

## The formation of the enterprises rating activity system on the criterion of investment attractiveness

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**Abstract.** The value of rating activity usage in terms of evaluation of enterprises investment attractiveness is grounded. There is proved the necessity of enterprises rating evaluation within financial, economic, technological, productive, HR and market areas and it is outlined the indicator content of each area to provide multi-criteria rating activity.

**Key words:** investment attractiveness, enterprise, rating activity, rating, ranking, rating evaluation, polycriterial rating activity, system of indicators.

### INTRODUCTION

An effective functioning of the enterprises is impossible without powerful investment of money, both in-house and loan, which should be directed into the development of productive, technical and technological, innovative and other strategic business spheres. Hereby, in the conditions of present economic crisis the companies' owners are increasingly turning to the financing of their production and business activities by means of external sources, primarily investment recourses. As long as investment activity is inevitably accompanied by the financial risks with the probability of large-scale losses and bankruptcy, banks and other financial-credit organizations, public authorities, enterprises and other potential investors as a strong argument for the investing in a particular object consider a level of compliance with certain characteristics, that is investment attractiveness. To solve this task they are increasingly turning to the enterprises rating activity methods and methodics. As a result of their application both external users and top managers of researched

enterprises receive ratings, which in a compact form represent the position of these enterprises among the others, analogous by the key characteristics, and lay the foundations for the multidirectional decision-making including investment. Together with this, the current approaches to the enterprises evaluation on the rating basis do not allow to trace the cause-effect relations between the value of generalized rating and the effectiveness of the certain areas of activity (productive, financial, technological, marketing etc.). Though such information has a dualistic worth, so long as, on the one hand, it warns enterprises owners about spheres of activity which are the most in need of financing for resolution of current problems or further development, and from the other – allows potential investors the decision-making according to the practicability of cooperation with enterprises within the investing in these spheres. Considering everything mentioned above, it is necessary to form the multiple view indicator system for the enterprises investment attractiveness evaluation on the rating basis.

### ANALYSIS OF THE LITERATURE ON THE PROBLEM

The urgency of the enterprises investment attractiveness evaluation is being confirmed by the large interest on this problem of Ukrainian and foreign scientists. An important contribution into the theory of investment, evaluation of investment efficiency and investment attractiveness is represented in the works of

O. Andrash [1], I. Blank [2], L. Borshch [3], Z. Herasymchuk [4], T. Mayorova [5], G. Pidlisetskyi [6], A. Peresada [7], A. Yepifanov [8], V. Zaharchenko [9] etc. The unique role of rating instruments implementation in the sphere of investment attractiveness evaluation is emphasized in the researches of S. Ishchuk [10], A. Nechyporuk [11], A. Shcherbak [12], I. Simenko [13], I. Sklyar [14] and others. They have offered to use the statistical rating methods (firstly, elements of the fuzzy logic theory and its interpretation on the basis of Harrington scale), which make it possible to consider objectively and comprehensively diverse quantitative and qualitative indicators of enterprises activity by transforming them from a natural form into the dimensionless one with the desirability scale. Despite of these advantages, such approaches to evaluation of enterprises investment attractiveness may be too much complicated with mathematical apparatus for unequipped interested users [15]. Ratings of investment attractiveness are also represented the main products of domestic and international rating agencies. Among them, according to experts and analysts, the highest level of Ukrainian users confidence earned methods of such world-known rating companies as Moody's, Fitch Ratings and Standard & Poor's, as well as national rating agency "Credit-Rating". The peculiarities of mentioned above companies rating methods are the exclusive ponderability of expert methods during the evaluation of rating informational resources array as long as the formation of integrated ratings with dominant account of qualitative parameters of rating activity object (industry practices, state of the market influence, external social-economics and political risks, enterprise management condition etc). In addition, the prerequisite of rating formation by the rating agencies is, first of all, the commercial interest. This very aspect is the reason why the most of rating methods and methodics are confidential: the access to databases with ratings of enterprises and organizations becomes available only on the paid basis, and the disclosure of rating evaluation means and techniques, which, at the same time, are the elements of rating agencies intellectual property, is limited or completely absent. That is why there exists the paramount necessity of creation of scientifically grounded, understandable polycriterial rating activity system. The results of its functioning will serve for potential investors as a criterion for investment project choice as long as will form the guidelines for the enterprises development with the aim of their investment attractiveness increasing.

