in the macroeconomic environment of their functioning. The amounts of attracted borrowed and equity capital reflect changes in the dynamics of total business activity, since the sum serves as the balance sheet of the enterprise.

The indicator of return on capital reflects the qualitative side of the enterprise, that is, the efficiency of its operation (return on invested capital). Total liquidity ratio shows the ratio of all current assets of the entity and current liabilities (the optimal theoretical value is not less than 2.0).

Indicators of financial stability (autonomy and financial risk) reflect the structure of capital: the ratio of own and attracted capital in the formation of enterprise resources, ascertaining its dependence on various sources of funds, and, consequently, the ability to calculate financial liabilities (Shvydanenko & Shevchuk, 2007).

The chosen coefficient of accounts receivable turnover shows the business activity of the enterprise and indicates the rate funds release when settling with debtors. It is noteworthy that the tendency to increase this indicator may indicate an increase in the efficiency of management of commercial loans provided by the enterprise, as well as a reduction in the period during which the receivables remain unpaid.

The most informative indicators of economic development were selected among the macroeconomic indicators for the analysis of the impact on market capitalization: GDP, total capitalization of the Ukrainian securities market, the official US dollar rate, and the average annual interest rate of banks on loans granted to economic entities in national currency (Official website of The state statistics service of Ukraine, Official website of The National securities and stock market commission).

To determine the number of main components to be limited in the analysis, the criterion of «stone oscillation» was used: the point where the continuous fall of eigenvalues slows down, reflects only random «noise» (Verbyk, 2008).

Research results. The graph of the matrix of pair correlations eigenvalues is depicted in *Fig. 2.* The criterion of «stone oscillation» applied to it gave grounds to single out five latent factors, which account for more than 93% of the aggregate data variance (1).

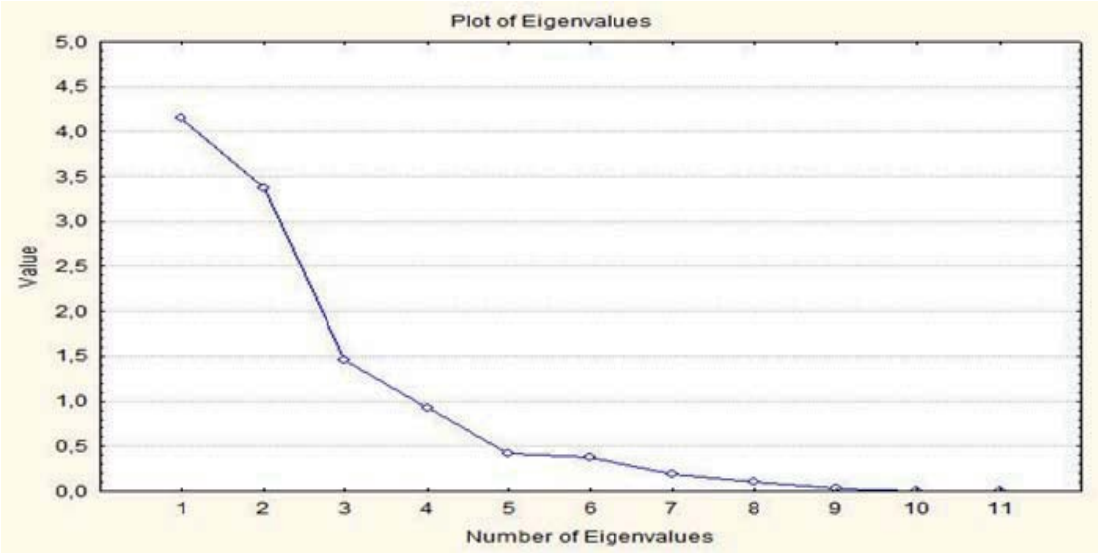

Fig. 2. **Graph of matrixof pair correlationseigenvalues**

Source: built by the authors inStatistics 8.0. (Khalafian, 2007).

The inherent values of the matrix, the percentage of their total dispersion and the cumulative percentage of aggregate dispersion are given in *Table 2.*

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Table 2

Eigenvalues of the matrixof pair correlations

Value	Eigenvalues (data.sta) Extraction: Principal components			
	Eigenvalue	% Total variance	Cumulative Eigenvalue	Cumulative %
1	4,154179	37,76526	4,15418	37,76526
2	3,373603	30,66911	7,52778	68,43437
3	1,452543	13,20493	8,98032	81,63931
4	0,918376	8,34887	9,89870	89,98818
5	0,415828	3,78026	10,31453	93,76843

Source: calculated by the authors in Statistics 8.0. (Khalafian, 2007).

