Identifying patterns of interest in the topic of managing equity capital of the enterprise

Abstract. Increasing attention to the issues of finding tools to meet the defined needs and interests of investors determines the relevance of the development of the goals of managing equity capital of the enterprises. The goal of the study was to formulate recommendations for determining the patterns of interest in the management of equity capital of the enterprise. The research methodology is based on the use of theoretical and empirical methods, in particular methods of Internet resource analysis, forecasting, decision support system Decision Making Helper, etc. During the analysis of interest in the topic of managing equity capital of the enterprise in English, the tools of the Google Trends web application were used. On the basis of these data, predictive models of trend lines for the concepts of "equity capital of the company" and "equity capital of the enterprise" were built, which have a satisfactory approximation reliability value and can be used to identify patterns of interest in the topic of enterprise equity management. However, the frequency of search queries for these terms in the Ukrainian language in the world and in Ukraine, starting from 2015, was very low. The assessment of alternative key goals of financial management of equity capital of the enterprise was carried out using the decision support system Decision Making Helper. The priority of ensuring the effective structure of equity capital of the enterprise and the proper level of its capitalisation was determined as the top priority. The practical significance lies in the developed recommendations that can be applied in assessing the relevance among users of Internet resources of information related to equity capital of the enterprise, and in assessing the key goals of financial management of equity capital of the enterprise in order to improve their functioning.

Keywords: business entity; company; search query; assessment; own funds

INTRODUCTION

There is no doubt about the actualisation of the issues of management of equity capital of enterprises as an element of structural transformation of national economies of all countries of the world, especially under the influence of crisis phenomena of international nature, the outbreak of SARS-CoV-2 (COVID-19) and other crisis manifestations. Increasing attention to the issues of finding tools to meet the defined needs and interests of investors determines the relevance of the development of the goals of managing equity capital of enterprises.

The strengthening of the influence of crisis phenomena on various spheres of activity of enterprises determines...
the need to study the issues of managing equity capital of the enterprise, as one of the key elements of the development of the country’s economy, entrepreneurship and business activity.

The introduction of the goals of managing equity capital of enterprises and the development of the policy of managing equity capital of enterprises is a European integration vector, as it corresponds to the basic principles and implements them in accordance with the Directive of the European Parliament and the Council (EU) 2017/1132 of June 14, 2017 on some aspects of corporate law (codification) (Directive..., 2017).

Also, the issues of improving the process of assessing the level of interest and the degree of spread of the topic of the equity capital of the enterprise are being updated. The scientific works of scientists are devoted to the issue of the influence of equity capital of enterprises on business activity, development of the economy of countries and search for innovative solutions for its management in the conditions of global socio-economic changes.

The issue of studying the impact of various criteria on the financial decision-making process, in particular, the mobilisation of financial capital for sustainable development, was studied by J. Sandberg & D. Rönnegard (2020). P. Rao et al. (2019) in their work study the basic modern globalisation challenges and how they affect the study of factors that influence the capital structure decisions of small and medium-sized enterprises (SMEs) in India. In their research, M.I. Karlin et al. (2021) emphasize the need for a detailed and in-depth analysis of new threats and crises in functioning of small enterprises in the context of the systemic impact on their finances.

Foreign scientists A.J. Hibbert & C.J. Turnbull (2020) in their scientific activities pay considerable attention to the applied aspects of identifying and managing risks in the development of small enterprises. A. Bartik et al. (2020) and M. Belitski et al. (2022) study the impact of the COVID-19 pandemic on the financial performance of small businesses and recommend possible ways to overcome them.

It is advisable to pay attention to the scientific works of N.M. Vnukova (2020), which are based on the application of the innovative approach to the use of the automated decision support system (hereinafter – DSS) Decision Making Helper to assess the level of activation of expanding access to the means of financing the implementation of promising projects of small and medium-sized businesses.

However, given the considerable number of scientific developments, not enough attention is paid to assessing the level of interest and demand for information on managing equity capital among users, as well as improving practical ways of assessing the key goals of its management.

