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## REMARKS CONCERNING METHODOLOGY IMPROVEMENT FOR INTEGRAL ASSESSMENT OF A COMPANY'S INVESTMENT ATTRACTIVENESS

**Abstract.** The article deals with the issues of the estimation company's investment attractiveness. The features of the integral index formation of investment attractiveness are studied. Critical assessment of the meaningful content of a group of indicators that form an integral indicator of investment attractiveness has been made. An improved set of indicators was proposed by the authors in order to modernize the existing mechanism of integrated assessment, approved by the Agency for the Prevention of Bankruptcy of Enterprises and Organizations. This will help to improve the criterion assessment of the investment attractiveness of an enterprise as an instrument for obtaining objective information for an investor regarding an investment object.

**Keywords:** investment attractiveness of enterprises, integrated assessment of investment attractiveness, company property status, financial stability, profitability, assets liquidity, business activity, market activity.

### Formulation of the problem

Investment is an important engine for the development of any business. By the term "investment" it means investing (spending) resources in order to generate income in the future. Investors are always interested in the financial state of the enterprise like the object of investment. The question of the unbiased assessment of the enterprise's financial condition, the available resource potential, the potential for future development and the generation of expected income and profit is relevant for both the external

investor and the enterprise itself. Inaccuracies in the calculation methodology lead to their distortion, incorrect assessment of the financial condition of the enterprise, and, accordingly, decisions taken on their basis by investors become ineffective. Existing scientific and methodological developments are characterized by the absence of the unified system approach to assessment the company's investment attractiveness, and often do not fully reflect the aspects that are the greatest interest to the investor.

Successful operation of the economic system of any country is connected with the continuous capital infusion (financial, material, intellectual and innovative, etc.) In other ways of saying, the development of the country's economy requires constant investments, both foreign and domestic. Investment activity in Ukraine has slowed down today.

The reasons of investments' slowdown in domestic enterprises can be combined into two groups - internal and external. External reasons include political instability, military actions in the east of the country, corruption, etc. Internal factors are the quality of management, material and personnel support of the enterprise, policy on debtors, depreciation, price, dividend, innovation policy, etc.

The combination of the influence of all factors on the activity of the enterprise is reflected in its financial state and the final results. Therefore,

in order to estimate the investment attractiveness of an enterprise it is expedient to use one integral indicator, which is formed from a set of indicators characterizing various aspects of enterprise's functioning.

### **Analysis of recent research and publications**

Theoretical and methodological features of company's investment attractiveness estimation are considered in the works of domestic and foreign scientists. The following Ukrainian scientists contributed significantly to the study of this issue: L. Lakhtionova, E. Mnikh, G. Savicka, Y. Tsal-Tsalko, I. Blank, M. Korobov, L. Kovalenko, A. Zagorodniy, A. Podderijhin and others.; also foreign scholars: D. Van Horn, D. Bachovich, D. Schima and D. Siegel, J. Richard, E. Helfert E. Brygham and others. Despite the large number of scientific developments, there is a need for methodological support of theoretical developments in practical activities.

**The purpose of the article** is to improve the calculation methodology for the integral indicator of enterprise investment attractiveness in terms of forming a set of indicators that will fully reflect the various stages of enterprise's operation.

### **Material and results**

At the state level, a number of laws were adopted to provide a favorable investment climate for both domestic and foreign investors. State regulation of investment activity is determined by the Laws of Ukraine "On Procedure for Foreign Investments", "On Protection of Foreign Investment in Ukraine", "On Investment Activities", "On Amendments to Certain Legislative Acts of Ukraine on the promotion of foreign investments and loans" and a number of resolutions, laws, instructions, etc. The institutional support of investment activity at the state level is realized through the State Agency for Investment and Management of National Projects functioning.

In addition to the assessment of the environment, the investor estimates the investment object. By formation portfolio of investment objects, the assessment of their investment attractiveness is carried out on the basis of the Order of the Ministry of Justice of Ukraine (further

on the text – Order) No. 22 of February 23, 1998 "On Approval of the Methodology for Integrated Assessment of Investment Attractiveness of Enterprises and Organizations".

