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Methodological Issues in the Interrelationship Between the Commodity Characteristics of a Company's Property, Their Market Value and the Company's Capitalization

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***Abstract*—The article examines the methodological relationship between the commodity characteristics of a company's property, the market value of those assets, and the company's capitalization. The primary objective of the study is to demonstrate that a discrepancy between accounting records and the actual commodity characteristics of a company's property results in a distortion of its true value. This issue is of particular importance in forensic financial and economic forensic expertise, the investigation of deliberate bankruptcy proceedings, and the assessment of investment risks and creditworthiness.**

Because the determination of capitalization also requires the inclusion of risks arising from the qualitative condition of assets, it is necessary, within this logic, to introduce a risk-adjustment mechanism into the valuation model, whereby the commodity characteristics of assets are "transformed" into quantitative indices. These indices make it possible to introduce the concept of a "Commodity Risk Coefficient" into the process of determining property value. Its application in valuation models would allow qualitative uncertainties associated with assets to be taken into account and the calculated value to be brought closer to the company's actual economic potential, thereby establishing a stable relationship between the actual material and technical condition of assets and the organization's capitalization.

Drawing on the principles of systematic and scientifically grounded economic valuation, this article proposes the introduction of standardized procedures for integrated financial-economic and commodity expertise in order to reduce distortions in capitalization. The adoption of such procedures would prevent the market value of assets in major transactions and bankruptcy proceedings from being determined solely on the basis of financial reporting data, while requiring a commodity expertise assessment of the actual physical condition of the property.

***Index Terms*—Commodity Risk Coefficient, commodity characteristics, market value, company capitalization, business valuation, integrated financial-economic and commodity expertise.**

I. Introduction

In today's economic environment, a company's capitalization and the market value of its assets are often subject to speculative fluctuations. One of the fundamental bases for determining a company's actual value is the liquidity of its tangible assets and property, which directly derives from their commodity characteristics.

In mergers, acquisitions, and particularly bankruptcy proceedings, experts often rely exclusively on financial and accounting documents, overlooking the actual physical, material, and operational characteristics of the property. This practice may lead either to an overvaluation of assets (an artificial increase in capitalization) or to an unjustified reduction in property value (the disposal of assets in cases of deliberate bankruptcy). From the perspective of forensic economic expertise, it is therefore essential to understand the methodological process through which commodity characteristics are "transformed" into market value and, consequently, influence a company's overall capitalization.

II. Literature Review

The relationship between the commodity characteristics and their economic value has been examined since the time of the classical economists. A. Smith and K. Marx differentiated between the concepts of "use value" and "exchange value". In contemporary economics, Aswath Damodaran highlights that asset valuation should be

grounded in the assets' actual capacity for value creation [1], [2].

The International Valuation Standards (IVS 2022) specify that the determination of market value requires an in-depth assessment of the physical deterioration, functional obsolescence and economic obsolescence of property. In this context, forensic economic expertise would be almost inevitably incomplete without a comprehensive commodity analysis, since the documented "price" and the physical "value" may differ significantly from one another [3], [4].

III. Theoretical and Methodological Foundations

Contemporary corporate valuation theory is based on the premise that a company's value depends not only on its expected future cash flows but also on the level of risk associated with its assets. Asset-related risks are directly reflected in the cost of capital and the discount rate used to estimate corporate value. Contemporary valuation approaches make it possible to incorporate non-financial risk factors into financial models through the use of an additional risk premium [2].

International valuation practice recognizes that an asset's physical and functional condition is a fundamental determinant of its economic value. The International Valuation Standards establish that physical deterioration, functional obsolescence, and economic obsolescence have a significant impact on asset value and must be taken into account in both business valuation and fixed asset valuation processes [3].

The theoretical foundation of risk-adjusted valuation is rooted in the Capital Asset Pricing Model (CAPM), according to which the expected return on an investment consists of the risk-free rate plus a risk premium. Contemporary financial research has extended this framework by introducing additional sources of risk, including size, liquidity and country risk premiums. These developments provide a methodological basis for incorporating risks arising from the qualitative characteristics of assets into valuation models [5].