The analysis of eigenvalues of the matrix confirms the feasibility of constructing a five-factor model (*Table 3*), since 5 main factors determine 93.77% of the total dispersion.

After the rotation of factors using method of normalized varimax (Method of varimax rotation), the matrix of factor loads, given in *Table 3*, is obtained.

Table 3

The factor loading matrix

Variable	Factor Loadings (Varimax normalized) (New1.sta) Extraction: Principal components (Marked loadings are >, 700000)				
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
logROE	-0,283343	0,528364	0,373530	0,496157	0,389466
logBC	0,172243	-0,115755	**0,868073**	0,047275	0,425747
logEC	0,067389	**0,917695**	0,333432	0,042129	0,138086
logTLR	0,644721	0,650032	0,011632	0,117567	-0,004703
logEC/A	-0,008766	**0,944689**	-0,179028	0,040402	-0,057525
logRT	**-0,785668**	0,102285	-0,176910	0,253771	0,391225
logBC/EC	0,037016	**-0,966387**	0,192609	-0,012947	0,119344
logGDP	-0,248430	0,043245	0,212643	0,401125	**0,825715**
logTVSM	-0,201213	0,022688	0,199597	0,428774	**0,843801**
logвWAIR	0,063780	-0,033780	-0,001614	**-0,958448**	-0,124793
Log$	-0,049151	-0,081426	0,177057	-0,163633	**0,937613**
Expl.Var	1,257565	3,404231	1,221242	1,620349	2,811140
Prp.Totl	0,114324	0,309476	0,111022	0,147304	0,255558

Source: calculated by the authors in Statistics 8.0. (Khalafian, 2007).

As can be seen from the factor loading table, practically all five latent factors influence the variable log ROE (return on equity).

Analyzing the model load (see *Table 3*), we can draw the following conclusions:

- The first latent factor that explains more than 11% of the aggregate data variance and is conditioned upon the dynamics of the variables logR (receivable turnover) and logTLR (total liquidity ratio), the factorassociated with the turnover of the receivables and its overall liquidity, can be characterized as a factor in the business activity of the enterprise.
- The second factor of the company's economic independence explains almost 31% of the aggregate dispersion and is determined by the dynamics of the variables logEC (amounts of formed equity capital) that is the amount of equity capital, logTLR (total liquidity ratio), which is the coefficient of general liquidity, log logEE/A (share of equity), the coefficient of self-financing, and logBC/OC that is the coefficient of financial risk.
- The third factor explains 11% of the data aggregate dispersion and is conditinioned upon the dynamics of logROE. This factor can be interpreted as a factor of the debt burden of the enterprise.
- The fourth model factor, explaining 15% of the aggregate dispersion, determines the weighted average interest rate on loans granted to enterprises in the national currency. This indicator can be considered as a factor of the availability of lending to enterprises.

- The fifth factor (which explains more than 25% of the aggregate dispersion) is related to the macroeconomic dynamics: volumes of Ukraine's GDP, the national currency rate, and trading volumes on the securities market; we can characterize it as a factor of the macroeconomic environment influencing the level of entities' management capitalization.

In order to evaluate the dependence of market capitalization of the researched objects on these factors, a log-linear model with panel data and fixed effects was constructed (Verbyk, 2008).

Such a model can be represented in the following way (4)

$$y_{it} = a_i + \sum_{j=1}^{k} b_j x_{it\,j} + \varepsilon_{it}. \quad (4)$$

Here y_{it} is a value of a dependent variable for the *i*-object in the period *t* ($i = 1..n$, $t = 1..T$), $x_{it\,j}$ is a value of the *j*-independent variable ($1 \le j \le k$) forthe *i*-objectin the period *t*, *b* is a vector that characterizes the boundary effectsof influences caused by independent variables on the dependent, a_i are invariables that reflect the effect of factorsspecific for *i*-object, ε_{it} are constants that reflect the action of factors specific to the *i*-object, ε_{it} is the remainder of the model.

The estimation of coefficients b_j can be obtained from the regression using data presented as the deviation from the mean by objects and the values of invariables a_i using the formula (5)

$$\hat{a}_i = \bar{y} - \sum_{j=1}^{k} b_j \bar{x}_{ij}. \quad (5)$$

The choice of independent variables in this model was made on the basis of the above multivariate statistical analysis. Regression analysis of data in the form of deviation from the average for objects was carried out in the package Statistics 8.0. The results of the analysis are presented in *Table 4*.

