

Aspects of a Multi-Level Study of Competitive Performance of Objects and Subjects of Economic Management

Tatiana N. Isaeva, Lenar N. Safiullin, Nailya G. Bagautdinova and Ravil N. Shaidullin

Kazan Federal University, Kazan, Russia

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Abstract: This article discusses the questions of analysis and evaluation of competitive performance at different levels of the economic system. It substantiates the separation of a micro-level study of competitive performance of objects and subjects of economic management. It introduces a new product level. Great attention is given to formalization of the competitive performance indicator for objects and subjects at the product, micro-, meso- and macro-levels. It is shown that competitive performance of products and services is studied at the product level, competitive performance of companies and enterprises is studied at the micro-level, competitive performance of industry sectors, various company associations, etc. is studied at the meso-level and competitive performance of national economies, countries, regions, etc. is studied at the macro-level.

Key words: Competitive performance • Product • Service • Industry sector • Region

INTRODUCTION

The variety of forms of manifestation of competitive advantages and competitive performance as an economic category predetermines the need in a complex consideration and classification of criteria and parameters determining the competitive performance of objects and subjects of the economic system [2].

The solution of a task of a complex definition of competitive performance, in turn, will permit to objectively evaluate and distinguish the limits of competitive performance of objects and subjects of economic management.

In our opinion, it is desirable to introduce the following levels of competitive performance analysis based on the hierarchy of object and subject classification: the product level, the micro-level, the meso-level and the macro-level.

Each level represents a system (subsystem) of interconnected elements that, in turn, are determined by subsystems of the levels placed below.

In order to systematize the study at the micro-level, in our opinion, it is necessary to perform an analysis of the competitive performance of companies. In order to study the competitive performance of products (and services) it is necessary to introduce the

product level. This division of the micro-level study, unlike the methods suggested before, will allow to approach the problem of evaluating the competitive performance of objects (the product level) and competitive performance of subjects (micro-, meso- and macro-levels).

In our opinion, the separation of the analysis and the evaluation of competitive performance of an object (a product) and a subject (a company) with the corresponding separation into the product and micro-levels is predetermined by a significant difference in studying them.

Therefore, competitive performance of products and services is studied at the product level, competitive performance of firms and companies is studied at the micro-level, competitive performance of industry sectors, various associations of companies, etc. is studied at the meso-level and competitive performance of national economies, countries, regions, etc. is studied at the macro-level.

The study of product and service competitive performance is based on the determination of a measure of similarity, characterizing the degree of the product correspondence to the consumer demand, in other words, determining the distance between the product and consumer demand parameters [7].

RESULT

Products and services are described by a whole set of indicators. In total, they are separated into price and non-price (technical and economical) indicators. The competitive performance of products and services is determined by their property to satisfy the consumer demand parameters, i.e. the most satisfaction of parameters of consumer demand leads to the highest competitive performance compared with other products and services offered at this market.

It is possible to make a conclusion about the predetermination of competitive performance by three components: the consumer, the product and the competitor product that can be represented as the following three sets:

A set of parameters of consumer demand consisting of price and non-price indicators. We will label it as $P_j(C;K)$, where $\overline{j=1, J}$ is the total number of consumers, $\overline{l=1, L}$ is the total of products offered in the market, C, K are the price and non-price indicators of consumer demand for j consumer regarding product 1; $D_l(C_{mob}, K_{mob})$ is a set of product parameters for the product offered in this market, where C_{mob}, K_{mob} are the price and non-price indicators of product l ;

A Set of Analogous (Competing) Products and Services Offered in this Market: Competitive performance of product producers (companies, etc.) is studied at the micro-level. Economic subjects, in this case, companies and/or product producers are characterized by a large number of parameters that are directly the factors that determine the competitive performance of different subjects. These parameters are usually work production, worker qualification, technologies used in the production process, financial position of the subject, effectiveness of marketing services, management, etc. However, the result of the economic activity of subjects is the final product made by them, i.e. goods and services. Therefore, product competitive performance is one of the determining components of the competitive performance of the subject.

Let us list one of the commonly accepted methods of evaluating competitive performance of companies and enterprises [5].

The calculation of competitive performance in a company is performed using the formula of arithmetical weighted average:

$$KC_{m/nprou36} = 0,15 \mathcal{D}_{\Pi} + 0,29 \Phi_{\Pi} + 0,23 \mathcal{D}_C + 0,33 K_{mob} \quad (1)$$

where,

$KC_{m/nprou36}$ is the index of competitive performance of a company;

\mathcal{D}_{Π} is the value of the effectiveness criteria of the company production activity;

Φ_{Π} is the value of the company financial position;

\mathcal{D}_C is the value of the effectiveness criteria of organizing the sales and promotions of a product in the market;

K_{mob} is the value of the product competitive performance; 0.15; 0.29; 0.23; 0.33 are the indices of criteria weight determined by expert evaluations.

It can be seen from the formula that a large percentage of company competitive performance (0.33) is competitive performance of the products and services they provide.

Therefore, competitive performance of an economic subject can be represented as a sum of two sets:

- A set of parameters characterizing the subject at the micro-level. For example, company production activity effectiveness, company financial position, effectiveness of sales organization and product promotion in the market, etc.;
- A set of competitive products and services provided by the subject. In other words, each competitive product of the subject under consideration is a structural element of the subject competitive performance, i.e. its competitive advantage.

