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THE USE OF CONCENTRATION INDICES BY NATIONAL BUSINESS ENTITIES TO IDENTIFY ULTIMATE BENEFICIAL OWNERS

Introduction. The economic security of the state cannot be ensured without a financial monitoring system, an important element of which is the identification of the ultimate beneficial owners. **Purpose.** The article proposes primary financial monitoring entities use concentration indices when identifying actual owners. **Methods.** The following methods were used: analysis and synthesis, grouping, comparison, generalization. **Results.** When determining the ultimate beneficial owner, financial monitoring institutions can rely on data found in the ownership structure. The algorithms of concentration indices are presented. **Conclusions.** For the purposes of primary assessment of information, it is advisable to use a concentration index, calculated for the shareholder with the largest capital stake. When analyzing the complete list of shareholders, it is proposed to use the Herfindahl-Hirschman index.

Keywords: financial monitoring, ultimate beneficial owner, concentration indices, customer due diligence, national economic entities.

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ЗАСТОСУВАННЯ НАЦІОНАЛЬНИМИ СУБ'ЄКТАМИ ГОСПОДАРЮВАННЯ ІНДЕКСІВ КОНЦЕНТРАЦІЇ ДЛЯ ВИЯВЛЕННЯ КІНЦЕВИХ БЕНЕФІЦІАРНИХ ВЛАСНИКІВ

Економічну безпеку держави неможливо забезпечити без системи фінансового моніторингу, важливим елементом якої є ідентифікація кінцевих бенефіціарних власників. Актуальність дослідження зумовлена нагальною потребою впровадження вимог у сфері протидії відмиванню коштів і фінансуванню тероризму, що є передумовою інтеграції України до Європейського Союзу. Крім того, встановлення реальних власників компаній має суттєвий суспільний інтерес та прямо впливає на ефективне застосування міжнародного та національного санкційного законодавства. Мета статті – запропонувати суб'єктам первинного фінансового моніторингу використовувати індекси концентрації під час ідентифікації фактичних власників. В роботі були використані наступні методи: аналіз та синтез, групування, порівняння, узагальнення. У статті досліджено ознаки, за якими звітні установи у сфері фінансового моніторингу мають змогу ідентифікувати кінцевих бенефіціарних власників своїх клієнтів та можливості застосування індексів концентрації в процесі такої ідентифікації. Використання індексів концентрації дозволить компаніям збільшити рівень об'єктивності при створенні висновків щодо наявності кінцевих бенефіціарів та, відповідно, зменшити ризик застосування до звітних установ заходів впливу з боку державних регуляторів. Виявлено можливість звітної установи у сфері фінансового моніторингу при встановленні кінцевого бенефіціарного власника орієнтуватись на дані, які містяться в актуальній структурі власності корпоративного клієнта. Відсутність структури власності забороняє суб'єкту первинного фінансового моніторингу встановлювати чи підтримувати ділові відносини з клієнтом. В цілях первинної оцінки інформації про акціонерів, отриманої від юридичної особи, запропоновано використання індексу концентрації, розрахованого відносно акціонера з найбільшою часткою капіталу. Встановлено, що застосування індексу ентропії та індексу Джині не дозволяє ідентифікувати наявність кінцевого бенефіціарного власника за допомогою аналізу нерівномірності розподілу часток акцій, що належать акціонерам. Наведено переваги використання індексу Херфіндаля-Хірмана при аналізі корпоративної структури власності в цілях виявлення бенефіціарних власників юридичної особи.

Ключові слова: фінансовий моніторинг, кінцевий бенефіціарний власник, індекси концентрації, належна перевірка клієнтів, національні суб'єкти господарювання.

Formulation of the problem. Identifying the ultimate beneficial owners of clients is an important prerequisite for a primary financial monitoring entity to conduct effective due diligence measures. Since international recommendations and Ukrainian national legislation do not specify the exact actions a reporting institution must take to identify beneficiaries, each organization has to implement and use its own unique set of measures for identifying company owners. On the other hand, reporting entities are required to be able to demonstrate, upon request from a regulatory body, the sufficiency of the financial monitoring measures they have taken. Furthermore, the institution must prove that its decisions were based on a comprehensive analysis of the factual data collected. Part of the process of identifying ultimate beneficial owners can involve analyzing shareholding data based on the application of concentration indices.

