

THE PLANNING AND MANAGEMENT OF THE OWNER'S EARNING WITH USING SIMULATION MODELLING

ZAYTSEV I.M., ALEXAKHIN A.V. *

ABSTRACT: *This papers aimed at the usage of automatic control systems by the financial situation of a company. The solution of this task includes three steps. The first step is the creation and the forecast of the integrated factor which define the financial condition of a company. Owner's earnings were selected as this factor. Then analyse the level of influence of the financial coefficients on the selected integrated factor. The second step is the creation of the estimated vector. The method of the assessment of company's financial position using the new characteristic – “the length of the integrated factor”, which defines by financial and statistical coefficients. The vector allows dividing the array of initial data into two parts related to satisfactory and pre-crisis periods of the enterprise, that makes possible to build a separate forecast model for the main indicator for crisis data and for satisfactory data. Probability density functions were built for each group of data. The final step is the modelling on purpose to find the optimum value of owner's earnings of the company using a change of financial coefficients were recommended like as management decisions. Authors present the block diagram of the below steps for solving the task set: the creation of listed ratios, the calculation of the estimated vector and the determination of rational values of management decisions. Shows the results of two simulations experiments for Russian steel company – NLMK group.*

KEY WORDS: *imitating modelling, owner's earnings, the sliding value of a vector of assessment of an economic situation; rational values of the financial ratios used as corrective actions.*

JEL CLASSIFICATIONS: *C1, L1.*

THE METHOD TO EVALUATE A COMPANY'S ACTIVITY

The need to develop new company management systems is conditioned by the fact that the existing methods of management of industrial enterprises on the basis of financial indicators, have a number of significant limitations:

- a) ignore or incorrectly assess the value of intangible assets of the enterprise;

* Lecturer, NUST MISIS, Moscow, Russia, ivan_zaytsev@hotmail.com
Prof., Ph.D., NUST MISIS, Moscow, Russia, alexakhin@mail.ru

- b) does not take into account the expectations of the main stakeholders of the company;
- c) late responds to changes in the external accident;
- d) do not allow to determine how this or that factor affects the results of the company due to the high aggregation of indicators used.

If we consider an integrated industrial structure as an object of management, it will be a complex system, which according to the theory of systems, has a goal and objective function, elements and links of elements of control links, the result of the system and the system effect. In Russia, for many years it was believed that the main motive of the company is to make a profit, but in the foreign literature on management and finance for several decades, the criterion of profit maximization is recommended to use only for management decisions in the short term. Profit has several significant disadvantages that can distort effective financial management decisions in the long term. It can be noted its four basic drawbacks:

- 1) first, the profit is a static indicator, that is, the time factor is not taken into account;
- 2) second, it does not take into account risk, which is a critical category in financial decision-making;
- 3) thirdly, the profit is calculated accounting in nature, not monetary, therefore, in principle, any profitable enterprise might be financially untenable, as the cash could be insufficient to meet future obligations;
- 4) fourth, the calculation of profit is ambiguous, since it has many types—for example, gross, net, retained earnings, etc.

The effectiveness of the enterprise — a comprehensive multilateral concept. Depending on what theory underlies the management of the efficiency of the enterprise and different approaches to management.

Here are listed the main approaches and theories of enterprise efficiency management from the standpoint of their evolution.

- 1) Transaction approach. Can be considered historical one of the first methods. At the heart of this approach, the company is presented as a set of contracts. This particular type of contractual arrangement, combined with the coordinated use of resources, creates savings in transaction costs compared to the coordination provided by the market.
- 2) the Resource-based approach started to develop activities in the mid-1980s — early 1990s, at this time, the company is considered as a bundle of resources. The economic performance of firms operating in the same product market depends on the composition of the resources they have and use in their work.
- 3) The approach based on knowledge (PAHO), was also developed in the first half of the 1990s, the knowledge was regarded as the most important resource efficiency and competitive advantage of the enterprise. Now companies learn and develop the knowledge created by individuals. The company better than the markets organized a combination of knowledge, i.e. approved "at independent" knowledge, whereas traditionally they were considered exclusively owned by individuals.

- 4) on the basis of the previous approach, the concept of dynamic abilities (CDU) was formed. An important branch of the knowledge-based approach (POS) is the dynamic capabilities of the firm (DS). Dynamic abilities of the company are changing internal and external organizational skills, resources and functional competencies that determine the direction of development of competencies formed under the influence of past experience. The object of analysis in the CDU are only those companies that operate in dynamic, innovative sectors.
- 5) the Entrepreneurial theory of the firm (PTF) focuses on the need of the business activities of firms operating in a global and dynamic competitive environment.
- 6) Process approach and behavioural theory of the firm. The term "process" has three different meanings in this approach: the first as the logic of causation linking independent and dependent variables; the second as the type of concepts or variables reflecting the actions of individuals or organizations; and the third as the chronology of events describing the change of things over time.
- 7) the Strategic theory of the firm (STF) is considered as "integrative", including all the set of theories of the firm that arose after the neoclassical — transactional, resource approach, the concept of dynamic abilities, etc. Note that if the previous theory took into account only certain parts of the company's efficiency, the strategic theory of the firm allows taking into account all the important factors. The formalization of the strategic approach is the concept of BPM-Business Performance Management (business performance management) or CPM — corporate performance management, EPM - enterprise performance management.

Since the term "efficiency" belongs to the economic category and is the "sister" of performance, the managerial category, it is important not to confuse these concepts. In a market economy, a prerequisite for effective functioning is the balance of interests of all business participants: owners, management and production workers. All members of the organization are interested in the effective work of the enterprise. The results reflect the key objectives of the organization based on the existing strategy. They are divided into economic and non-economic results. Non-economic results (for example, the result of work on environmental conservation) do not have effects in value form. If the result of economic activity exceeds the costs, then there is a positive economic effect, which for example can be considered as a profit; the otherwise-a negative effect, such as losses. The effect, as the difference between the cost of the product and the cost of its production, may appear, *ceteris paribus*, in two cases: the first-increases the product, or the growth of production; the second – when the cost of production of the product is reduced (saving resources).