Table 4

Results of evaluation of the regression model parameters (Results of the coefficients calculationb)

N=66	Regression Summary for Dependent Variable: log MC (Spread sheet 2 R = ,87211657 R? = ,76058731 Adjusted R?= ,74063626 F(5,60) = 38,123 p <,00000 Std.Error of estimate: ,52320					
	Beta	**Std. Err. of Beta**	**B**	**Std. Err. of B**	**t(60)**	**p-level**
Intercept			0,00111	0,064574	0,01718	0,986346
logBC	0,114781	0,129594	0,20874	0,235684	0,88569	0,379319
logEC/A	**0,235020**	**0,092426**	**0,51345**	**0,201923**	**2,54278**	**0,013595**
logRT	0,145469	0,107636	0,18540	0,137180	1,35150	0,181610
logGDP	**0,546610**	**0,139437**	**0,91226**	**0,232712**	**3,92014**	**0,000230**
logWAIR	**-0,256853**	**0,072907**	**-1,62233**	**0,460490**	**-3,52305**	**0,000823**

Source: calculated by the authors in Statistics 8.0. (Khalafian, 2007).

Estimates of constants a_i are provided in *Table 5*.

Table 5

Estimates of constants a_i for the examined objects

Objects	Estimates of constants a_i
Dniproenergo	17,29389
Donbasenergo	16,60491
Tsentrenergo	17,13225
Kyivenergo	16,46646
Zakhidenergo	17,29253
Ukrnafta	18,20449

Source: calculated by the authors in Statistics 8.0. (Khalafian, 2007).

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Coefficient of the determination for model $R^2 = 0{,}848$, Fisher's exact test F = 6,82, and its level p = 0,000043, which indicates the adequacy of the model.

Thus, for analysis of the enterprises market capitalization level in Ukraine, an equation describing the relationship between market capitalization and the identified general factors of influence can be used (6):

$$MC_i = a_i + 0{,}20874f_1 + 0{,}51345f_2 + 0{,}18540f_3 + 0{,}91226 f_4 - 1{,}62233f_5. \quad (6)$$

Such equation makes it possible to determine the market value of an enterprise on the basis of calculated latent factors. The constructed model can be used by business entities to manage market capitalization to increase investment attractiveness in a changing economic environment.

Analysis of indicators for each factor makes it possible to provide the following interpretation: the first factor is business activity of an enterprise, the second is linked to its economic independence, the third means the debt burden of an enterprise, the fourth and fifth factors are related to availability of lending and impact of macro environment on the capitalization level of an entity's management, and all factors identified in the model affect the market capitalization of enterprises.

Assessment of impact of the selected factors on the formation of market value of economic entities showed that the level of capitalization of the analyzed enterprises depends on the identified factors by 93.77%.

As we can see from the results of the research for the analyzed Ukrainian energy companies, the level of capitalization is more related to their financial condition than to macroeconomic factors. The dividend policy of corporations does not significantly affect their capitalization.

Solving the problems of increasing the level of capitalization and improving the management system in general serves as a significant reserve for optimizing functioning of any business structure in modern conditions (Gyimah et al., 2021).

In our opinion, in order to achieve the goal of increasing the capitalization of joint stock companies it is necessary:

- develop corporate management, which will allow to attract financial resources from the stock market for the development of enterprises in the corporate sector and increase their capitalization;
- ensure an adequate level of shareholders rights and interests protection, in particular minority shareholders;
- improve algorithms of information disclosure and ensure transparency of ownership structure;
- assess comprehensively the economic environment impact on capitalization management. Algorithm for developing strategies to increase the capitalization of enterprises taking into account the external environment is shown on *Fig. 3*.

An important prerequisite for the capitalization level increase is a quality of corporate management system. Significant attention to the problem of corporate management in modern conditions in Ukraine and in the world is explained by the fact that business structures with effective corporate management are more financially stable, more competitive and provide higher returns for shareholders.

Note that the quality of corporate management is a significant intangible asset of the company, which increases its market value and investment attractiveness, and increases the guarantee of hired top management discipline.

Corporate management should be built taking into account the need for compromises between shareholders, top managers and creditors (Berk et al., 2014).