#### THE PURPOSE OF THE PAPER

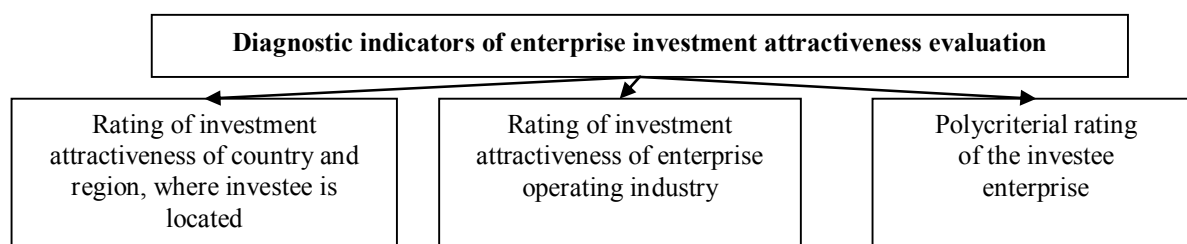
The purpose of the article is the formation of methodical recommendations according to the substantiated development of rating activity system of enterprises investment attractiveness on the basis of the most significant multilevel system of indicators.

#### PRESENTATION OF THE MAIN RESEARCH MATERIAL

The investment attractiveness of the enterprise is a complex, multiple-aspect, integral category. It represents the sum total of enterprises finance-economical, social, material and technical, productive, market and other characteristics subject to investment attractiveness rating of the country and region of enterprises location, as long as the branch of its functioning, which ensure the competitive advantages of the enterprise in the struggle for investment recourses [16]. A real or financial investor is guided by the considerable list of criteria in the process of investing his financial, material, intellectual and other kinds of recourses into the certain enterprise while evaluating significant components and the level of its investment attractiveness from the position of further return of investment. In the rating-diagnostic context a weighty role represent the factors of enterprise investment attractiveness formation as they determine its parameters character, their stability and duration. The factors of external environment represent the conditions of enterprises functioning in the certain geo-economic system, but they are not always crucial for a specific individual investor, because there isn't any country in the world with perfect conditions for business activity.

However, practice shows that investors are investing not only in the enterprises from highly developed countries, but also into the companies of developing and low-developed ones, which are characterized by the unfavorable investment climate. This is an evidence of the priority for a particular investors group of investment attractiveness parameters of the enterprise, not the conditions and environment of its functioning. Within this approach a special emphasis gets identification of internal environment factors, which form the investment attractiveness of the certain enterprise regardless of adverse investment climate in the region of operation. On the basis of realized investigations, we propose to typologize the internal environment factors of investment attractiveness formation on the semantic basis on the following groups [17]:

- industrial-engineering factors (the level of moral and physical depreciation of enterprises fixed assets, innovation and efficiency of manufacturing technologies, production facilities, the level of technical provision etc.);
- financial-economic factors (profitability, liquidity, solvency, financial independent of the enterprise; the level of bankruptcy danger; creditworthiness of the enterprise; capital productivity ratio; investment risks etc.);
- social factors (qualification of enterprise personnel; the level of average wages; working conditions; social packages; employee turnover; the level of conflicts on the enterprise etc.);



**Fig. 1.** Diagnostic indicators of enterprise investment attractiveness evaluation

- commodity factors (competitive ability of enterprise production; existence and recognition of trade mark; the uniqueness of production etc.);
- property factors (ownership of ground area, property complexes etc.);
- administrative factors (business form; form of ownership; legal position etc.);
- management factors (the level of management system development; the level of management processes automation; the level of managers qualification, leadership style etc.);
- distinctive factors (enterprise image; brand; market reputation etc.);
- info-communication factors (presence of established contacts with suppliers, consumers, financial and credit institutions; the development of marketing communications; the usage of up-to-date info-communicational technologies; presence of the enterprise in international and native ratings and rankings etc.).