The relationship between the technical condition of assets and the economic value they generate is also supported by contemporary economic research on valuation, according to which the operational reliability of assets directly affects the stability of future cash flows. Technical uncertainties and operational risks gradually transform into value-related risks over time, reducing the company's overall market value [6].

Commodity science further demonstrates that the qualitative characteristics of tangible assets serve as one of the fundamental determinants in the formation of economic value. The quality, reliability, functional suitability and operational efficiency of products and technical equipment directly determine their market demand and value-creation potential, which requires the integration of qualitative indicators into the economic valuation process [7].

Nevertheless, financial and economic research shows that a distorted assessment of the actual value of assets can lead to an incorrect interpretation of an organization's financial condition and even to the creation of situations of artificial bankruptcy. The inadequate or unrealistic reflection of asset values in financial statements causes deviations in capitalization indicators and leads to an inaccurate assessment of investment risks [8].

IV. Analysis

In practice, within the framework of economic activities, a number of systematic discrepancies often arise between the accounting valuation of a company's property assets and their actual market values, which have a significant impact on the objective assessment of the company's capitalization.

From the perspective of the gap between the market value of assets and the company's overall capitalization, the main issues can be classified and formulated as follows:

• *Overvaluation for the purpose of attracting financing*

In cases where a company seeks to attract credit resources or increase the market price of its shares, the balance sheet often reflects the initial or revalued value of property without considering technical, operational, or qualitative hidden deficiencies identified through commodity expertise. As a result, an overestimated picture of the economic potential of the assets is formed, which does not reflect their actual market liquidity. For forensic examination purposes, it is important to distinguish between highly liquid and illiquid assets, because the adjustment coefficients applied to their values differ significantly.

• *Undervaluation during asset revaluation processes in cases of intentional bankruptcy*

In cases of deliberate bankruptcy, under conditions of unfair management, it is possible to artificially reduce the qualitative characteristics of assets by presenting them as defective or economically unusable property. Such practices aim to ensure the disposal of assets at prices significantly below their market value, often in favor of related parties, which leads to the illegal redistribution of the company's capital.

• *Undervaluation resulting from the impact of depreciation accounting policies*

Within the framework of the company's accounting policies, the absence of fixed asset revaluation may lead to a gradual distortion of the actual value of assets. In particular, the carrying value of assets is continuously reduced through depreciation charges until reaching a zero residual value, while their actual economic usefulness and "potential" under real market conditions may remain preserved.

• *Undervaluation due to the disregard of moral (technological) obsolescence*

In practice, situations often arise in which the physical condition of an asset is assessed as satisfactory or even good, yet technological progress and market changes cause the asset to lose its economic relevance. In such cases, the property continues to be reflected on the balance sheet at a high value based solely on its physical condition, whereas, from the perspective of capitalization, it has already lost its competitiveness in terms of market demand. As a result, an

"apparent economic strength" of the assets is created that does not correspond to actual market conditions.

• *Undervaluation in cases of impaired asset composition and functional compatibility*

A company's capitalization is formed not through the mechanical sum of individual assets, but on the basis of their technological and operational interrelationships. In practice, situations may arise where individual assets have high commodity characteristics, but technological incompatibility between them or disruption of the production chain reduces the efficiency of the entire asset complex and, consequently, the company's overall market value.

The results of the study indicate that, within the operation of modern financial markets and especially in the context of bankruptcy proceedings, there is often an artificial disconnect between the actual commodity characteristics of property assets and their accounting (balance sheet) values. Such discrepancies lead to a distorted assessment of the company's actual economic potential and market capitalization, creating a non-objective representation of asset value, which in turn results in the unlawful redistribution of capital.