The object of the study is the equity capital of the enterprise. The ability and effectiveness of the management of equity capital of the enterprise depend on informational, normative, methodical, analytical and other support, which is the basis for determining its level. It is advisable to pay special attention to analytical support, in particular, to assess the degree of interest of users in the subject of equity capital of the enterprise using the Google Trends web application, which allows you to set current trends and DSS Decision Making Helper for assessing the key goals of financial management of the equity capital of the enterprise.

The goal of the work is to provide recommendations for identifying patterns of interest in the topic of managing equity capital of the enterprise. In accordance with the set goal, the following tasks must be solved in the research process: determine the level of interest of users of Internet resources in information related to the concept of “equity capital of the company” and “equity capital of the enterprise” using Google Trends; use the DSS Decision Making Helper to make optimal decisions when assessing the level of importance of the key goals of financial management of equity capital of the enterprise.

The novelty is the improvement of the process of assessing the level of interest and the degree of spread of the topic of equity capital of the enterprise using the tools of the Google Trends search engine and the improvement of the decision-making process regarding the selection of key goals of the financial management of the equity capital of the enterprise using the DSS Decision Making Helper.

### MATERIALS AND METHODS

The research methodology is based on the application of theoretical and empirical methods of scientific research.

Since it is important to pay enough attention to the research of the general trends of the level of interest of users in the topic of equity capital management, to assess the demand for this area according to the criteria of prevalence, the method of analysing Internet resources using the tools of the Google Trends public web application of Google was used for this purpose.

This public web application Google Trends has certain benefits to use. It is based on the Google search engine and shows how often a given term is searched for in relation to the total volume of queries in various regions of the world and in different languages (Kliuiev et al., 2022). However, the process of assessing the level of interest in Google Trends can be a bit laborious (Achkasova, 2020).

At the beginning of the study, Ukrainian and English languages were selected in order to analyse the interest of various stakeholders in the search for information related to the concept of “equity capital of the enterprise” and derived from this definition “equity capital of the company”. The management function applied to equity capital of the enterprise did not yield search results for the studied concepts, as well as the use of queries in the Ukrainian language. Because the search queries were very small and did not show up in the public web application Google Trends. In the further stages of the research, only the English language was chosen. All operations for the formation of the statistical base were carried out as of November 2022. During the study of statistical data of user search queries for the analysed concepts “equity capital of the company” and “equity capital of the enterprise” in English, obtained in the web application Google Trends, the method of statistical analysis and generalisation was applied in order to establish patterns of interest in the subject of equity capital of the enterprise.

The use of the graphic method in combination with the method of forecasting based on the construction of trend lines (Achkasova et al., 2022) made it possible to build models of forecasting the level of interest of users in the
topic of equity capital of the enterprise. This made it possible to visualise the number of search queries according to the studied concepts. The built models for forecasting the level of interest of users in the subject of equity capital of the enterprise must be qualitative and reliable, which can be evidenced by trend lines with a satisfactory value of the coefficient of determination R².

The deduction method was used to collect information about the essence of equity capital and the goals of its management. The expert ranking method was used in the process of extrapolation of the influence of criteria in the process of making optimal decisions when assessing the level of importance of the key goals of financial management and the policy by equity capital of the enterprise.

For the automated selection of the best alternative for the key goals of the financial management of equity capital of the enterprise, the software product DSS Decision Making Helper was used.

According to the terms of DSS Decision Making Helper, determination of the level of importance of criteria and assessment of alternatives is carried out through the necessary ranking assessment: from (-5) “most unimportant” to (+5) “most important”, 0 – neutral (Decision making helper, n.d.).

The assessment of the most important goals of the enterprise equity capital management was carried out using the DSS Decision Making Helper. The following selection criteria are highlighted: timeliness; security; performance. The following were subject to assessment: block A – Ensuring an effective structure of the enterprise equity capital and the proper level of its capitalisation, block B – Increasing the market value of the enterprise, ensuring the financial stability and efficiency of the enterprise activity, block C – Creating protection against risks and managing the processes of mergers and/or takeovers of the enterprise-target.