The developed typologies of enterprises investment attractiveness formation factors generated the preconditions for creation of integral fundamental method of diagnostics in this sphere. Thus, the realized researches allow stating that it is unreasonably to evaluate the enterprise investment attractiveness on the basis of some integral indicator, as long as this indicator doesn't reflect the weaknesses of the enterprise and may give the biased information about its development potential. In order to this we propose to perform such an evaluation within the multiple-vector approach, which is based on the following indicators system of investment attractiveness evaluation (Fig.1).

Since rating of the investee enterprise is directly dependent on manufacturing, technology, personnel and other internal factors of its activities, a major challenge in this study is the development of an objective rating of the company. So in order to perform functions of complex diagnostic indicator of enterprise investment attractiveness, rating must be based on carefully selected and adequately worked out set of indicators and evaluation criteria that give the most clearly reflection of rating object (investee) efficiency in all sphere of its functioning [18]. Therefore, the indicator-criterial filling is crucial in rating activity, because exactly the approaches to selection and generalization of financial-economic, productive-innovational, technological and

marketing indicators make the significant influence on the success of rating procedure as long as objectivity of its outcome - ratings and rankings.

In these conditions we propose to select indicator groups for the creation of enterprises rating evaluation systems in accordance with the following fundamental principles [19]:

- 1) a complex balance (involves quantitative and qualitative content of key groups of indicators that provide multidimensional consideration of all companies areas of functioning peculiarities and the relationships between them);
- 2) the completeness and accuracy of the input data base (the presence of coherent information system to calculate the ranking performance and, at the same time, the use of only official and/or thoroughly tested information sources);
- 3) formalization (all indicators should be measured, and the indicators of qualitative and descriptive nature should be limited to the estimated species);
- 4) comparability (all figures should be comparable to each other, that is to have identical units of measurement);
- 5) criterion validity (the ability to establish a clear range of selected indicators values for identifying and unambiguous clarification of the development dynamics);
- 6) combating multicollinearity (removing from the indicators list of those factors that are closely interrelated or overlapping);
- 7) conformity (to the selected method and the rating activity methodics);
- 8) the optimal number (the quantity of parameters in each group should be minimal, but sufficient for the construction of adequate rating assessment);
- 9) predictability (the selection of indicators should be carried out so as to ensure not only diagnose the current state of operation of the entity, but also to enable prediction of future trends of its change);
- 10) adaptability (adjustment toward expanding or narrowing according to users requirements).

Adopting a set of specified principles, we can proceed with the immediate formation of the complex indicators system for the rating evaluation of the enterprises.

After analyzing the literature and the results of many years methodical and methodological developments of rating agencies specialists, it should be noted that the rating activity is proposed to use a broad set of different indicators and coefficients. Thus, it is appropriate to note that the vast majority of them are focused on clarifying of the rating objects creditworthiness and solvency. Determining the level and permanent monitoring of the performance-based payments of so-called credit rating is undoubtedly an extremely important area within the financial and economic management of the company, as this is accompanied by the formation of well-timed and objective information on the effectiveness of the enterprise cooperation with external partners (customers, suppliers, creditors, shareholders etc.). The accent on the suitability of rating activity usage in the conditions of evaluation of enterprise ability to reckon with credits and other debt obligations we can also trace in rating activity regulatory support. This applies to international regulation of rating activity, which is reflected in the regulations of the International Organization of Security Commissions (IOSCO), and national legislation.

So from the above mentioned we can conclude that in today's conditions the significance of rating activity is underrated. The problem is that existing rating activity methods and developed on their basis methodics are not representative. It is related to the fact that, firstly, during the ratings creation there are used mainly financial and economic results of the studied objects without filling with the results of industrial, technological, market, personnel areas that cannot be an argument for the complexity of the rating assessment. In addition, only the final rating scores are being reflected, while the weight of intermediate results (partial ratings) is smoothed over, though often it is much more important (particularly in terms of evaluation of investment attractiveness) than the composite index.

To solve this problem, we propose first of all to consider the multifaceted dimension of the rating objects functioning (on the example of industrial plants) by these countervailing areas: economic and financial ( $\Phi$ ), productive (B), technology (T), HR (K) and market (P).