According to the proposed methodology for estimating the enterprise investment attractiveness, an integral indicator of investment attractiveness is calculated, which combines over 40 financial indicators [1]. As stated in the Order, "integral estimation of investment attractiveness is the indicator in which the values of other indicators, adjusted in accordance with their importance and other factors, are reproduced".

Calculation and use of the integral indicator of investment attractiveness are justified, as "it allows to combine in one indicator many of factors that are different by names, units of measure, weight and other characteristics". The use of integrated assessment is widely applied in foreign and domestic practice as it "simplifies the procedure for evaluating a particular investment proposal, and sometimes it is the only possible option for its implementation and providing objective final conclusions" [1].

The qualitative characteristics of the calculated indicator, and, accordingly, the efficiency of the decisions taken, depends on a set of indicators that form the indicator of the integrated assessment of investment attractiveness. The indicators proposed in the Methodology are arranged into six groups (Figure 1). In our opinion, it is important for a set of indicators, that are taken into account in the calculation of the integral indicator, to reflect the financial and property position of the investment object most accurately and objectively.

According to the Methodology, we will consider and analyze the groups of indicators used to calculate the integral estimate of the enterprise investment attractiveness.

Thus, a group of indicators, that assesses the property status of the invested object, includes such indicators:

- an active part of fixed assets;
- depreciation;
- renewal and disposal of fixed assets.

However, the proposed indicators do not reflect the qualitative composition of the enterprise's property and its renewal by modern

technical assets. When assessing the technical condition of fixed assets, it is important to

determine the availability and use by the enterprise technologically modern and advanced equipment.