Therefore, in a formalized view, the competitive performance indicator of product producers can be presented in the following form:

$$KC_{m/nprou3i} = F(x_i) + KC_{moe,i}, \quad i = \overline{1, I} \quad (2)$$

where $F(x_i)$ are parameters characterizing i economic entity at the micro-level, $KC_{moe,i}$ is the indicator of competitive advantage of products provided by i entity.

There is a study of competitive performance of industry sectors, groups of companies and various associations (holdings, etc.) done at the meso-level. In turn, economic subjects at the meso-level are characterized by a number of factors, certain economic conditions at the meso-level. Micro-level economic subjects, i.e. companies and product producers that a

meso-subject is made of, i.e. companies in an industry sector, manufacturing or associations (holdings), also play an important role in competitive performance.

In turn, competitive performance of an economic subject at the meso-level can be defined as the following 2 sets:

- A set of parameters characterizing the state of the meso-subject (the industry sector). These (parameters) can include the following: the level of concentration, specialization and cooperation in the industry sector, the level of unification and standardization of products of the industry sector, etc.;
- A set of competitively performing microsubjects (companies and organizations), as well as a sub-set of competitively performing products and services of the meso-subject.

By analogy with the micro-level, in the formalized way, the competitive performance of meso-subjects is represented as:

$$KC_{\text{мезосуб.}s} = F(y_s) + KC_{\text{м/прод.}i_s}, \quad s = \overline{1, S}, \quad i_s = \overline{1, I_s} \quad (3)$$

where $F(y_s)$ are parameters characterizing an economic subject at the meso-level, $KC_{\text{м/прод.}i_s}$ is an indicator of competitive performance of i micro-subjects (product producers, companies, etc.) defined by s meso-subject.

The study of competitive performance of economic complexes, institutional systems, countries, regions, etc. is performed at the macro-level. The components of macro-subject competitive performance are separated by analogy with micro- and meso-levels into parameters characterizing the macro-level, for example, natural, climate and geographical conditions, the level of country population education, etc. and competitive performance of those meso- and micro-subjects, in turn, form the structure of a macro-subject.

The synthetic indicator that unites product competitive performance, product producers and industries and characterizes the position of the country in the world market is country competitive performance. In a very general view it can be defined as an ability of a country in the conditions of free fair competition to produce the goods and services satisfying the demands of the world market and increasing the prosperity of people of this country and its separate citizens.

Therefore, the components of competitive performance of a macro-subject divide into the following two sets and two sub-sets:

- A set of parameters and factors characterizing the state of a macro-subject;
- A set of competitive meso-subjects and, in turn, a sub-set of competitive micro-subjects and objects of the product level.

By analogy, in a formalized way, competitive performance of macro-subjects is represented as follows:

$$KC_{\text{макросуб.}n} = F(h_n) + KC_{\text{мезосуб.}s_n}, \quad n = \overline{1, N}, \quad s_n = \overline{1, S_n} \quad (4)$$

where $F(h)$ are parameters characterizing an economic subject at a macro-level, $KC_{\text{мезосуб.}s_n}$ characterizes an indicator of competitive performance of s meso-subjects (industry sectors, manufacturing, etc.) defined by n macro-subject.

An American scientist M. Porter performed studies of competitive performance and competitive advantages on meso- and macrolevels. His concept of study is based on the construction of the so-called national "rhombus".

Objects of the product level, in their essence, are passive elements of the economic system and economic subjects, whether these are companies, industry sectors or countries, are the active elements. Notably, products and services, as the final product of activity of any subject, in our opinion, determine the need for a separate analysis and evaluation of competitive performance of objects and subjects of economy management. Hereupon, the structure of competitive performance of objects and subjects can be represented as a set of parameters of economic activity of a macro-subject including meso- and micro-subjects, as well as a set of objects of the product level as a consequence of the final result of activity of micro-, meso- and macro-subjects.

CONCLUSION

As a result of the aforementioned, competitive performance of a macro-subject can be presented in a formalized way as an integrated indicator of competitive performance:

$$KC_{\text{макросуб.}n} = F(\Pi_{nsi}) + KC_{\text{мош.}n}, \quad n = \overline{1, N}, \quad s = \overline{1, S}, \quad i = \overline{1, I} \quad (5)$$

Table 1: Characteristics of competitive performance levels

Name of the level	Object / subject	Factors (indicators) characterizing the level
Product	Product	Quality; Technical level; A complex of indicators of the correspondence to consumer demand.
Micro-level	Companies, firms	Effectiveness of company industrial activity; Financial position of a company; Effectiveness of organization of sales and product promotion in the market; Competitive performance of the offered products.
Meso-level	Industry sectors, associations, holdings	Industry sector internal structure; Interaction between the companies that are included in it (the structure); Impact of the environment; Competitive performance of its separate elements.
Macro-level	Country, region, national economy	Investment climate; Scientific and technical base, etc.; Competitive performance of manufacturing and industry sectors.

where N is a number of macro-subjects; S is a number of meso-subjects of n macro-subject; I is a number of micro-subjects of s meso-subject;

$KC_{\text{макр.суб.}n}$ is an integrated indicator of competitive performance of n macro-subject; $F(\Pi_{nsl})$ is a set of parameters of i micro- and s meso-subjects of n macro-subject; $KC_{\text{м.суб.}n}$ is an integrated indicator of competitive performance of all products and services represented by n macro-subject.

Table 1 states the levels and main factors that economic subjects and objects are characterized by.

Therefore, the study of competitive performance of macro-subjects is based on the evaluation of competitive performance of products and services presented by a macro-subject, as well as on the analysis and evaluation of the aggregate of parameters characterizing an economic subject on the macro-level.

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