A proper level of corporate management prevents greenmail, falsification of documents, in particular financial documents and buying shares from minority shareholders which in turn provides the opportunity to increase market value, improve the quality of management and level of the financial security of the entity (Elkelish, 2018).

It can be stated, that the coordination of administrative corporate relationships actions, the establishment of corporate relations between different groups of their participants and the effectiveness of the corporate control system virtually determines all conditions of financial and economic activity of enterprises (Gard et al., 2018).

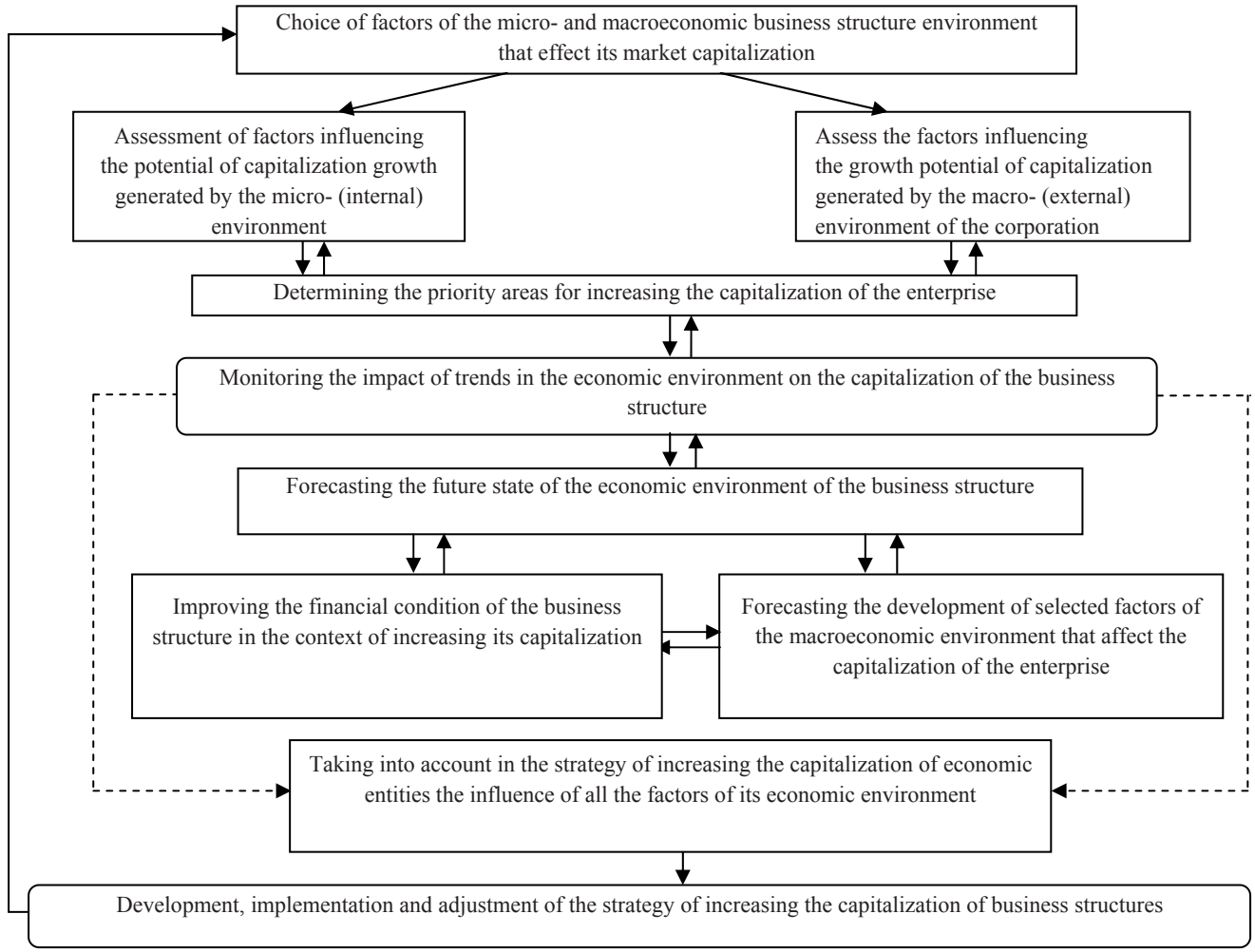

Fig. 3. **Algorithm for developing strategies to increase the capitalization of enterprises taking into account the external environment**

Source: developed by the authors.