This program is available to users of Internet resources and is automated in terms of calculations. It is based on determining coefficients of significance of the selected criteria and alternatives, as well as a comparison of experts’ judgments, which greatly reduces the subjectivity of their opinions. This made it possible to obtain excellent results, among which the highest priority was chosen in the process of assessing the level of importance of the key goals of the financial management of the enterprise equity capital based on such criteria as timeliness, security and effectiveness.

### RESULTS AND DISCUSSION

Assessment of the level of interest of Internet resources users in the concept of “equity capital of the company” and “equity capital of the enterprise” using web application Google Trends

The development of the sphere of entrepreneurship and enterprises serves as the basis for the development of the economy of any country. The influence of globalisation changes is exercised on all spheres of activity, in particular on the policy of managing equity capital. The interest of shareholders in the effective management of equity capital of the enterprise under the influence of globalisation changes serves as the basis for the search of new tools and technologies for making appropriate decisions.

However, it is worth noting that any entrepreneurial activity is associated with risk. It acts as an element that, on the one hand, is characterised as an opportunity for development, and on the other, as a threat with the necessity to find solutions to avoid it (Kosovich & Dmitruk, 2020). And risks are inherent in the field of equity capital management. Therefore, in all spheres of enterprise activity, the topic of equity capital management is becoming more and more important, and therefore determining the degree of prevalence and interest of users in this direction can indicate its interest and prospects for further research among representatives of the scientific community and practitioners.

Currently, there is no single approach to defining the concept of financial capital, in particular equity capital, which is related to the process of its formation (Rao et al., 2019). According to the authors, a fairly complete and meaningful interpretation of equity is that it is a set of elements that establish the system of financing the assets of a business entity, the functioning of which is determined by the degree of development of economic relations, property relations and the competitive environment and is characterised by the properties of self-increasing value (Dorosh & Snizhko, 2019). At the same time, modern financiers often deviate in their formulations from the stable characteristics of equity capital, which shows the part of the enterprise property that is financed by the owners’ funds and by the equity capital of the enterprises (Koval & Bolekhivska, 2019).

The interest of various users in learning information related to the concepts of “equity capital of the company” and “equity capital of the enterprise” in English was analysed, considering their search queries in terms of countries with the highest frequency of search queries, starting from 2015 (Table 1).

<table>
<thead>
<tr>
<th>Country</th>
<th>“equity capital of the company”, %</th>
<th>“equity capital of the enterprise”, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Philippines – 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>India – 72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya – 65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States of America – 34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia – 29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pakistan – 21</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canada – 15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United States of America – 12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philippines – 100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>India – 51</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Source:** developed by authors based on Google trends (n.d.)
The data obtained in Table 1 show that, taking into account the linguistic features of each country in the world, the concept of "equity capital of the enterprise" in English is of interest to 100% of users from the Philippines, 21% of users from India, and 12% of users from the United States of America. At this stage, it is appropriate to present the distribution of their search queries, which is carried out later in the research. Demand for information on the concept of "equity capital of the company" in English was found in the following countries: Philippines – 100%, India – 72%, Kenya – 63%, United States of America – 34%, Malaysia – 29%, Pakistan – 21%, Canada – 15%. When comparing the dynamics of the popularity of the term "enterprise's own risk" in the world in English using Google Trends tools, the demand of users in the search for information was established (Fig. 1).

In order to obtain a greater visualisation of user search queries in the world for the concepts under study "equity capital of the company" and "equity capital of the enterprise" in English, the distribution diagrams for each of the concepts are presented and the building of qualitative and reliable approximation functions are presented, Figures 1 and Figure 2 in accordance.