In this context, it is appropriate to introduce "standardized and mandatory mechanisms for comprehensive commodity and financial-economic expert assessment of property valuation," which should be implemented on the basis of unified, accepted regulations. Such an approach would help reduce the risks of intentional or methodologically "directed" (resulting from the selective application of valuation tools) overvaluation and undervaluation of assets. At the same time, it is proposed to limit the determination of the market value of assets in major economic transactions, restructuring, and bankruptcy proceedings solely on the basis of financial reporting data. Instead, a mandatory commodity inspection and expert assessment of the actual physical condition of the property should be carried out to ensure an objective reflection of the assets' actual economic utility, technical condition, and market liquidity.

The application of the proposed mechanism will contribute to greater transparency in capitalization assessment, reduced investment risks and, from the perspective of comprehensive commodity and financial-economic expertise, stronger scientific substantiation of the results obtained.

Thus, the economic essence of an organization's capitalization reflects the company's overall economic potential, investment attractiveness and ability to create value in the market. From an economic perspective, capitalization represents the net value remaining for owners after the market valuation of the company's assets, under the condition of settling its liabilities. As is well known, the fundamental economic relationship of capitalization can be presented by the following equation:

$$CAP = MV_{assets} - Liabilities \quad (1)$$

where:

CAP – the company's capitalization (the market value of its equity);
MVassets – the market value of the company's assets (the main factor determining the organization's value);
Liabilities – the total value of the company's liabilities.

This equation is based on the fundamental principle of corporate finance, according to which the value of an organization is allocated between creditors and shareholders [9]. Simultaneously, in market conditions, capitalization may also be expressed through the market valuation of shareholders' equity, where the company's net assets correspond to the total market value of its shares outstanding, according to the following equation [2].

$$CAP = P_{share} \times N_{shares} \quad (2)$$

where:
Pshare – the market price of one share;
Nshares – the number of shares outstanding.

This approach is widely applied in the valuation of public companies and is reflected in modern corporate finance theory [10].

With regard to the market value of a share, it is known that, from a theoretical perspective, it can be presented in at least two dimensions:

1. Exchange value (simplified approach)

Under this approach, the market value of a share is the price at which the security is bought and sold on the stock exchange at a given moment. The price is formed as a result of the interaction between supply and demand and reflects investors' current expectations, the information environment, and market sentiment. Therefore, the stock market price may often differ from the company's actual economic value, which is determined by the following relationship:

$$P = \frac{Market\ capitalization}{Number\ of\ shares} \quad (3)$$

2. Definition of intrinsic value

In this case, according to the principles of the classical school of thought developed by Benjamin Graham and Warren Buffett, the true value of a stock is defined as the present value of the future cash flows that the company is expected to generate. This approach is based on the discounted cash flow (DCF) methodology, according to which the value of an asset is determined by its ability to generate income rather than merely by its current market price. This relationship can be expressed as follows [11], [12]:

$$Intrinsic\ Value = \sum_{t=1}^{n} \frac{CF_t}{(1+r)^t} \quad (4)$$

where:
CF_t – represents the future cash flows;
r – is the discount rate;
t – is the time period.

However, it is generally accepted that for companies with high property intensity (such as manufacturing, construction, transportation, and infrastructure organizations), the value

creation process is determined not primarily by the turnover of financial assets, but by the actual market condition of tangible assets. For such companies, the fundamental relationship for estimating capitalization can be presented as follows:

$$P = \frac{V - L}{n} \quad (5)$$

where:
V – represents the actual market value of all company assets (the property complex);
L – represents the company's total liabilities;
n – represents the number of shares outstanding.

This relationship effectively represents the net economic value attributable to one share and is particularly applicable when valuing capital-intensive business entities.

Classical financial approaches to determining the value of property assets are primarily based on accounting or income-based indicators. However, in companies where tangible assets constitute the dominant share of total assets, the value of these assets is directly determined by their commodity-related characteristics.