In our opinion, an effective model of corporate management for the company involves functioning of a set of financial and economic, organizational, legal and social and communicative components under the conditions of the appropriate level of internal corporate control and compliance with the principles of corporate management (*Fig. 4*). The functional model of corporate management primarily determines the organizational structure of the joint stock company, which ensures the functioning of the company through the adoption and implementation of management decisions and coordination of all levels of management hierarchy in the process of increasing capitalization.The financial component involves creating conditions for sufficient financing of the business structure, in particular through the use of stock market instruments, the implementation of effective dividend policy and increasing market value of the company through flexible management of company's shares, profits, risks and investments.

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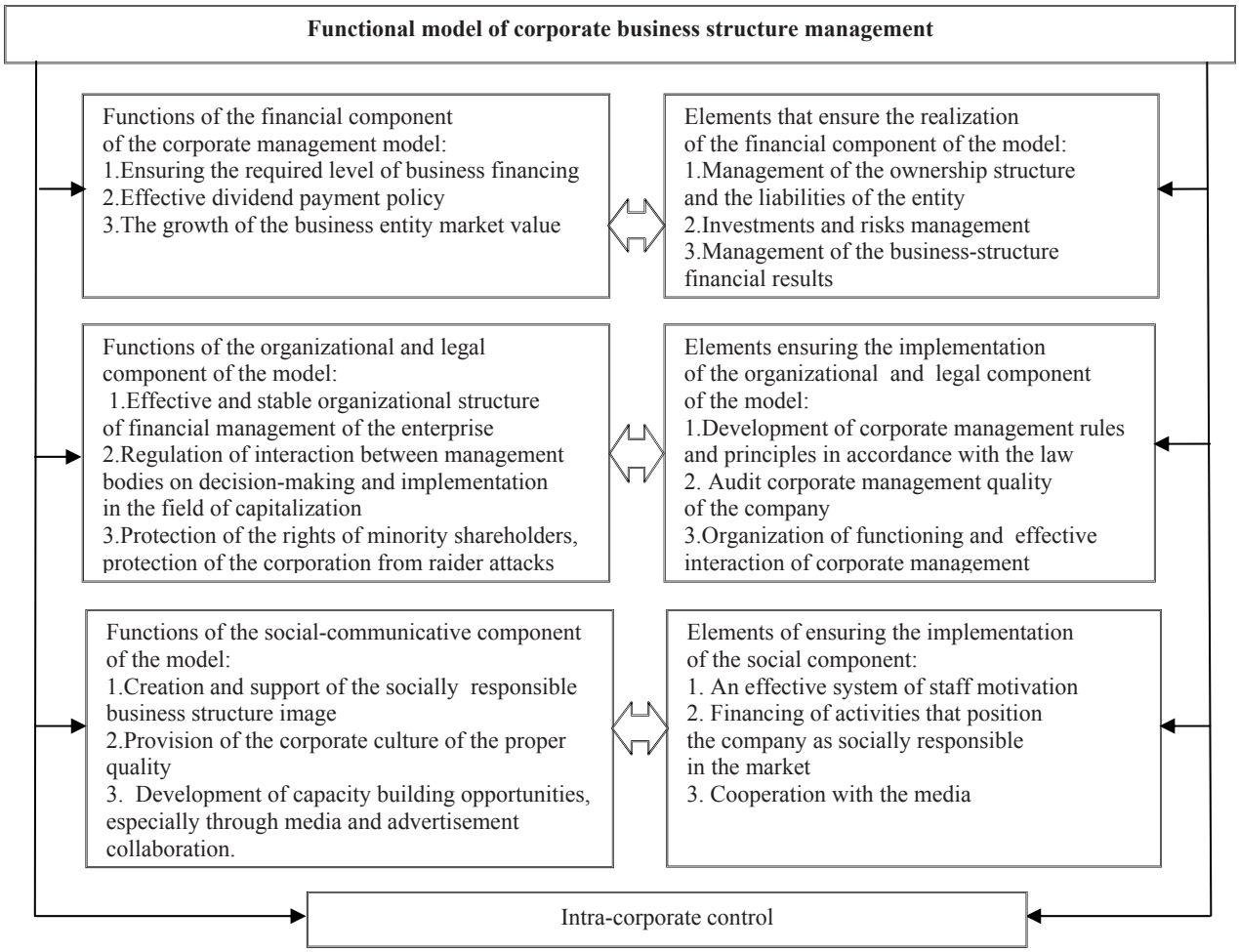

Fig. 4. **Functional model of corporate management**

Source: developed by the authors.