Analysis of recent achievements and publications. Concentration indices in economic research are primarily used to analyze market competition. Specifically, O. Shandrivska and A. Tsvetkovska [8] investigate the level of concentration in the Ukrainian pharmaceutical market. In their work, O. Shymanska and M. Horodetskyi [10] analyze the level of competition in Ukraine's deposit market using the concentration ratio and the Herfindahl-Hirschman Index. T. Shcherbakova and A. Shypnivska [9] analyzed the Ukrainian sugar market using the Herfindahl-Hirschman Index, the concentration index, and the entropy index. Z. Grubišić, S. Kamenković, T. Kaličanin [2] used concentration indices to compare the banking sectors in Serbia and Montenegro. Z. Yu, G. Feng, H. Liu, H. Peng, X. Dong [11] investigated the concentration of the dairy industry in the Chinese market. Thus, the issue of using concentration indices to identify ultimate beneficial owners during financial monitoring measures has remained insufficiently explored.

The purpose of the research is to define concentration indices that can be applied by Ukrainian financial monitoring entities to identify ultimate beneficial owners.

Summary of the main research material. The requirement to identify and verify the ultimate beneficial owner is set out in Recommendation 10 of the Financial Action Task Force on Money Laundering (FATF) and is a core component of customer due diligence (CDD). Specifically, reporting entities in the field of anti-money laundering and counter-terrorist financing (AML/CFT) are required to apply "reasonable measures to verify the identity of the beneficial owner" in order to gain confidence in the accuracy of the information regarding their clients' ultimate beneficial owners [6]. The basis of such measures is the analysis of the legal entity's ownership structure. According to FATF recommendations, financial organizations must verify

the customer's identity and determine their beneficial owner prior to establishing or while establishing a business relationship. If it is not possible to carry out adequate due diligence on the client, the reporting entity must refrain from entering into a business relationship and consider filing a suspicious transaction report.

The Law of Ukraine "On Prevention and Counter-measures to Legalization (Laundering) of Proceeds of Crime, Financing of Terrorism, and Financing of Proliferation of Weapons of Mass Destruction" also defines as part of the customer verification process the measures that enable a reporting entity to identify the ultimate beneficial owners (UBOs) or confirm their absence [4]. Only a natural person who exercises decisive influence over a legal entity may be recognized as an ultimate beneficial owner. According to the legislation, such decisive influence may be direct or indirect. A sign of direct decisive influence is the direct ownership by an individual of a share of 25 percent or more in the authorized capital or voting rights of the legal entity. Indirect decisive influence includes ownership of 25 percent or more of the company's authorized capital through related natural or legal persons, control over the legal entity's assets, entitlement to receive income from the company, or the ability to determine the key terms of the legal entity's business activity through legal arrangements.

To establish the identity of the client's UBO, the subject of initial financial monitoring must obtain from the client an up-to-date ownership structure. During the verification process, the reporting entity in the field of financial monitoring must take reasonable steps to understand the ownership and control structure and must not rely solely on the data contained in the Unified State Register of Legal Entities, Individual Entrepreneurs, and Public Organizations. An additional requirement is the prohibition of recognizing as a UBO any individual who is merely a nominal owner of the company. If the subject of initial financial monitoring is unable to identify the client's UBOs, the reporting entity must refuse to establish or continue a business relationship with such a company.

Given access to the client's up-to-date ownership structure and the necessity to take reasonable measures to identify ultimate beneficial owners, it is advisable for the reporting entity to focus on determining the presence or absence of a UBO through ownership structure analysis. This analysis can be based on a game-theoretical approach using concentration indices. Such indices are typically used to assess market competition; however, they can also be applied to understand the influence of shareholders on the activities of a joint-stock company.

The simplest and most intuitive of these is the Concentration Ratio of k-large companies (CR_k), which aggregates the largest ownership shares from a selected

data range. When used to analyze the ownership structure of a joint-stock company, the CR_k is calculated as the sum of the percentage shares held by the k -largest shareholders. The index value can range from 0% to 100% – the closer the value is to 100%, the higher the concentration.

The Concentration Ratio [7, p. 432] is calculated using the following formula:

$$CR_k = \sum_{i=1}^k s_i$$

where CR_k – the Concentration Ratio of k -large companies;

k – number of shareholders who own a share of the company;

s_i – share of the i -th shareholder in the ownership structure.

CR_k only accounts for the shares of the largest shareholders and is insensitive to how ownership is distributed among them. If it is necessary to account for all shareholders of the company's capital, other concentration indices may be used. The most commonly applied in economic science include the Herfindahl-Hirschman Index, the Entropy Index, and the Gini Index.

The Herfindahl-Hirschman Index (HHI) is more sensitive to disparities in shareholder ownership sizes. It is calculated as the sum of the squares of each shareholder's share in the company's total capital structure. The index results can be expressed either as decimals or in "basis points". A low concentration is indicated by values up to 1,000 basis points (or up to 0.1).