![Figure 1](image1.png)

**Figure 1.** Predicting the degree of interest of users in the concept of "equity capital of the company" in the world in English, based on data from January 2015 to October 2022

*Source:* built by authors based on Google trends (n.d.)

The trend lines with a 12-month forecast were added to the distribution charts to establish trends and model the degree of interest of users of Internet resources in the terms under study. However, both for the concept of "equity capital of the company" and for the concept of "equity capital of the enterprise" in Ukrainian in the world and in Ukraine, according to data based on search queries, since 2015, the frequency of search queries has been very low. This made it impossible to analyse the frequency of these search queries and build predictive models.

After considering the data in Figure 1, it can be noted that, taking into account the search queries of users from different countries, there is the special tendency towards a mostly continuous and stable increasing interest in
studying information related to the concept of "equity capital of the company". Starting from January 2015, more and more frequent searches for information related to this topic were carried out every month, and the number of searches did not reach zero. This is caused by a series of crises phenomena in the world, which caused the need of users from countries around the world for a more detailed analysis of the issues of managing equity capital of the company.

The graph shows that the rapid growth of interest in the concept of "equity capital of the company" took place in October 2020, when the active spread of the SARS-CoV-2 (COVID-19) outbreak began and the economic condition of many companies was in a state of crisis.

The graph presented in Figure 2 shows a positive stable trend of search queries regarding the term "equity capital of the enterprise" since January 2015. This may be related to the understanding of English-speaking users, among whom we should distinguish academics, practitioners etc., of the relevance of issues of the equity capital of the enterprise in various spheres of activity. As per the data in Figure 2, since April 2020, there has been an increase in the demand for research on equity capital of the enterprise in English, which can be explained by the spread of the corona crisis.

It should also be noted that starting from February 2022, the interest of users in searching for information regarding the category "equity capital of the enterprise" began to grow actively due to the unfolding of conflicts at the international level.

After analysing the built trend lines for the terms "equity capital of the company" and "equity capital of the enterprise" in Figures 1-2, it can be concluded that they are adequate and reliable, because the value of the coefficient of determination R² exceeds 0.70 and is 0.704 and 0.7325 respectively. This indicates that, based on the obtained models, it is possible to make a forecast of demand among users of information related to the studied concepts.

Approximation functions obtained from the built trend lines, which confirm the significance of the results of forecasting users’ search queries in the world according to the analysed concepts in the English language, are shown in Table 2.

### Table 2. Approximation functions of the studied concepts in English according to the search query data

<table>
<thead>
<tr>
<th>Concept</th>
<th>Approximation function</th>
<th>Reliability of approximation</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;equity capital of the company&quot;</td>
<td>y=0.0112x^2-0.4226x+15.223</td>
<td>R²=0.7325</td>
</tr>
<tr>
<td>&quot;equity capital of the enterprise&quot;</td>
<td>y=0.0016x^2-0.0661x+1.1923</td>
<td>R²=0.7040</td>
</tr>
</tbody>
</table>

**Source:** built by authors based on Google trends (n.d.)

As it can be seen in Table 2, the built trend line models of the studied concepts based on the data of user queries in the world in the information and search system Google have a satisfactory value of the coefficient of determination R², which for the concept "equity capital of the company" is 0.7325, and for the term "equity capital of the enterprise" − 0.7040.

Thus, the distribution shown in Figures 1-2 demonstrates a consistent increase in interest in the topic of equity capital with growth since 2020, which may indicate a certain reassessment of the importance of a more thorough and detailed analysis of the causes, consequences and methods of managing equity capital of enterprises in various sectors of the economy.

Using DSS Decision Making Helper to make decisions in the field of making optimal decisions or assessing the level of importance of the key goals of financial management of equity capital of the enterprise, it is worth noting that the global trend is to increase the level of interest of users in issues of equity capital of the enterprise, which is determined taking into account linguistic features.

Modern globalisation and integration processes expand their network of influence every year, forming new challenges and requirements, which causes entrepreneurs’ concern as to increasing uncertainty and instability in the global business space (Karlin et al., 2021).

