Analysis of the competitiveness of the enterprise based on the theory of utility

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Abstract. Each company makes efforts to occupy its market niche in its own way, for example, through the skillful use of internal and external factors or through the mobilization of internal resources. An ideal enterprise should be able to minimize the costs of production, and at the same time not create problems with its existence for the environment, as well as provide its customers with goods or services of appropriate quality. There are many criteria used to assess the competitiveness of an enterprise, but among them the quality of products is of paramount importance in choosing consumer preferences. The process of managing the competitiveness of an enterprise is closely related to product quality management. Wear resistance, maintainability, environmental friendliness, safety, durability, aesthetics of the product determines its main consumer properties, and therefore usefulness to the consumer. From the perspective of a potential investor, an investment object that allows achieving greater profitability with less risk is more useful for investing. The competitiveness of the enterprise depends on the factors of the internal and external environment, among which the most important is the consumer demand for the products produced by the enterprise. Achieving commercial success is possible if the company produces high-quality products that are useful to the buyer. The demand for products is directly proportional to the usefulness of products for the buyer.

1 Introduction

In conditions of fierce market competition, the functioning of the enterprise is closely correlated with the competition struggle. Due to the high saturation of world markets with goods, almost every manufacturer has to fight for consumer sympathy. For the successful existence of an enterprise, progress in relation to its competitors is more important. The advanced development of the enterprise relative to its competitors allows it to achieve a stable market position in the medium and long term.

According to [1], competition is a competition taking place in the market of subjects of market relations in the market in order to make a profit.

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According to [2], the problem of studying the competitiveness of an enterprise should include determining the level of value of goods in a competitive environment, introducing the latest achievements of scientific and technological progress into production. Changes in market conditions require producers to respond promptly to their changes.

According to [3], competition helps to reduce the prices of goods, and also allows to get rid of inefficient production and encourages producers to use the resources at their disposal more rationally, and also prevents the establishment of the dictate of commodity producers in relation to consumers of their products.

According to [4], the problem of studying the competitiveness of an enterprise is closely correlated with the problem of improving the efficiency of its functioning.

According to [5], effective long-term planning of enterprise development should be based on an adequate assessment of its competitiveness.

According to [6], an adequate assessment of the level of competitiveness of goods and services produced by the enterprise makes it possible to effectively build the production plan of the enterprise, at the same time, an incorrect understanding of the level of competitiveness of products produced by the enterprise can cause a decrease in the efficiency of the enterprise.

According to [7], in order for the competitiveness indicator to adequately reflect it, it is necessary that this indicator takes into account a large number of different factors.

Many different definitions of competitiveness can be found in scientific sources:

According to [8], competitiveness is a measure reflecting the confidence of the products produced by an enterprise in the labor, stock and financial markets.

According to [9], competitiveness characterizes the ability of an enterprise to adapt to the conditions of market competition.

According to [10], competitiveness characterizes the degree of efficiency of an enterprise's use of its production potential to meet the requirements of consumers of its products.

According to [11], competitiveness is a characteristic of an enterprise reflecting the ability to produce products in comparison with its competitors.

In our opinion, competitiveness is the ability of an enterprise to use the available financial, production and labor resources to maximize the consumer utility of its products.

According to [12], the competitiveness of the enterprise should be used in the development of the investment strategy of the enterprise and the selection of contractors for joint activities, the formation of the marketing policy of the enterprise.

According to [13], the number of factors directly or indirectly influencing the level of competitiveness is infinite, therefore, the assessment of the competitiveness of the enterprise will always be approximate.

According to [14], most methods of assessing competitiveness involve comparing the activities of enterprises producing similar goods or services. However, in the context of globalization and the expansion of commodity-money relations, the conditions for the functioning of enterprises producing even the same type of products, therefore, a comparison of the level of competitiveness based on a comparison of financial and economic indicators will not always give a result suitable for practical application.

The authors [15] identify the following factors influencing the competitiveness of the enterprise (Fig. 1).

The correct use of structural, market, technical and managerial factors by the enterprise allows, in our opinion, to improve its competitiveness.

According to [16], among the methods of assessing the creditworthiness of enterprises, three groups can be distinguished:

1) An approach based on identifying competitive advantages.
2) A method based on the construction of competitiveness vectors
3) Evaluation method based on rating evaluation
However, in our opinion, all these methods do not provide an exhaustive answer to the question of the competitiveness of the enterprise due to the subjectivity of expert assessments and the difficulty of assessing individual factors.

2 Methods

In carrying out this research, we used an analytical method by which the problems under study were studied in their unity and development. Taking into account the goals and objectives of the study, a structural and functional method of scientific research was used. This allowed us to study a number of problems related to the analysis of the competitiveness of an enterprise based on the theory of utility.

3 Results

Based on the above, the authors make an assumption that the value of the competitiveness of the enterprise is proportional to the utility that the enterprise provides to households. This utility consists of two parts: the utility from the purchase by households of goods and services produced by the enterprise, as well as the utility from dividends paid to households by enterprises

\[ S = \alpha(U_s + U_d) \]  

where \( S \) – competitiveness, \( U_s \) – utility from the purchase of goods and services of the enterprise, \( U_d \) – the utility of dividends, \( \alpha \) – the proportionality coefficient.