There are four groups of performance indicators of the enterprise.

1. Indicators of efficiency assessment of economic (operational) activity of the enterprise. The ratio of the resulting parameters (profit, revenue) and the amount of used, applied or total resources (assets, equity, etc.) is estimated. Traditionally, it is

believed that the main performance indicators are in this group, gradually this position loses its force.

2. Criteria and indicators of efficiency of investment activity of the organization. This group of indicators should primarily be linked to the interests of investors as a key stakeholder in capital investment in General and specific projects in particular. Calculation of economic efficiency of the investment project is a special category of financial and economic analysis of the company.

3. A group of performance indicators of certain types of resources used in business: labour, stock (capacity), financial. In this group, the bulk of the dual-use criteria that extend the boundaries of classical efficiency is concentrated.

4. Financial indicators of economic efficiency of production in the context of goods, works, services at the level of individual positions, production units, strategic business units.

For managers and owners of organizations has always been an urgent problem in determining the effectiveness of enterprises. All efforts were aimed at increasing revenues and reducing costs. However, the requirements for determining and improving the efficiency of the enterprise have become more stringent over time. There is a certain process of increasing the efficiency of company management. It includes the following steps:

- assessment of external factors that may affect the efficiency of enterprise management;
- identification and classification of necessary knowledge and skills;
- definition and analysis of requirements to the Manager;
- forecasting changes in management requirements in the development of the company and its environment;
- assessment of senior staff;
- approval of the most important tasks in the areas of production and management.

At the moment, you can see an increasing interest in the concept of management based on the value of the company, which has been actively developing for several decades abroad and relatively recently in Russia. In the modern concept of value-based management ("Value Based management") the basis for management decisions is the maximization of shareholder wealth, which means maximizing the net market value of the business. The model based on the Value Based Management concept allows transforming the system of drivers of the company's value growth into key performance indicators (KPI) for the company's management. Despite some differences in the construction of management decisions, all the main existing models are based on forecasting the current and expected cash flows of the enterprise, analysis of financial and operational risks, determining the cost of debt capital and growth potential for the company's business.

On the process of formation of the company's value is influenced by the factors of micro - and macro-levels. Therefore, events that occur both in the economy or in the financial sector, politics, and in the social sphere, can have an impact on the performance of the company, including – on the value of the company. In order to implement long-term plans, the company needs to correctly identify key cost factors

and ensure continuous monitoring of their values. Factors or drivers of the company's value formation should show the level of efficiency not only at the current time but also show the prospects for growth in the long term. An important task is to determine the direct or indirect impact of the value creation factor, and to what extent.

Now the most important and common methods for analysing the efficiency of the enterprise are economic value added, added value of cash flow, added shareholder value and return on investment and owner's earnings. In this papers we will look at and analyse owner's earnings. The first how started to use this indicator was an American business magnate Warren Buffet. Owner's earnings represent (A) reported earnings plus (B) depreciation, depletion, amortization, and certain other non-cash charges such as Company N's items (1) and (4) less the average annual amount of capitalized expenditures for plant and equipment, etc. that the business requires to fully maintain its long-term competitive position and its unit volume.

It is established that there is a very strong correlation between owner's earning to assets coefficient, turnover asset ratio (x1), current ratio (x2) and long term liabilities divided to assets coefficient (x3). Using the step-by-step regression analysis method, we received the most reliable variables of the following characteristics for forecasting indicator owner's earnings to assets ratio for Russian steel company – NLMK group.:

Table 1. The results of regression analysis

	x1 * x3	x2
Regression coefficient	2.3529	0.2824
Standard Error	0.2842	0.0240
t value	8.2787	11.7570
Multiple R	0.9738	-
R square	0.9484	-

In the automated systems of management of economy of the enterprise the problem of finding in dynamics of rational values of the operating influences providing maximization, for example, the owner's earnings indicator needs to be solved with application of simulation. The General scheme of implementation of this procedure is as follows. After selecting the main economic indicator, we proceed to find the vector that determines its financial and statistical coefficients, the so-called estimated vector $y = (y_1, y_2, \dots, y_n)$. In particular, for the relative owner's earnings components of the estimated vector selected above financial ratios $x_1 = y_1$, $x_2 = y_2$, as well as the indicator $x_4 = y_3$. From statistics in these papers suggested to use sliding coefficient of variation [1]:

$$y_3 = \frac{\sigma}{M_x}$$

σ – sliding sample average square deviation of owner's earning;

M_x – its expected value;

Next determine the length of the estimated vector $\|\bar{y}\| = \sqrt{y_1^2 + y_2^2 + y_3^2 + y_4^2}$. The coordinates of the vector are ones and zeros, that is $y_i \in \{1; 0\}$. The number 1 is satisfactory situation of the company and the number 0 is unsatisfactory. Values of y_i determined from the following system of relations is determined by standard values established by the company management. [2]

CONCLUSION

An evaluation methodology was proposed economic situation of the company with application of the new characteristic is the length of the estimated vector. The methodology includes the following main stages:

- determination of a set of financial ratios and their standards characterizing the economic situation of the company;
- determine of the coordinates of the estimated vector, in which the corresponding financial ratio is replaced by 1 if it meets the satisfactory situation of the company and 0 otherwise;
- the calculation of the length of the vector;
- the separation of data into two parts: satisfactory and unsatisfactory state of the company.

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