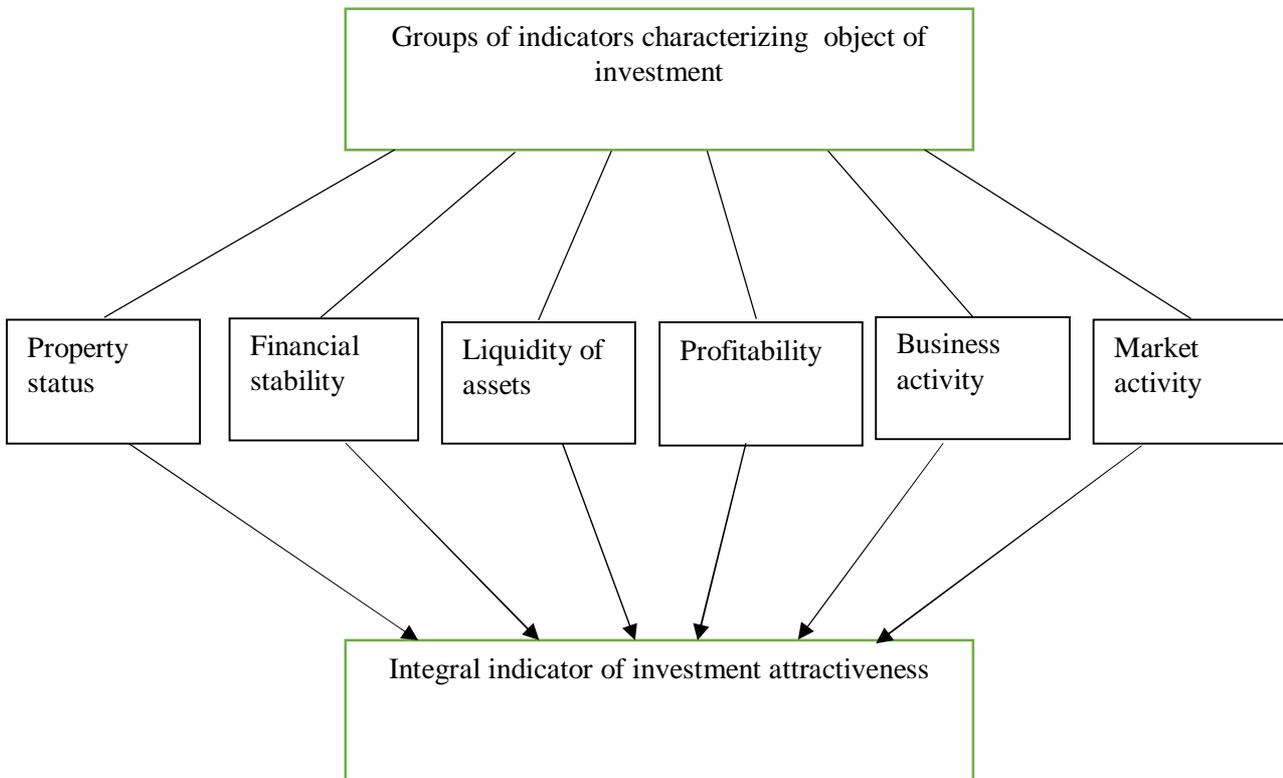


Fig. 1. Indicator groups that are part of the integral indicator of investment attractiveness

For this purpose, the indicator of progressivity of fixed assets is calculated as the share of innovative fixed assets in their overall structure [2], as follows:

$$IP = \frac{VME}{FX_{total}}, \quad (1)$$

where,  $IP$  is the indicator of progressivity of fixed assets;  $VME$  is value of modern and progressive upgraded equipment;  $FX_{total}$  is the total fixed assets value.

Indeed, in the absence of modern equipment, the company will not be able to produce competitive products.

However, it should be noted that the property of the enterprise is not only fixed assets, but also material resources, cash. In our opinion, in this group it is necessary to evaluate all the resource potential of the enterprise, namely: fixed assets, material resources, labor resources, etc.

The second group of indicators is intended to assess the financial stability (solvency) of the

facility. To do this (according to the Methodology) it is suggested to analyze relative indicators like:

- working capital (the difference between current assets and current liabilities);
- inventory to working capital ratio (share of inventories in the amount of working capital);
- equity ratio (proportion of owner capital used to fund a company's assets);
- equity to debt ratio (compares a company's total equity to total debt);
- financial stability index (equity and long-term liabilities to total assets ratio);
- financial leverage ratio (total debts to equity ratio).

It is also recommended to determine type of company's financial stability on the basis of comparison the amount of stocks and the sources of funds that are covering these reserves (net working capital; equity, long-term and medium-term funds; the total amount of the main sources of financing).

The third group generates liquidity indicators. To assess the liquidity of the invested

object, assets are grouped by degree of liquidity and liabilities are grouped by their payment deadlines. As a result, there are four groups of liabilities and four asset groups. The results of their comparison determine the liquidity of the balance sheet.

The assessment of liquidity (according to the Methodology) is determined by calculating:

- the coverage ratio (current ratio, current liquidity);
- absolute liquidity ratio (cash ratio);
- the ratio of receivables and payables;
- the coefficient of coverage of periodic payments (the ratio of the difference in current assets and inventories to the average daily cash payments for business operations).

Liquidity ratios can give investors an idea of how capable a company will be at raising cash to purchase additional assets or to repay creditors quickly, either in an emergency situation, or in the course of normal business [3].

So, in our opinion, this group should include the quick ratio and the working capital to sales ratio.

The quick ratio (is also known as the acid test) is the key measure of a company's liquidity, it answers the question "Can this company meet its current obligations from its liquid assets if suddenly all sales stop?" More stringent than 'current ratio,' it excludes inventories (typically the least liquid of current assets) to concentrate on the more liquid assets of the firm. Usually an acid test ratio of 1.0 or higher is considered satisfactory by lenders and investors [4].

The quick ratio is calculated by adding cash, cash equivalents, short-term investments, and current receivables together then dividing them by current liabilities, as following [5]:

$$Quick\ ratio = \frac{C + CE + STI + CR}{CL}, \quad (2)$$

where,  $C$  is cash;  $CE$  is cash equivalents;  $STI$  is short-term investments;  $CR$  is current receivables and  $CL$  is current liabilities.

Sometimes company financial statements don't give a breakdown of quick assets on the balance sheet. In this case, it's still possible calculate the quick ratio even if some of the quick

asset totals are unknown. Simply subtract inventory and any current prepaid assets from the current asset total for the numerator [5], as in the following example - here's another formula for quick ratio:

$$Quick\ ratio = \frac{TCA - Inv - CPA}{CL}, \quad (3)$$

where,  $TCA$  is Total Current Assets;  $Inv$  is Inventory and  $CPA$  is Current Prepaid Assets.