Therefore, the successful adaptation of enterprises to modern realities of doing business on national and international markets requires effective regulatory mechanisms (Shapiro & Borie-Holtz, 2020). Taking into account the definition of the essence of equity capital of the enterprise through the prism of financing its assets, which is determined by the level of development of relations and the growth of the enterprise value, the blocks of goals of managing equity capital of the enterprise are proposed.

The results of determining the level of importance of the criteria when choosing the best among the specified alternatives, as well as assessing the key goals of financial management of equity capital of the enterprise, are given in Table 3.

### Table 3. Determination of the level of importance of the key goals of financial management of equity capital of the enterprise

<table>
<thead>
<tr>
<th>Criterion/weight</th>
<th>Unit A</th>
<th>Unit B</th>
<th>Unit C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term (+5)</td>
<td>+5</td>
<td>+4</td>
<td>+4</td>
</tr>
<tr>
<td>Security (+4)</td>
<td>+5</td>
<td>+4</td>
<td>+4</td>
</tr>
<tr>
<td>Effectiveness (+5)</td>
<td>+5</td>
<td>+4</td>
<td>+5</td>
</tr>
</tbody>
</table>

**Source:** developed by the authors using a Decision Making Helper (n.d.)

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Based on the data given in Table 3, determined by the method of expert ranking, the data are entered in the DSS Decision Making Helper (Fig. 3).

Based on the data presented in Figure 3, the DSS Decision Making Helper provides final results for decision-making regarding the selection of the key goals of financial management of equity capital of the enterprise (Figures 4-6). It is worth noting that this software product automatically calculates the decision value for each regulatory mechanism in percentages from (-100%) to (+100%) and on the scale: “unsatisfactory / quite unsatisfactory / neutral / quite positive / positive” (Kliuiev et al., 2022).
Using DSS Decision Making Helper provides such advantages as decision-making automation and the possibility of determining the priority of these decisions.

Based on the results of the analysis of the obtained results in Figures 3-6, it can be concluded that the most appropriate alternative, which would contribute to the realisation of the goals of financial management of equity capital of the enterprise, is Unit A “Ensuring an effective structure of equity capital of the enterprise and the proper level of its capitalisation”. This is especially important, because the crisis phenomena in the Ukrainian economy caused a decline in the manufacturing industry. Due to the growth of competition on the Ukrainian and world markets, some enterprises do not have the proper pace of development (Kolodiziev, 2019; Kolodiziev et al., 2021).

The results of the research (Abdullah & Tursoy, 2021), related to the empirical research of the interconnection between the efficiency of companies (non-financial) and their capital structure, confirm the positive connection between the company’s performance and capital structure. Also, J. Ulbert et al. (2022) work established positive consequences of the capital structure based on the “golden section” on the financial indicators of companies, significant positive connections between the deviation from the capital...
structure based on the “golden section” and deviations of data on revenues, earnings, share prices and market value of the companies from their all-time high. Therefore, it can be an effective instrument for companies to improve their efficiency. All these results testify to the importance of managing the capital structure, a part of which is equity capital.

The understanding of the importance of ensuring the capital’s effective structure and the proper level of its capitalisation in the financial management of equity capital (Fig. 6), indicates the expediency of the development of this direction in the context of ensuring the profitability of the activity. The authors fully agree with the opinion of K. Bagatska et al. (2021) that for enterprises whose total amount of equity and current liabilities is stable and comparable in size to external borrowings, these enterprises show a decrease in the volume of losses. N. Qayyum & U. Noreen (2019) and H.T. Dinh & C.D. Pham (2020) had a similar point of view regarding the influence of the capital structure on financial indicators. Also, the influence of the amount of equity capital can affect the financial flexibility of the enterprise. According to the source C. Mari & M. Marra (2019), the weighted average cost of capital (WACC) method was used to assess the financial flexibility of the enterprise in crisis conditions. The results of the study show that ensuring an effective structure of equity capital will contribute to ensuring the efficiency of operations. So, they correlate with the study (Sumani & Roziq, 2020), according to which, enterprises that have an excellent corporate liquidity policy, form it due to the correct management of the capital structure and the capital structure with a share of debt that is balanced with its equity capital.