The organizational and legal component allows ensuring the functioning of reliable corporate management, taking into account the need for flexible planning in the enterprise, determines the rules of interaction between the company's management bodies and defines procedures for protecting shareholders' rights in corporate conflict resolution.

Functioning of the social and communicative component of the functional model of corporate management is aimed at forming a quality corporate culture and effective cooperation with the media to create a positive image and position the company as socially responsible, as well as motivating staff, including top management (Pevzner et al., 2015).

On the whole, the high quality of corporate management, which presupposes the interests of all owners of corporate rights protection, openness and transparency of the company's financial activities and the appropriate level of control is a signal of high investment attractiveness of the company, it determines its competitiveness and allows increasing market capitalization of the entity.

Conclusions. To increase the level of market capitalization, Ukrainian enterprises need to comprehensively assess the opportunities and threats of the economic environment, improve corporate management, in particular in financial, organizational, legal and social-communicative aspects and actively enter foreign financial capital markets to increase business transparency.Market capitalization of selected enterprises for the analyzed period depended most on the economic independence of enterprises, their debt load and macroeconomic dynamics. To increase capitalization, these corporations must increase liquidity, receivables turnover and increase equity. Among the macroeconomic factors, the level of capitalization of enterprises is positively affected by the reduction of interest rates on loans, growth of Ukraine's GDP, stability of the national currency exchange rate and increase in trading volumes on the securities market.

The conducted analysis shows the significant influence of the initial indicators, selectedfor the analysis, on the existing general factors of influence, which provides the possibility of practical use of the obtained regressive dependencies to determine the value of common factors, which are the functions of financial and economic indicators, selected for the analysis.

The results of the study allow to state that in market conditions for any enterprise, the dynamics of market value is one of the main criteria of the enterprise management quality and efficiency and it depends on the financial condition of the business entity and certain macro indicators. It can be argued that monitoring and controlling the market value of an enterprise in the modern conditions of management is a way of ensuring investment attractiveness and competitiveness in the future.