In justifying the rating assessment validity of the rating objects financial and economic sphere of functioning, it should be noted that the peculiarities of the accumulation and distribution of cash assets in order to provide industrial enterprises timely and adequately with resources that are necessary for the smooth implementation of production and commercial processes play a crucial role in today's survival and progress of these industrial structures in local economic conditions. Thus, the results of extensive research has shown that a clear list of financial indicators for evaluation is absent, and in some cases the same parameters are provided by different formulas for calculation. So none of the official regulatory methodics can be prescriptive (taken as the

standard) while wearing only recommendation character. The key areas which are analyzed during the survey of the financial situation on the enterprises are the level of financial stability, liquidity (solvency), the state of business activity (turnover) and profitability of functioning. It is well-known that the range of indicators for the evaluation of these areas is extremely broad: the practice of American financial analysis found about two thousand, domestic researchers and practitioners offer over 200 options for financial evaluation. Therefore, in order to respect the principle of optimal number and to avoid the risk of multicollinearity, which increases significantly with the use of a large number of indicators, there were chosen the most representative indicators within the financial and economic vector as follows: rate of financial independence, the current liquidity, capital productivity ratio and return on equity (ROE).

Among the indicators of financial stability there was selected the coefficient of financial independence (hereinafter -  $\Phi_1$ ), which indicates the level of enterprise assets provision with the internal funds, that is diagnoses whether there is a risk of transfer of rights associated with the company property management from its owners to lenders (standard value: 0.5-0.8). The choice of this indicator is due to the fact that today, according to official statistics, industrial enterprises are faced with the acute problem of financial autonomy loss, as in the period from 2007 to 2012 only in 2007 the ratio was investigated within the standard value ( $\Phi_{1(2007)}=0.53$ ). Over the next 5-years period there was observed the permanent reduction of  $\Phi_1$  an average of 6 % per year, which in 2012 established at the level of 0.356 and was a signal that de facto the control of the domestic industry today doesn't carry by their owners, but by the lenders.

To assess the solvency of rating objects (industrial enterprises) there was selected the coefficient of current liquidity (liquidity ratio) (hereinafter -  $\Phi_2$ ), which in general is calculated as the ratio of current assets of the company to the value of its current obligations for a certain period (standard value: 1-2). In contrast to other indicators of liquidity (quick and absolute),  $\Phi_2$ , in addition to cash support, which is investigated within the absolute indicator of liquidity, takes into account the influence of the accounts receivable and inventory holdings, which today form the most significant share of the industrial enterprises current assets (64 % and 25 %, respectively, as of 30.09.2012). The constant increase in the value of these indicators over the last three years is one of the very problematic sides in industrial enterprises functioning, as it leads to permanent payments crisis, especially in the short term period, as well as the "washout" of money from circulation and losses due to their gradual impairment because of disuse. That is why we consider that  $\Phi_2$  characterizes the most fluently the adequacy of the company financial resources for the implementation of accrued liabilities. In addition, the activity of industrial enterprises should

be directed for at least this indicator of liquidity achievement in the conditions where none of the solvency indicators meet the normative value.

The reasonability of capital productivity ratio (hereinafter –  $\Phi_3$ ) allocation is conditioned by the fact that being the ratio of the net proceeds from sales to the average value of assets it demonstrates the overall effectiveness of the enterprise property use excluding sources of its formation, and that in how quickly invested capital is compensated by the made and sold products of enterprises. The cost of industrial enterprises capital is the highest of all sectors of the Ukrainian economy (1,255,392.9 million hryvnias, representing about 30% of domestic enterprises total assets, according to official statistics as of 31.12.2012). Accordingly, the high cost of industrial enterprise property requires permanent tracking of the capability to ensure its funding through the implementation of product sales results and the expediency of such provision with regard to how much income from the sales brings 1 hryvnia of capital invested in it (this indicator should always be greater than zero and increase in dynamics).