Within the framework of this approach, it is proposed to define value through the functional relationship of **"commodity characteristics"**, according to which V (the value of assets) is directly proportional to Q (the commodity quality):

$$V_m = f(Q, t, m, s) \quad (6)$$

or, in simplified form: $V{:}Q$
where:
Q – the product quality (quality characteristics);
t – the technical condition;
m – the degree of depreciation (physical and moral/functional obsolescence);
s – the market demand (marketability/liquidity).

Regarding the concept of "Quality," it should be noted that it is a multifaceted category with philosophical, technical, and economic dimensions. From a philosophical perspective, it reflects the identity of an object and its distinguishing characteristics, while in the economic context it is viewed as a cornerstone in shaping consumer value and market demand [13].

At the applied and expert level, quality is interpreted in the following ways:

- fitness for use;
- fulfillment of intended needs;
- compliance with established standards and regulations;
- meeting consumer expectations;
- maintaining a level consistent with the dynamics of market demand.

These criteria demonstrate that quality is not merely a static objective characteristic but also contains a subjective component determined by consumer perception.

The market values of property assets are the result of the combined influence of their physicochemical and structural characteristics, operational reliability, and degree of depreciation. Within the process of commodity expertise, these factors are transformed into quantitative indices and integrated into valuation and capitalization models, functioning simultaneously as value-creating and risk-generating factors.

The methodological basis of the above is that the value of assets is determined not by their accounting (book) value, but by their actual suitability for use. The latter is defined by the material's strength, durability, corrosion resistance, and structural integrity. These parameters are precisely what shape the asset's operational reliability and its remaining useful life at the specific point of measurement.

At the stage of determining actual suitability, the first "transformation" takes place, namely the conversion of physical reality into economic expectations.

The depreciation factor has a key impact on the formation of asset value. Having a multi-component structure, it is defined as the degree of deterioration or loss of product properties, which is subject to quantitative assessment [14].

Commodity expertise is the key scientific and practical mechanism through which the second "transformation" is carried out, namely the conversion of qualitative characteristics into quantitative indicators.

As a result of the assessment, indices are developed for the respective property, reflecting:

1. loss of quality;
2. the level of depreciation;
3. reduction in value.

When incorporated into economic calculations, these indices form the integrated commodity quality of the property, which serves as the direct basis for determining its market value.

This theoretical concept finds its practical application in the step-by-step algorithm of commodity expertise, which ensures a clear transition from the "commodity characteristic" to the "loss of quality." The step-by-step algorithm of commodity expertise consists of the following stages:

Stage 1. Identification of the object and determination of baseline data

The object under examination is identified, and the initial value, actual period of use, and standard service life are established.

Stage 2. Expert examination of the physical and qualitative condition

The condition of the material, structural integrity, appearance and functional suitability are analyzed. The expert evaluates the actual condition of the object and the impact of damages on its consumer properties.

Stage 3. Differentiation of depreciation types

Physical wear, obsolescence, and defect-related factors are identified separately, which helps avoid aggregated assessments that may be methodologically inaccurate.

Stage 4. Calculation of normative (time-based) wear

It is determined based on the number of years the property (product) has been in use and the annual normative

depreciation rate established for that type of property, using the following formula:

$$R = P \times \frac{K \times H}{100} \quad (7)$$

where:
R – the loss of quality expressed in value resulting from depreciation;
P – the initial (or replacement) value;
K – the number of years of service;
H – the annual normative depreciation rate (percentage).

Stage 5. Assessment of the impact of defects

Standardized methodological tables are used to convert the identified types of damage into specific percentages of quality loss [15].

Stage 6. Synthesis of the overall depreciation level

The time-based and defect-related components are combined to establish a comprehensive indicator of the property's loss of quality.