Both the current and quick ratios are the most widely used measures of short-term liquidity but a problem with them is that they are static. Therefore, we suggest including the 'working capital to sales' ratio in the methodology of investment attractiveness assessment. This indicator has been determined by Ciaran Walsh. This author noted that it is argued that cash flow over the short-term future would be a better indicator of ability to pay [6].

The formula for calculating the indicator "working capital to sales ratio" is as follows:

$$Working\ capital\ to\ sales\ ratio = \frac{CA - CL}{Sales}, \quad (4)$$

where,  $CA$  is current assets.

The 'sales' figure reflects, to some extent, the operating cash flow through the whole system. This ratio, therefore, relates the short-term surplus liquidity to the annual operating cash flow [6].

The fourth group generates profitability indicators. The profitability of an investment object (according to the Methodology) is offered by the calculation of such indicators:

- return on investment (the ratio of profit before tax to long-term liabilities);
- return on equity;
- operating profit margin (calculated as net profits divided by sales);
- return on average total assets (calculated by taking net income and dividing it by average total assets).

The fifth group includes indicators characterizing the business activity of the investment object. Business activity (according to the Methodology) is estimated by calculating indicators like:

- labor productivity;
- yield of capital investments;
- funds turnover and the time of their turnover;

- inventory turnover;
- inventory turnover in days;
- equity turnover;
- total capital turnover.

In our view, assessment of the company's business activity should start with collationing and comparing the growth rates such indicators as profit, income from sales of products and the volume of invested capital (total assets)). The higher the growth rate of income from the sale of products (goods, works, services) and profit, the more promising is the investment of additional capital in the activities of the enterprise. The following ratio of the growth rates of the above indicators is considered optimal [7]:

$$GRpr \geq GRis \geq GRta \geq 100\%, \quad (5)$$

where, (*GRpr*) is profit growth rate; (*GRis*) is growth rate of income from sales of products; (*GRta*) is total assets growth rate.

This relation between growth rates is also called the "golden rule of the enterprise's economy". If this ratio persists at the enterprise, then this confirm that:

- the economic potential of the company is growing;
- the growth rate of income from the sale of products (works and services) of enterprises higher than the growth rate of economic potential;
- the growth rate of company's profit exceeds the growth rate of economic potential.

In the analysis of business activity (according to the Methodology) there are no indicators of turnover of accounts receivable and payables. The urgency and necessity of the calculation and use of the above is explained by their informativeness regarding the state of payments and the formation of free working capital at the enterprise.

The analysis of accounts receivable turnover is based on a comparison of its amounts with the volume of sales and is calculated by the formula:

$$\begin{aligned} \text{Accounts receivable Turnover} &= \\ &= \frac{\text{Sales}}{(\text{AR}_{b.y.} + \text{AR}_{e.y.})/2}, \quad (6) \end{aligned}$$

where, *AR<sub>b.y.</sub>* is accounts receivable at the beginning of the year; *AR<sub>e.y.</sub>* is accounts receivable at the end of the year.

A similar characteristic is the Days sales outstanding:

$$\begin{aligned} \text{Days sales outstanding} &= \\ &= 365 / \text{Accounts receivable Turnover} \quad (7) \end{aligned}$$

The high value of the accounts receivable turnover indicates that the company works with its customers and the state of payments is controlled by company's management.

Low level of accounts receivable turnover "cash out" money from the enterprise, forcing the financial manager to look for new sources of growing accounts' receivable financing.

Analysis of payables turnover (PbT) is based on the comparison of its amounts with the volume of sales:

$$\text{Payables Turnover} = \frac{\text{Sales}}{(\text{PB}_{b.y.} + \text{PB}_{e.y.})/2}, \quad (8)$$

where, *PB<sub>b.y.</sub>* is payables receivable at the beginning of the year; *PB<sub>e.y.</sub>* is payables accounts receivable at the end of the year.