Література

1. Sofat R., Hiro P. Strategic Financial Management. New Delhi : PHI Learning Pvt. Ltd., 2011.
2. Hill R. A. Strategic Financial Management. *Author Finance & Ventus Publishing ApS.* 2008. URL : https://books.google.com.ua/books?hl=uk&lr=&id=g9IoKBmf3IC&oi=fnd&pg=PA8&dq=Strategic+Financial+Management&ots=AyKkJF4ph&sig=6EFlssm2X5NYVluonN0LJIhakZs&redir_esc=y#v=onepage&q=Strategic%20Financial%20Management&f=false.
3. Chen J. Market capitalization. 2020. URL : https://www.investopedia.com/terms/m/marketcapitalization.asp.
4. Gatsimbazi I., Jaya S., Mulyungi P., Ochieng A. Effects of macroeconomic variables on stock market performance in Rwanda, Case study of Rwanda Stock Exchange. *European Journal of Economic and Financial Research.* 2018. № 3 (1). P. 104—125.
5. Sagitov R. R., Usanova D. S., Kirpikov A. N., Meleshenko S. S. Market capitalization modeling of petrochemical enterprises on the basis of multifactorial regression models. *International Journal on Emerging Technologies.* 2019. № 10 (2). P. 196—200.
6. Say J.-B. A Treatise on Political Economy. Batoche Books Kitchener, 2001.
7. Marx K., Engels F. Works (2nd ed., Vol. 25). Moscow : Politizdat,1968.
8. Андрійчук В. Г. Капіталізація вітчизняного сільського господарства: суть, напрями, механізми і перші оцінки здійснення. *Економіка АПК.* 2005. № 7. С. 69—74.
9. Sar A. K. Impact of Competitive Advantage and Risk on Market Performance : A Study of Top 20 Companies as per Market Capitalization. *Indian Journal of Finance.* 2019. № 13 (4). P. 36.
10. Yeung W. H., Lento C. Ownership structure, audit quality, board structure, and stock price crash risk: Evidence from China. *Global Finance Journal.* 2018. № 37. P. 1—24.
11. Nazir N., Malhotra A. K. The Effect of Ownership Structure on Market Valuation of Firms in India: Evidence from BSE-100 Index Companies. *Academy of Accounting and Financial Studies Journal.* 2017. № 21 (1). URL : https://www.abacademies.org/articles/the-effect-of-ownership-structure-on-market-valuation-of-firms-in-india-evidence-from-bse100-index-companies-6562.html.
12. Garcia-Meca E., Sanchez-Ballesta J. P. Firm value and ownership structure in Spanish capital market. *Corporate Governance.* 2011. № 11 (1). P. 41—53.
13. Ziegler A., Schröder M., Rennings K. The effect of environmental and social performance on the stock performance of european corporations. *Environmental and Resource Economics.* 2007. № 37 (4). P. 661—680. URL : https://link.springer.com/article/10.1007/s10640-007-9082-y.
14. Khan N., Jagannathan U. K. A study on factors related to market capitalization in Indian manufacturing firms. *Indian Journal of Finance.* 2019. № 13 (12).
15. Офіційний сайт Агентства з розвитку інфраструктури фондового ринку України. URL : https://smida.gov.ua.
16. Офіційний сайт ПАТ «ДТЕК». URL : http://www.dtek.com.
17. Халафян А. А. Statistica 8. Статистический анализ данных : учебник. Москва : Бином-Пресс, 2007. 512 с.
18. Швиданенко Г. О., Шевчук Н. В. Управління капіталом підприємства : навч. посібник. Київ : КНЕУ, 2007. 440 с.
19. Офіційний сайт Державної служби статистики України. URL : www.ukrstat.gov.ua.
20. Офіційний сайт Національної комісії з цінних паперів і фондового ринку. URL : www.nsmsc.gov.ua.
21. Вербик М. Путеводитель по современной эконометрике. Москва : Научная книга, 2008. 616 с.
22. Gyimah D., Kwansa N. A., Kyiu A. K., Sikochi A. Multinationality and capital structure dynamics: A corporate governance explanation. *International Review of Financial Analysis.* 2021. № 76.
23. Berk J., Demarzo P., Harford J., Ford G., Mollica V., Finch, N. Fundamentals of Corporate Finance. Pearson, 2014.
24. Elkelish W. W. Corporate governance risk and the agency problem.*Corporate Governance.* 2018. № 18 (2). P. 254—269.
25. Gard J., Katzy B., Andersen T. J., Baltes G. H., Gasser, T. Corporate Venture Management in Small-Medium Sized Enterprise.*IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC).* Stuttgart, Germany, 2018. P. 1—10.
26. Pevzner M., Xie F., Xin X. When firms talk, do investors listen? The role of trust in stock market reactions to corporate earnings announcements. *Journal of Financial Economics.*2015. № 117 (1). P. 190—223.

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References

1. Sofat, R., & Hiro, P. (2011). *Strategic Financial Management.* New Delhi: PHI Learning Pvt. Ltd.
2. Hill, R. A. (2008). Strategic Financial Management. *Author Finance & Ventus Publishing ApS.* Retrieved from https://books.google.com.ua/books?hl=uk&lr=&id=g9IoKBmf3IC&oi=fnd&pg=PA8&dq=Strategic+Financial+Management&ots=AyKkJF4ph&sig=6EFlssm2X5NYVluonN0LJIhakZs&redir_esc=y#v=onepage&q=Strategic%20Financial%20Management&f=false.

ISSN 2306-4994 (print); ISSN 2310-8770 (online)