However, as an important methodological consideration, it should be noted that the proposed algorithm is limited to internal factors only—namely, physical and functional depreciation, as well as defects—while excluding external or economic depreciation. The latter results from macroeconomic changes in the market environment, legislative restrictions, or industry shifts that may significantly reduce the consumer demand for an asset, irrespective of its actual technical condition. In addition, the linear calculation formula applied in Stage 4 assumes a uniform rate of depreciation over time, whereas, in practice, the qualitative degradation of assets is often non-linear or occurs in discrete increments, depending on the intensity of use. Therefore, to ensure the highest possible degree of objectivity in forensic expert conclusions, the methodology should also incorporate an index reflecting external depreciation arising from prevailing market conditions, as well as non-linear degradation models. This comprehensive enhancement would help prevent distortions in the capitalization rate used in economic calculations, particularly under conditions of high uncertainty and economic volatility.

Thus, the above approach demonstrates that commodity expertise serves as a ‘’transformational’’ link between material reality and economic valuation, ensuring the objective assessment of asset value. At the same time, it reveals the dual nature of value—as a function of quality and as an expression of risk. This concept makes it possible to incorporate market value into capitalization models as a risk-adjusted indicator, which, in turn, can serve as the basis for determining the company's actual market value.

The market value of assets is determined not only by their existence, but also by their operational efficiency and market applicability.

Based on the above theoretical provisions, the following integrated economic model for capitalization is proposed.

$$CAP = \alpha + \beta_1 Q + \beta_2 L - \beta_3 D + \beta_4 P + \varepsilon \quad (8)$$

where:
Q – commodity quality;
L – liquidity;
D – depreciation;
P – profitability;
β_i – the coefficients representing the intensity of the influence of the respective factors.

In the model, the parameter **α** represents the initial (baseline) level of capitalization ($\alpha = CAPbas$). Specifically, it reflects factors such as the market environment, brand value, management quality, institutional trust, macroeconomic conditions, industry positioning, and investment expectations, all of which are determined by structural or systemic factors not explicitly incorporated into the model. Accordingly, α represents the autonomous component of capitalization that cannot be explained by the commodity-related or financial-economic indicators of the assets.

By contrast, the parameter **ε** denotes the random disturbance or econometric error term, that is, the difference between the actual capitalization and the value estimated by the model (in econometric terms, $\varepsilon = CAPreal - CAPmodel$). It encompasses measurement errors, unpredictable market fluctuations, information asymmetry, investors' behavioral factors, short-term shocks, and the subjectivity inherent in the valuation process.

The proposed model makes it possible to integrate financial and commodity-related factors into the capitalization assessment process, thereby providing a multifactor economic explanation of an organization's value. This is particularly important for asset-intensive business entities.

The above model implies that an organization's capitalization is determined by the combined effect of the commodity-related and financial-economic characteristics of its assets, with the market value of those assets effectively functioning as a function of their qualitative condition. However, the process of value formation alone does not ensure the sustainability of that value, since the technical, physical, and operational characteristics of assets are not only value-generating factors but also sources of risk.

Consequently, the assessment of capitalization cannot be limited to calculating value relationships alone; it also requires the incorporation of risks arising from the qualitative condition of the assets. This reasoning necessitates a transition from a value determination model to a risk-adjustment mechanism, under which the commodity-related characteristics of assets are transformed into a valuation risk factor. Such a methodological extension is achieved through the introduction of an additional risk premium—the “Commodity Risk Premium (CRP)”—which makes it possible to establish a relationship between the actual physical and technical condition of the assets and the economic sustainability of the organization's capitalization.

In the framework of this study, the concept of risk is based on the premise that the commodity-related characteristics of assets not only determine their market value but also

influence the risk associated with the stability and preservation of that value over time.

Within the integrated capitalization model, given that the commodity-related condition of assets simultaneously affects both their value and the risk profile of that value, it is appropriate to express an organization's capitalization as the following risk-adjusted relationship:

$$CAP* = \frac{V}{1+CRP} \quad (9)$$

where:
*CAP** – the organization's risk-adjusted capitalization (Risk-Adjusted Capitalization);
CRP – the risk premium arising from the commodity-related condition of the assets (Commodity Risk Premium).