Trend to reduce the payables turnover show a slowdown in the rate of companies' settlements with its creditors.

In the process of analysis, it is necessary to compare the turnover of accounts receivable and payable. It is positive, if the accounts receivable turnover is slightly higher than the payables turnover. This will increase the working capital of the enterprise.

Thus, assessing the accounts receivable turnover and inventory turnover, that make up the bulk of current assets structure, it is not appropriate to separately calculate the working assets turnover [8].

The sixth group is formed by indicators of the assessment of the investment object's market activity (Fig. 2). This group includes (according to the Methodology) indicators like:

- dividends per share (dividing the total cash dividends paid to shareholders by the total primary shares outstanding);
- price-earnings ratio (the ratio of the market price of one share to dividends per share);
- dividend yield (ratio 1 to earnings per share and indicates how much a company pays out in dividends each year relative to its share price). The selected indicators take into account all aspects of the operation of the enterprise, however, in our opinion, incompletely reflect their qualitative characteristics.

Let's take a look at the sixth group of market activity indicators. Proposed indicators are calculated

using the value of dividends. But the company may choose a dividend policy both from the "zero" dividend and up to the policy of "100%" dividend. Therefore, in our opinion, to assess market activity, it is incorrect to

use practically all indicators that take into account dividend payments. In our view, it is advisable to assess the market activity of an enterprise according to the indicators depicted in Figure 3.

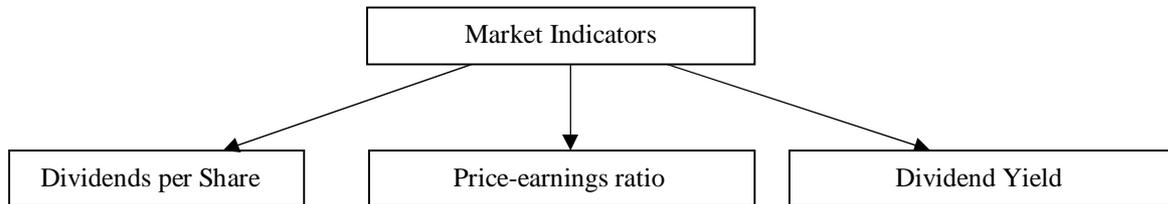


Fig. 2. A group of market indicators according to the Methodology of Integral Assessment of Investment Attractiveness of Enterprises and Organizations

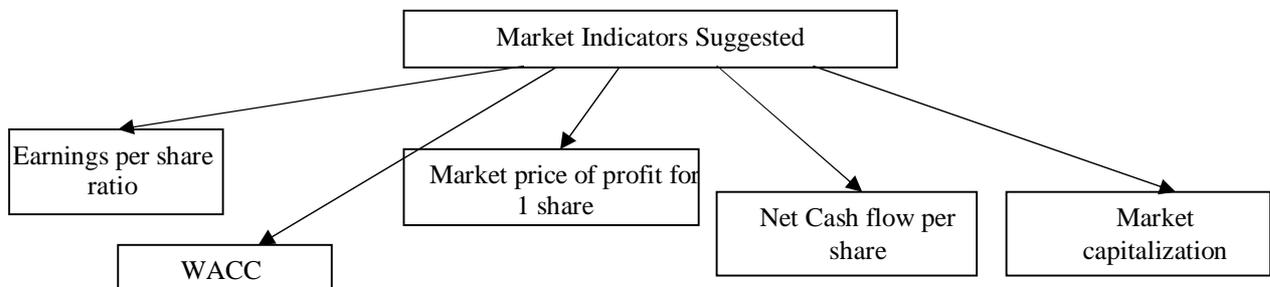


Fig. 3. Market Indicators Suggested to assess the investment attractiveness of the enterprise

Thus, it is difficult to assess the investment attractiveness of the enterprise without calculating and analyzing the indicator of earnings per share, which is calculated as follows:

$$\text{Earnings per share} = \frac{NP}{NSaa}, \quad (9)$$

where,  $NP$  is net profits remaining at the disposal of owners of the company;  $NSaa$  is the average annual number of shares.