The profitability indicators have always had a high priority in terms of analyzing the activities of business organizations, as they reflect the level of their operations effectiveness, indicating the possibility and expediency of the further implementation of industrial and commercial procedures in the selected direction. In the proposed list of financial and economic indicators for rating needs we consider that it is appropriate to calculate the level of return on equity (hereinafter –  $\Phi_4$ ). This indicator informs how much hryvnias of added value we can get by investing in it 1 hryvnia of equity capital. For industrial enterprises, similarly to other branches,  $\Phi_4$  is important because it shows whether it is possible only through its own funds to provide effective functional development of the rating object, or there is a need for appealing external funds. In the 2009-2012, according to the results of statistical surveys, the level of unprofitable industrial enterprises has steadily increased, changed from 33% in 2009 to almost 42 % at the end of analyzed period. According to experts of the enterprises, it was the result of insufficient own financial resources provision and automatically caused the increasing of these enterprises expenses for the cost of obtaining and servicing of loan capital (in the last 3 years, the amount of short-term banking credits increased more than 1.2 times granted to financing of the domestic industrial sector).

Another area of research within the formation of the complex rating indicators system is productive sector (B). The main reason of including the indicators of this type into the complex rating index is that production (operating) activity is a crucial component of industrial enterprises economic development, where, in comparison with other sectors, is concentrated the largest share of obtainable subjects and means of labor

(operating expenses of industrial enterprises amounted to 40.263% of their total cost in 2012, and more than 55% - in the total operating costs of domestic entities). We suggest setting the following key indicators within the productive area of functioning: production profitability, the coefficient of production rhythmicity, fraction defective in sales and the coefficient of production renovation.

Production profitability (hereinafter -  $B_1$ ) as the ratio of operating income to the value of the total cost requires tracking in order to determine whether the amount of total costs incurred for resource support of the production process is economically reasonable. In today's environment, there is often a tendency of company management to overstate expenses forming production costs (primarily to reduce the size of tax payments) which, according to experts, is another factor of increasing the number of unprofitable business organizations in the industrial field.

The coefficient of production rhythmicity (hereinafter -  $B_2$ ) indicates coordination of all phases of the production process at the enterprise, reflecting the level of uniformity of production in the planned scope and assortment according to the schedule. If production activity is unrhythmical, on the one hand, it creates a negative impact on sales volume, as the discrepancy in the volume of output to current demand on a certain date will inevitably lead to loss of customers (both real and potential) and, consequently, to deficiency of profits and development slowdown. If irregularity causes overproduction on a certain date, then, again due to mismatch of demand, it will result in significant overstocking of warehouses, leading to rising of production costs, reducing profits, and aggravation of enterprise financial conditions.

The fraction defective (hereinafter -  $B_3$ ) is an important indicator of product quality so its share in the sales volume should be taken into consideration in the context of clarifying its impact into the productive sector effectiveness. As the current practice of the domestic industrial enterprises argues, the main reasons for defectiveness are: the lack of qualified workers, the equipment operating irregularity, poor quality of tools and other production stock, errors in the technical documentation, the negligence of workers and low labor discipline etc. In most developed countries in industrial production there is a maximum acceptable level of defectiveness (an average of 2-3 % of the output volume). However, the best results in the area of defective products minimization show Japanese companies, where the main efforts of managers at all levels are focused on maximizing the reduction of the share of products with defects by using modern highly efficient quality management systems (fraction defective and frequency of breakdowns of Japanese cars, televisions and other industrial products, according to experts, is 10 times lower than similar results of

European companies). Touching the Ukrainian experience, according to Article 138 p.138.7 "Costs structure and the order of their recognition" of the Tax Code of Ukraine (№ 2755 -VI from 02.12.2010), it is stated that enterprises are required to establish their own norms of losses from defects, but they may be included in the cost only if there is an economic justification for their predesigned size. Thus, it is clear that defective products are a significant burden for the industrial enterprise, as its high level, besides reducing the efficiency of the financial and economic activities, will not allow domestic enterprises to provide a decent competitive position, especially in the process of international economic relations setting up.

The coefficient of production renovation ( $B_4$ ) is one of the key indicators of enterprise innovation activity, which reflects the level of its funding appropriateness, as indicates the portion of developed innovative products which, subject to the effective functioning of the marketing trend, is characterized by a high level of competitiveness and provides augmentation of overall ability to compete and develop effectively in today's environment.