The Commodity Risk Premium (CRP) is calculated as follows:

$$CRP = k \times (1 - I_{qual}) \quad (10)$$

where k is the empirical coefficient of industry-specific risk sensitivity.

The concept of the risk premium, in this context, is based on the following rationale:

$$CRP = f(t, m, s, reliability) \quad (11)$$

This formula reflects the adjustment of asset value according to the logic of risk discounting, whereby CRP is added to the base risk rate.

To convert the qualitative and technical characteristics *t, m, s, and reliability* of the assets into a quantitative indicator, the weighted-average method is used (on a scale from 0 to 1, where 1.0 represents a perfectly faultless condition):

$$I_{qual} = w_t \times t + w_m \times m + w_s \times s + w_r \times reliability \quad (12)$$

where:

- *t* – the technical condition (accumulated physical depreciation from past use);
- *m* – the commodity/material characteristics (quality of materials, completeness, and compliance with standards);
- *s* – operational safety and degree of preservation;
- *reliability* – reliability (expected residual service life and risk of failure);
- *wt, wm, ws, wr* – the respective weights of the variables (Σw = 1.0).

In the above formula, the variables *t* (technical condition) and *reliability* are closely interrelated from both economic and technical perspectives (if the technical condition is poor, reliability is also low). It should be noted, however, that *t, m, s, and reliability* are treated as independent structural components (for example, t reflects accumulated past depreciation, whereas reliability reflects the expected residual service life). As noted above, *k* is an empirical/industry-specific coefficient determined by the average risk level of the relevant industry (for example, by analogy with the *CAPM* beta coefficient), or through expert surveys and regression analysis of historical data.

Numerical Example of the Calculation of the Commodity Risk Premium (CRP):

1. Initial data for the valuation object

- Valuation object: the company's main production line.
- Initial book value (V): AMD 100,000,000.
- Industry risk-sensitivity coefficient (k): 0.30 (adopted on the basis of historical industry data and regression analysis for industrial equipment).

Results of the commodity expertise assessment (on a scale from 0 to 1):

- t (technical condition): 0.60 (actual depreciation is 40%; preservation is 60%); weight $w_t = 0.35$.
- m (commodity characteristic): 0.75 (completeness and conformity of material quality); weight $w_m = 0.20$.
- s (safety): 0.70 (operational safety and preservation conditions); weight $w_s = 0.20$.
- reliability: 0.50 (forecast residual working life); weight $w_r = 0.25$.
- Total sum of weights: 1.00.

2. Step-by-step numerical calculation

Step 1. Calculation of the integrated quality index (I_{qual})

I_{qual} = (0.35 * 0.60) + (0.20 * 0.75) + (0.20 * 0.70) + (0.25 * 0.50)

I_{qual} = 0.210 + 0.150 + 0.140 + 0.125 = 0.625 (or 62.5%)

Step 2. Calculation of the Commodity Risk Premium (CRP)

CRP = 0.30 * (1 - 0.625) = 0.30 * 0.375 = 0.1125 (or 11.25%)

Result: The asset's incomplete qualitative/technical condition generates an additional risk premium of 11.25%.

Step 3. Calculation of risk-adjusted actual capitalization (CAP*)

*CAP** = 100,000,000 / (1 + 0.1125) = 100,000,000 / 1.1125 = 89,887,640 AMD

3. Comparative analysis of the results

- Without CRP (based solely on accounting data): CAP = AMD 100,000,000.
- With CRP applied (adjusted actual value): CAP* = AMD 89,887,640.
- Deviation: +AMD 10,112,360 (+10.11%).

Conclusion: If the valuation were performed exclusively on the basis of financial statements, without an actual commodity expertise assessment, the company's capitalization would be overvalued by 10.11% (approximately AMD 10.11 million). The introduction of CRP makes it possible to neutralize this distortion, thereby improving the accuracy and economic realism of forensic economic analysis, bankruptcy proceedings, and creditworthiness assessment.