To calculate the concentration of shareholder influence, the Herfindahl-Hirschman index formula [3, p. 2] can be interpreted as follows:

$$I = \sum_{i=1}^N \left(\frac{P_i}{P} \right)^2$$

where I – Herfindahl-Hirschman index value;

P_i – individual participant's equity stake;

P – company's total equity;

N – number of company shareholders.

If the HHI falls within the range of 1,000 to 1,800 basis points (or 0.1 to 0.18), the concentration is considered moderate. An HHI value exceeding 1,800 basis points (or greater than 0.18) indicates a high level of concentration.

Another well-known index used in economics to measure inequality or concentration in distribution is the Entropy Index. The higher the entropy value, the more uniform the distribution, indicating lower concentration. Conversely, the lower the entropy, the more uneven the distribution, leading to higher concentration. One of the advantages of using the Entropy Index is its sensitivity to changes across the entire distribution, not just among the largest elements. The Entropy formula for determining the unevenness of

shareholder equity distribution within a company's ownership structure [1, p. 2759] can be expressed as follows:

$$E = - \sum_{i=1}^N P_i \cdot \ln(P_i)$$

where E – Entropy value;

N – number of company shareholders;

P_i – individual participant's equity stake.

Entropy values can range from "0" to " $\ln(P_i)$ ". A value of "0" indicates maximum concentration, which, in the context of ownership structure analysis, reflects sole ownership of the company by a single individual. A value of " $\ln(P_i)$ " signifies a perfectly even distribution of shares among all shareholders. For the application of this index in the information systems of reporting entities in the field of financial monitoring, it is necessary to use the normalized Entropy value, which reflects how close the actual distribution is to a perfectly uniform one. The normalized Entropy value [1, p. 2759] can be expressed by the following formula:

$$\frac{E}{E_{max}} = \frac{-\sum P_i \cdot \ln(P_i)}{\ln(N)}$$

where E – actual Entropy value;

E_{max} – maximum Entropy under perfectly equal distribution.

Normalized Entropy Index values ranging from "0.6" to "0" indicate a high level of concentration in the ownership structure.

An alternative concentration index is the Gini Index, which also reflects deviation from a perfectly equal distribution. The higher the Gini value, the greater the inequality. There are several variations of the Gini Index calculation, but the most common method is based on ascending order sorting. The Gini Index formula [5, p. 5197] for analyzing ownership structure can be expressed as follows:

$$G = \frac{\sum_{i=1}^N \sum_{j=1}^N |P_i - P_j|}{2N^2 \bar{P}}$$

where G – Gini Index value;

N – number of company shareholders;

P_i – the share of participant " i " in the share capital;

P_j – the share of participant " j " in the share capital;

$\bar{P}$ – average equity stake.

The index values range from "0" to "1", or from "0%" to "100%". A value of "0" indicates perfect equality, where all shareholders own equal portions of the equity capital. A value of "1" represents perfect inequality, where one person holds the entire capital.

Conclusions. As a result, the following conclusions can be drawn:

- FATF recommendations and Ukrainian legislation require that when identifying ultimate beneficial owners,

the primary focus should be on the ownership structure. Therefore, when analyzing the influence of shareholders on a company's operations through the calculation of concentration indices, reporting entities in the AML/CFT sphere should use information on shareholdings as indicated in the current ownership structure;

- since international recommendations and national legislation identify decisive influence when a shareholder holds 25 percent of the company's authorized capital, the Concentration Ratio of k-largest companies (CR_k) can be used during the initial ownership structure analysis by calculating the share of the largest shareholder. If CR₁ equals or exceeds 25%, the subject of initial financial monitoring only needs to verify that this shareholder is not a nominal owner. However, if CR₁ is less than 25%, the reporting entity should apply other indices capable of detecting concentration across the entire shareholder structure rather than only among a few dominant elements;

- among the Herfindahl-Hirschman Index, the Entropy Index, and the Gini Index, the HHI is the most appropriate for identifying an ultimate beneficial owner. This is because the other indicators primarily focus on the uniformity of share distribution. This may result in a conclusion of perfect equality even when there is high, but equally distributed, ownership concentration among shareholders. In contrast, a high Herfindahl-Hirschman Index value better reflects overall concentration and the potential influence of the largest shareholder on the company's ownership structure than their mere percentage share. The HHI is highly sensitive to the presence of one or more dominant shareholders. If one shareholder holds a significant portion of the capital, squaring that percentage will substantially increase the overall index value, thus indicating the shareholder's significant control over the company. Accordingly, an HHI value exceeding 1,800 basis points may be considered indicative of the presence of an ultimate beneficial owner.

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