The authors are in complete agreement with the opinion of L. Pronko et al. (2021) that the deep economic crisis, the underdevelopment of the stock market and the high price of loan resources should draw attention to the real capitalisation of the enterprise, the process of accumulation of equity capital by business entities. Therefore, taking into account the information above, the target indicator of effective financial management of equity capital for each enterprise will be the provision of an effective structure of the enterprise equity capital and the appropriate level of its capitalisation.

■ CONCLUSIONS

Based on the search queries of Google Trends users, predictive trend models were built for the analysed concepts “equity capital of the company” and “equity capital of the enterprise” in English, which have satisfactory (0.7325 and 0.7040) approximation reliability values. These two predictive trend models are recommended for predicting the level of interest of users in the subject of equity capital of the enterprise. This provides such an advantage as the prospect of predicting the interest of Google Trends users in this topic. However, it should be noted that when research is conducted by other scientists, there may only be a discrepancy in time intervals.

It has been established that the introduction of the goals of enterprise equity capital management and the development of the policy of enterprise equity capital management is a European integration vector, as it corresponds to the basic principles and implements them in accordance with the Directive of the European Parliament and the Council (EU) 2017/1132 of June 14, 2017 on some aspects of corporate law (codification). It was determined, using the DSS Decision Making Helper, that decision A “Ensuring an effective structure of the enterprise equity capital and the proper level of its capitalisation” is the most prioritised in view of the recommendation of the decision as the most positive when assessing the goals of the enterprise equity capital management. Compared to the decision made in terms of the goal of block C “Creation of protection against risks and management of processes of merger and/or acquisition of the target enterprise” (+80%), its priority is +92% and is characterised as the most positive.

The successful functioning of enterprises at the national and international levels requires effective mechanisms of equity capital management and its assessment, which is the subject of further research.

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■ CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES


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Виявлення закономірностей щодо зацікавленості тематикою управління власним капіталом підприємства

Анотація. Посилення уваги до питань пошуку інструментів задоволення визначених потреб та інтересів інвесторів обумовлює актуальність розвитку цілей управління власним капіталом підприємств. Метою дослідження було формування рекомендацій щодо визначення закономірностей зацікавленості управління власним капіталом підприємства. Методика проведення дослідження базується на використанні теоретичних і емпіричних методів, зокрема методів аналізу Інтернет-ресурсів, прогнозування, системи підтримки прийняття рішень Decision Making Helper тощо. Під час аналізу зацікавленості тематикою управління власним капіталом підприємства англійською мовою застосовувалися інструменти веб-додатку Google Trends. На основі цих даних побудовано прогнозні моделі ліній трендів для понять «equity capital of the company» та «equity capital of the enterprise», які мають задовільну величину достовірності апроксимації та можуть бути використані для виявлення закономірностей зацікавленості тематикою управління власним капіталом підприємства. Разом із тим, для цих понять українською мовою у світі та в Україні, починаючи з 2015 р., частота пошукових запитів була дуже мала. Із застосуванням системи підтримки прийняття рішень Decision Making Helper проведено оцінення альтернативних ключових цілей фінансового управління власним капіталом підприємства. Визначено пріоритетність забезпечення ефективної структури власного капіталу підприємства та належного рівня його капіталізації як найбільш пріоритетного. Практичне значення полягає в розроблені рекомендаціях, що можуть застосовуватися при оцінці актуальності серед користувачів інтернет-ресурсів інформації, пов’язаної з власним капіталом підприємства, та при оцінюванні ключових цілей фінансового управління власним капіталом підприємства з метою поліпшення їх функціонування

Ключові слова: суб’єкт господарювання; компанія; пошуковий запит; оцінювання; власні кошти