In our opinion, this indicator is the most common and used in assessing the investment attractiveness of the enterprise. By making investment decisions, investors are guided in the dynamics of profits per share of the enterprise. This indicator is relevant to shareholders who expect to increase (multiply) their capital, regardless of whether they are received in the form of dividends or capitalized. Earnings per share is one of the important factors that influence the formation of the market price of an enterprise's shares.

The price-earnings ratio, which is tied to the volume of dividend payments, is expedient to

replace, or in parallel to said indicator used indicator like the market price of profit for 1 share. The formula for the calculation is as follows:

$$\begin{aligned} \text{Market price of profit for 1 share} &= \\ &= \frac{MPo.sh.}{E1sh}, \quad (10) \end{aligned}$$

where,  $MPo.sh.$  is the market price of ordinary shares that is used,  $E1sh$  is the profit per 1 ordinary share (the value of the previous one proposed by us namely Earnings per share).

This indicator shows how many times the market share price exceeds the amount of profit per share. The market price of profit for 1 share ratio is used in the case of company acquisition. The high significance of this indicator can testify promising (innovation, image, quality socio-economic policy, etc.) of the company. However, in the short run, as a rule, a decrease in the indicator is expected, as it is obvious that the profits of such a company will increase. Therefore, it is important for investors to conduct a dynamic analysis of the indicator of the market price per profit for 1 share. And, in order to

assess the investment attractiveness of an enterprise, it is necessary to use the growth rates of this indicator.

In our opinion, it is also necessary to include a well-known indicator WACC in the methodology. Weighted average cost of capital (WACC) is an indicator that allows an enterprise to evaluate the effectiveness of its financial investments. WACC characterizes the minimum acceptable rate of return on investments.

To calculate WACC, multiply the cost of each capital component by its proportional weight and take the sum of the results. The method for calculating WACC can be expressed in the following formula:

$$WACC = (E/V) * Re + (D/V)*Rd*(1-Tc), \quad (11)$$

where,  $Re$  is cost of equity;  $Rd$  is cost of debt;  $E$  is market value of the company's equity;  $D$  is market value of the company's debt;  $V = E + D$  is total market value of the company's financing (equity and debt);  $E/V$  is percentage of financing that is equity;  $D/V$  is percentage of financing that is debt;  $Tc$  is corporate tax rate.

All sources of capital, including common stock, preferred stock, bonds and any other long-term debt, are included in a WACC calculation. In brief, WACC shows the overall average rate (average interest rate) an entity pays for raising funds. In many organizations, WACC is the rate of choice for discounted cash flow (DCF) analysis for potential investments and business cash flow scenarios [10].

On our mind, to market indicators it is expedient to enter an indicator that reflects how much money is generated in the process of enterprise activity accounts for 1 ordinary share. This indicator is calculated as follows:

$$Net\ Cash\ flow\ per\ share = \frac{NCF}{NCo.sh.}, \quad (12)$$

where,  $NCF$  is the net cash flow;  $NCo.sh.$  is the number of company's ordinary shares.

The coefficient also shows the potential of the company to pay dividends regardless of the adopted dividend policy.

To the components of the indicators that form the integral estimation of investment attractiveness it is necessary to add the coefficient of market capitalization. Market capitalization refers to the total market value of a company's outstanding shares. Commonly referred to as

"market cap," it is calculated by multiplying a company's shares outstanding by the current market price of one share [11]. The investment community uses this figure to determine a company's size, as opposed to using sales or total asset figures. Using market capitalization to show the size of a company is important because company size is a basic determinant of various characteristics in which investors are interested, including risk.

It should be noted that the indicator of market capitalization is used to calculate stock indices.

### Conclusions

Consequently, the proposed methodology of the integrated assessment of investment attractiveness of enterprises and organizations, which involves the calculation of the integral indicator is based on the assessment of enterprise activity in such areas as - assessment of property status, financial stability, liquidity, profitability of business and market activity. And if we can agree with the structure of the groups of indicators, that characterize the object of investment, then their content filling requires careful review and improvement. This especially applies to the group of indicators characterizing the market activity of the enterprise.

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