For the integrated capitalization model, because the commodity condition simultaneously affects both the value of assets and the risk associated with that value, capitalization should be presented in risk-adjusted form:

$$CAP* = \frac{\alpha + \beta_1 Q + \beta_2 L - \beta_3 D + \beta_4 P}{1+CRP} + \varepsilon \quad (13)$$

where:
CAP – the risk-adjusted capitalization.

This equation demonstrates that:

If the quality of the assets is high:

- the CRP decreases because the risks of operational failures, repair costs, technological obsolescence, and cash flow volatility perceived by investors are reduced;
- capitalization increases.

If depreciation is substantial, the technology is obsolete, or reliability is low:

- the CRP increases;
- the risk-adjusted capitalization decreases.

Accordingly, it should be concluded that an improvement in asset quality reduces the risk adjustment, resulting in an increase in risk-adjusted capitalization.

A fundamental economic implication of the foregoing is that the commodity expertise of assets is transformed into a significant financial and economic factor influencing the formation of an organization's capitalization.

Thus, the commodity-related characteristics of a company's assets, the market value derived from those characteristics and the organization's overall capitalization together constitute an integrated economic system in which each component determines the objectivity of the others. The qualitative, technical and operational condition of the property assets serves as the primary basis for the company's actual economic value, while the financial reflection of these characteristics constitutes a determining factor in the formation of capitalization.

Studies indicate that discrepancies between accounting records and the actual commodity-related condition of assets lead to systematic distortions in a company's value. Such discrepancies become particularly pronounced in the context of major transactions, corporate reorganizations, and bankruptcy proceedings, where asset valuation is often carried out without a comprehensive expert assessment of their actual physical condition. As a result, artificial changes in capitalization may arise, creating opportunities for financial manipulation, the unlawful redistribution of assets and the risk of deliberate insolvency.

With regard to the localization of international methodological approaches to corporate valuation and capitalization assessment, particularly in the context of the Republic of Armenia and other regional economies, it is first necessary to consider the feasibility of introducing the above-mentioned additional adjustment instrument—the Commodity Risk Premium (CRP).

This premium may be incorporated into company valuation models to account for the risks arising from the physical condition, technical reliability, degree of depreciation and functional adequacy of fixed assets. The proposed approach makes it possible to incorporate qualitative uncertainties associated with assets into capitalization calculations—uncertainties that are not ordinarily fully reflected in financial statements or in conventional valuation models. As a result, the estimated value of a company would be adjusted not only on the basis of its financial indicators but also in light of the actual commodity-related condition and operational reliability of its property assets.

Accordingly, it is evident that, in contemporary corporate valuation theory, a company's capitalization is determined not only by projected financial flows and the risk associated with the market environment, but also by the actual economic usefulness of its production and property assets. However, traditional international valuation models (DCF, EVA, Market Multiples, etc.) are based primarily on accounting and financial data and do not adequately reflect risks arising from the commodity-related condition of assets.

When applied, the Commodity Risk Premium (CRP) should serve as an integrated valuation-adjustment indicator that quantitatively reflects value-related risk arising from the qualitative, technical, and operational uncertainties associated with a company's fixed and tangible assets. It should capture the potential economic loss that may result from physical depreciation, technological obsolescence, operational limitations, or reduced operational reliability of those assets.

The methodology for deriving the Commodity Risk Premium (CRP) is based on a multifactor assessment principle and comprises the following sequential stages:

1. Commodity-related diagnosis of assets. An expert assessment of fixed assets is carried out to determine:

- the degree of physical depreciation;
- technical condition and reliability;
- technological modernity;
- intensity of use;
- inadequate maintenance costs;
- functional suitability for production purposes.

2. Normalization of risk indicators

Each indicator is converted into a comparable quantitative index (within the 0–1 range), where 1 corresponds to an optimal condition, while 0 represents a condition close to economic obsolescence or unusability.