3. Chen, J. (2020). Market capitalization. Retrieved from https://www.investopedia.com/terms/m/marketcapitalization.asp.
4. Gatsimbazi, I., Jaya, S., Mulyungi, P., & Ochieng, A. (2018). Effects of macroeconomic variables on stock market performance in Rwanda, Case study of Rwanda Stock Exchange. *European Journal of Economic and Financial Research, 3* (1), 104—125.
5. Sagitov, R. R., Usanova, D. S., Kirpikov, A. N., & Meleshenko, S. S. (2019). Market capitalization modeling of petrochemical enterprises on the basis of multifactorial regression models. *International Journal on Emerging Technologies, 10* (2), 196—200.
6. Say, J.-B. (2001). A Treatise on Political Economy. Batoche Books Kitchener.
7. Marx, K., & Engels, F. (1968). Works (2nd ed., Vol. 25). Moscow: Politizdat.
8. Andriychuk, V. G. (2005). Kapitalizatsiia vitchyznianoho silskoho hospodarstva: sut, napriamy, mekhanizmy i pershi otsinky zdiisnennia [Capitalization of domestic agriculture: the essence, directions, mechanisms and first assessments of implementation]. *Ekonomika APK — Economy of Agroindustrial Complex, 7,* 69—74 [in Ukrainian].
9. Sar, A. K. (2019). Impact of Competitive Advantage and Risk on Market Performance: A Study of Top 20 Companies as per Market Capitalization. *Indian Journal of Finance, 13* (4), 36. doi:10.17010/ijf/2019/v13i4/143126.
10. Yeung, W. H., & Lento, C. (2018). Ownership structure, audit quality, board structure, and stock price crash risk: Evidence from China. *Global Finance Journal, 37,* 1—24. doi:10.1016/j.gfj.2018.04.002.
11. Nazir, N., & Malhotra, A. K. (2017). The Effect of Ownership Structure on Market Valuation of Firms in India: Evidence from BSE-100 Index Companies. *Academy of Accounting and Financial Studies Journal, 21* (1). Retrieved from https://www.abacademies.org/articles/the-effect-of-ownership-structure-on-market-valuation-of-firms-in-india-evidence-from-bse100-index-companies-6562.html.
12. Garcia-Meca, E., & Sanchez-Ballesta, J. P. (2011). Firm value and ownership structure in Spanish capital market. *Corporate Governance, 11* (1), 41—53.
13. Ziegler, A., Schröder, M., & Rennings, K. (2007). The effect of environmental and social performance on the stock performance of european corporations. *Environmental and Resource Economics, 37* (4), 661—680. Retrieved from https://link.springer.com/article/10.1007/s10640-007-9082-y.
14. Khan, N., & Jagannathan, U. K. (2019). A study on factors related to market capitalization in Indian manufacturing firms. *Indian Journal of Finance, 13* (12). doi:0.17010/ijf/2019/v13i12/149268.
15. Ahentstvo z rozvytku infrastruktury fondovoho rynku Ukrainy. (n. d.). Ofitsiinyi sait [Official website]. Retrieved from https://smida.gov.ua [in Ukrainian].
16. PAT «DTEK». (n. d.). *Ofitsiinyi sait [Official website]*. Retrieved from http://www.dtek.com [in Ukrainian].
17. Khalafian, A. A. (2007). *Statisticheskiy analiz dannykh [Statistical data analysis]*. Moscow: Binom-Press [in Russian].
18. Shvydanenko, H. O., & Shevchuk, N. V. (2007). *Upravlinnia kapitalom pidpryiemstva [Enterprise capital management]*. Kyiv: KNEU [in Ukrainian].
19. Derzhavna sluzhba statystyky Ukrainy. (n. d.). *Ofitsiinyi sait [Official website]*. Retrieved from www.ukrstat.gov.ua [in Ukrainian].
20. Natsionalna komisiia z tsinnykh paperiv i fondovoho rynku. (n. d.). *Ofitsiinyi sait [Official website]*. Retrieved from www.nsmsc.gov.ua [in Ukrainian].
21. Verbyk, M. (2008). *Putevoditel po sovremennoi ekonometrike [Guide to modern econometrics]*. S. A. Aivaziana. (Ed.). (V. A. Bannikova, Trans.). Moscow: Nauchnaia kniga [in Russian].
22. Gyimah, D., Kwansa, N. A., Kyiu, A. K., & Sikochi, A. (2021). Multinationality and capital structure dynamics: A corporate governance explanation. *International Review of Financial Analysis, 76.* doi:10.1016/j.irfa.2021.101758.
23. Berk, J., Demarzo, P., Harford, J., Ford, G., Mollica, V., & Finch, N. (2014). Fundamentals of Corporate Finance.Pearson.
24. Elkelish, W. W. (2018). Corporate governance risk and the agency problem. *Corporate Governance, 18* (2), 254—269. doi:10.1108/CG-08-2017-0195.
25. Gard, J., Katzy, B., Andersen, T. J., Baltes, G. H., & Gasser, T. (2018). Corporate Venture Management in Small-Medium Sized Enterprise. *IEEE International Conference on Engineering, Technology and Innovation (ICE/ITMC).* (pp. 1—10). Stuttgart, Germany. doi:10.1109/ICE.2018.8436280.
26. Pevzner, M., Xie, F., & Xin, X. (2015). When firms talk, do investors listen? The role of trust in stock market reactions to corporate earnings announcements. *Journal of Financial Economics, 117* (1), 190—223. doi:10.1016/j.jfineco.2013.08.004.

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