Evaluation of technological sphere  $T$ , which is primarily important in analyzing of the industrial enterprises production, provides for a generalization of yield of capital investments, capital-labor ratio, and coefficient of fixed assets renewal, extensive and intensive equipment loading. These indicators reflect the level of technical and technological support of the production process by means labor. Yield of capital investments  $T_1$  characterizes the efficiency of means of labor use, as indicates how many units of output produced by a unit of enterprise fixed assets. Speaking about the capital-labor ratio index ( $T_3$ ), it should be noted that it reflects the level of technical equipment of work, pointing to a fixed assets value used by each worker. The growth of capital-labor ratio is the basis for productivity increasing, which should grow relatively faster. Otherwise,  $T_1$  decreases and, accordingly, the use of fixed assets becomes worse. The conditions  $T_3$  growth are increasing of operation rate, automation of production, active updating of computer hardware and software, personnel professional development, the use of high quality materials, raw produce etc. To analyze the efficiency of available equipment use in time measures we use  $T_4$  indicator, which also reflects the coherence of the main production equipment work. The intensive load of production capacity, offered to analyze in terms of  $T_5$ , leads to a reduction of fixed costs and, consequently, the cost of production, which in turn enables the increasing of productivity. However, given indicator reflects the nature of the production and technological process in much greater degree than  $T_4$ . As regards the indicator of fixed assets renewal  $T_2$ , along with the  $B_4$  it is another innovative feature of the industrial enterprise economic activities that reflects the security of its technical level and describes the company's ability to manufacture

products using advanced production technics and technology that provides the increasing of quality parameters.

Analysis of HR area ( $K$ ) is based on calculating of the coefficients of labor productivity, turnover, utility of working time fund usage and the average wages. Labour productivity ( $K_1$ ) shows the growth performance and the progressive development of the enterprise. It is directly related to reducing the complexity of production labour intensiveness, optimum use of manpower, personnel training, the rationality of organization and motivation. The level of turnover that characterizes the rate of  $K_2$ , reflects the movement of personnel in the organization/ It is caused by dissatisfaction of employees of any elements of the production situation or by owner dissatisfaction with the employee productive behavior.  $K_2$  indicates the stability and coherence of the industrial enterprises personnel performance. The value of the average wages  $K_3$  allows revealing the level of enterprise expenditures on remuneration for employee self-employment and serves as an indicator of labour motivation. Utility of working time fund usage  $K_4$  indicates the amount of time spent directly on the performance of basic work provided in the duties of the employee, and indicates clearly the reasonability of further cooperation with them.

The market area ( $P$ ), which reflects the efficiency of the enterprise performance in the external economic environment, should be analyzed on the basis of the calculation of the following indicators: share of the market ( $P_1$ ), return of sales ( $P_2$ ), the level of the enterprise capitalization ( $P_3$ ) and maturity of accounts receivable and payable ( $P_4$  and  $P_5$ ). Indicator  $P_1$  allows evaluating the competitiveness of the company in terms of its market potential. Generally, with company market share increasing its position becomes more stable and the company, respectively, becomes more competitive. Comparing the overall market potential with the company share or its nearest competitors positions, we may define "market shares" learning which the company can expand its range of market impact. As for the coefficient of  $P_2$ , it is the basis for tracking of the enterprise functioning efficiency at stage of manufactured products realization, as indicating the level of profitability of the company selling and therefore the correctness of its actions in planned realizable policy and ensuring a competitive market position. The enterprise capitalization level ( $P_3$ ) is another indicator of the competitiveness of an entity that reflects the real value of the business property in the marketplace and, therefore, is closely related to the effective use of all its inputs.  $P_4$  and  $P_5$  coefficients are chosen for the evaluation of industrial enterprises market area because they provide the opportunity for tracking the level of the company financial flows managing ability. They reflect the most completely the level of effectiveness of enterprise collaboration with key counterparts in the market - debtors and creditors.