3. Formation of a weighting system

Weights are assigned to the indicators based on their economic significance, taking into account the asset's impact on the income-generating process. For example, in manufacturing companies, technical reliability may be assigned a higher weight than external physical deterioration.

4. Calculation of the integrated commodity risk index

A composite indicator characterizing the overall qualitative condition of the assets is obtained, reflecting the level of operational risk.

5. Transformation of risk into a value adjustment coefficient

The resulting index is incorporated into the valuation model:

- either as an additional component of the discount rate;
- or as an adjustment reduction coefficient applied to the company's calculated value.

Theoretically, the Commodity Risk Premium (CRP) may be expressed according to the following general principle:

$$CRP = F \quad (14)$$

where:
F – represents physical depreciation, technical condition, reliability, technological modernity, inadequate maintenance costs, and functional suitability;
CRP – expresses the additional risk premium arising from the qualitative condition of the assets.

It should be noted that, from the perspective of applicability, the proposed methodological approach is particularly important under the conditions of transitional and developing economies, where the book value of assets often differs significantly from their actual economic value.

The incorporation of the Commodity Risk Premium (CRP) into the capitalization assessment process makes it possible to combine financial and physical factors, thereby providing a more objective, scientifically grounded and investment-reliable evaluation of a company's value.

V. Conclusion and Recommendations

Thus, the Commodity Risk Premium (CRP) serves as a bridging mechanism between financial valuation models and the actual commodity-related condition of assets, ensuring the economic realism of corporate value calculations and the comprehensive consideration of potential risks. From a methodological perspective, it is based on the international theory of corporate valuation, risk-adjusted return assessment models, particularly the approaches developed within the framework of the Capital Asset Pricing Model (CAPM), as well as the theoretical principles of risk premiums developed by William Sharpe in 1964 and Aswath Damodaran in 2012.

The proposed concept of the Commodity Risk Premium has been developed as a result of a comparative analysis of international theoretical approaches in corporate valuation and asset assessment. At the same time, the proposed approach is also consistent with the principles established in the International Valuation Standards (IVS, 2022) regarding the assessment of the physical condition, technical depreciation, and functional suitability of assets.

As previously discussed, an objective assessment of a company's value is possible only through the integration of financial-economic and commodity-related approaches. The assessment of physical depreciation, technological modernity, functional comparability, and market liquidity of assets should be considered not as auxiliary elements, but as mandatory components of valuation methodology. In this context, the proposed comprehensive commodity-related and financial-economic expert assessment will make it possible to ensure transparency in capitalization valuation, reduce investment and legal risks, and enhance the scientific validity and practical effectiveness of comprehensive commodity-related and financial-economic examinations. At the same time, the application of the Commodity Risk Premium in valuation models will allow qualitative uncertainties of assets to be taken into account, bringing the calculated value closer to the company's actual economic potential.

It should also be emphasized that the application of this methodology ensures a comprehensive assessment of risks and prevents potential systemic errors in the calculation of capitalization rates within subsequent economic analyses. As a result, a methodologically justified value determination mechanism is formed, which is particularly applicable within the framework of forensic economic and forensic commodity examinations, including investigations of intentional bankruptcy proceedings, determination of the actual value of company shares and businesses, as well as the assessment of investment risks and creditworthiness. This approach makes it possible to eliminate the influence of subjective factors and minimize the risks of undervaluation of the capitalization coefficient.

Therefore, an accurate determination of an organization's capitalization is possible only when financial indicators are combined with the actual commodity-related condition of property assets, creating a comprehensive and scientifically balanced system of economic valuation.

Based on the approaches and principles outlined above, in order to prevent distortions in capitalization, it is also proposed to introduce a mandatory procedure for conducting comprehensive financial-economic and commodity-related expert examinations. This procedure should aim to prevent the undervaluation or overvaluation of property assets and, at the same time, exclude the determination of the market value of company assets solely on the basis of accounting data, by prioritizing an expert assessment of the actual condition of the property.

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