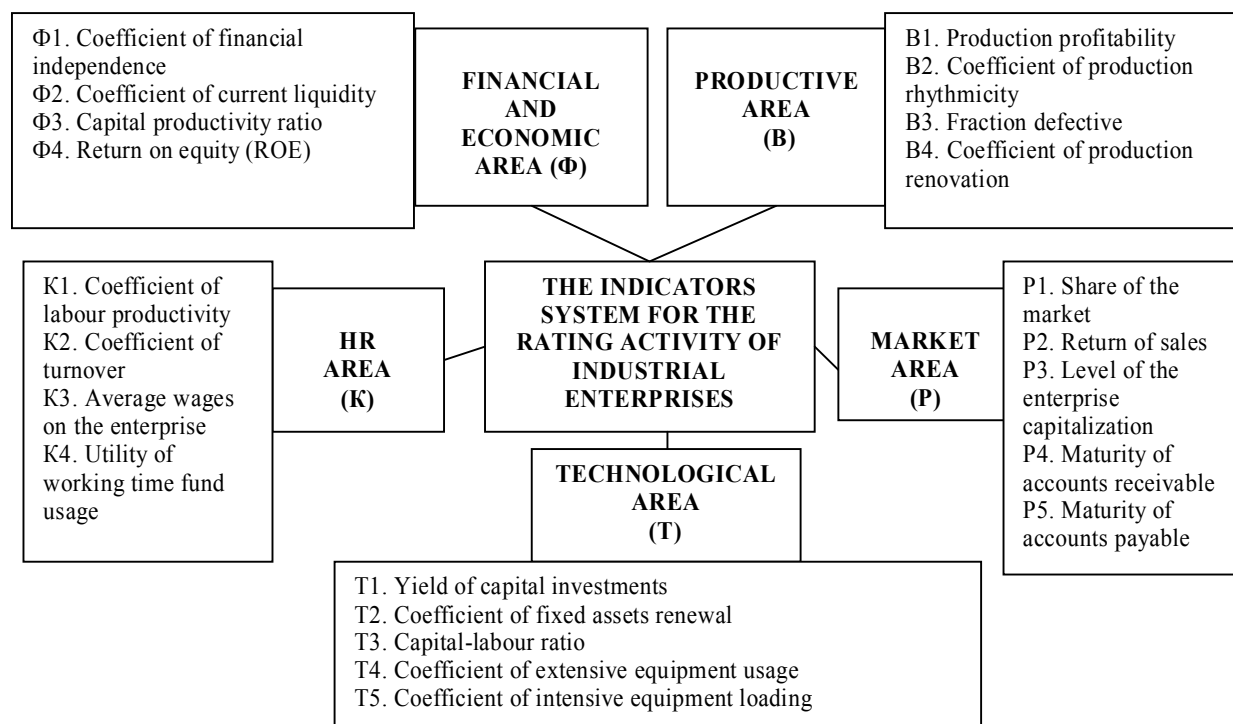


Fig. 2. Indicators system for the rating activity of industrial enterprises\*

- developed by the authors

Generalization of pointed indicators (Fig. 2) using the specially selected method creates the most adequate and complete picture of the effectiveness of the researched objects functioning in the form of complex rating as a key outcome of the implementation of the rating activity on the enterprise [20].

## CONCLUSIONS

A detailed analysis in the sphere of rating activity indicator provision showed that all the achievements of domestic and foreign scholars, as long as the results of practical activities of credit rating agencies and normative standards of state regulatory authorities aim to calculate the ratings, reflecting mainly the results of financial economic activity of the researched objects (indicators of profitability, business activity, solvency etc.).

However, this approach is too limited and nonrepresentational in terms of rating activity on industrial enterprises. With this in mind, there was developed a system of indicators for polycriterial rating evaluation (on the example of industrial enterprises) based on the decomposition of the financial and economic, industrial, technological, HR and market blocks. This indicators structure makes it possible to provide a partial rating activity in key areas of rating objects functioning and identify the strengths and weaknesses of each of these areas in order to determine their impact on the overall efficiency of industrial enterprise functioning. Thus, the presence within each of the areas indicators that characterize the effectiveness and prospects of business entities functioning by the

various parameters, suggests the reasonability of usage of the introduced indicators system for polycriterial rating activity as an objective tool for enterprises investment attractiveness integrated evaluation.

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