Within the framework of this model, we will make the following simplification assumptions.

1. There is only one firm that sells goods and services to households.
2. Households buy goods and services from only one firm.
3. Households invest in only one firm.
4. Utility is the degree of satisfaction from receiving benefits by households.
5. If the utility of \( U_1 \) from the acquisition of good 1 is greater than the utility of \( U_2 \) from the acquisition of good 2, the utility of \( U_3 \) from the acquisition of good 3 is greater than the utility of the utility of \( U_2 \) from the acquisition of good 2, then the utility of \( U_3 \) is always greater than the utility of \( U_1 \).
6. Households always strive to maximize the value of the utility received.
7. For households, the utility of \( U_s \) from the purchase of goods and services of the enterprise is equivalent to the utility of \( U_d \) from dividends.
8. Household preferences regarding utility do not change over time.
9. The utility functions \( U_d \) and \( U_s \) are continuous functions.
10. Consumer preferences of households are described by the functions \( U_d \) and \( U_s \).
Taking into account (1), it is possible to construct indifference curves for a firm determining the same level of competitiveness

\[ S_1 = \alpha(U_1^d + U_1^s) \]
\[ S_2 = \alpha(U_2^d + U_2^s) \]
\[ S_3 = \alpha(U_3^d + U_3^s) \]

**Fig. 2.** Indifference curves of a firm's competitiveness

From the point of view of households, the total utility is equal to:

\[ U = U_d + U_s \]  
(2)

And the tangent of the angle \( \alpha \) determines how the values relate to each other \( U_d \) \( U_s \)

**Fig. 3.** Line of equal utility for households

There are two possible options for the company.

**Option 1.** The firm can work with zero profit and thus maximize the utility provided to households from the sale of goods and services, but in this case the firm will be deprived of the opportunity to pay dividends to the household, which means the utility of paying dividends to households will be zero. At the same time, the firm's fixed capital will wear out due to depreciation.

**Option 2.** The firm can inflate the price of its products, in this case it will have an additional profit from which it will be possible to pay household dividends, which means that the utility of paying dividends will increase for households. However, this will reduce the purchasing power of households and therefore reduce the utility for households from purchasing products produced by the firm.

Thus, both of these options are not entirely acceptable for either households or businesses.
The condition of balance between the utility needs of households and the capabilities of the firm is achieved at point B, at the intersection of the line $U^B$ and the curve $S_2$. In this case, the firm, on the one hand, meets the needs of households in the usefulness of the products produced, and on the other hand, in meeting the needs for receiving dividends.

If a firm reduces the volume of sales of its products to households, and proportionally reduces the amount of dividends paid, this will reduce the ability of households to purchase the company’s products and make investments in this company, which means that the utility of the company for households will decrease. Consequently, the equilibrium will be reached at point C, at the intersection of the line $U^C$ and curve $S_1$.

In turn, an increase in the volume of sales of its products to households with a proportional increase in dividends paid increases investment opportunities and consumer utility for households and equilibrium will be achieved at point A, at the intersection of the $U^A$ line and the $S_3$ curve.

The condition of balance between the utility needs of households and the capabilities of the firm with an increase in the sale of manufactured products to households without increasing the amount of dividends paid.
If the firm increases the volume of products sold, but does not increase the payment of dividends, the utility of the firm for households will increase.

This can be achieved by improving the technological process, using more qualified labor, improving the consumer qualities of products, improving logistics processes, etc. Thus, the equilibrium will be reached at point B on the curve $S_2$, which in Fig.4 is located above the curve $S_1$.

If the firm increases the volume and increases the dividend payments, but does not change the products sold, then the utility of the firm for households will increase.

This can also be achieved by improving the technological process, using more qualified labor, improving the consumer qualities of products, improving logistics processes, etc. Thus, the equilibrium will be reached at point B on the curve $S_2$, which in Fig.4 is located above the curve $S_1$.

![Fig.6](image-url) The condition of balance between the utility needs of households and the capabilities of the firm with an increase in the number of dividends paid without increasing the sale of manufactured products to households.

At the intersection points of the indifference curves with the lines of equal utility for households in Fig.3,4,5, the marginal utility from the purchase of the company's products and the marginal utility from the receipt of dividends by households are equal.

\[
MU_s = \frac{\Delta \text{Utility change}}{\Delta \text{Change in the quantity of purchased products}}
\]

\[
MU_d = \frac{\Delta \text{Utility change}}{\Delta \text{Change in the quantity of purchased dividends}}
\]

\[MU_s = MU_d\] (3)

Considering that, according to formula (1), the value of the utility of the firm for households is proportional to the value of the competitiveness of the firm, we can formulate the principles of achieving the maximum competitiveness by the firm using the resources available to the firm.

1. An increase in sales volumes or an increase in the amount of paid dividends can increase the competitiveness of the firm, however, the firm reaches the maximum
competitiveness provided that for households the marginal utility of the company from the purchased products is equal to the marginal utility from the dividends paid.
2. A decrease in sales volumes with a simultaneous decrease in the payment of dividends reduces the competitiveness of the company.
3. An increase in sales volumes with a simultaneous increase in the payment of dividends increases the competitiveness of the company.

4 Discussion

Each enterprise strives to occupy its market niche in its own way, for example, by skillful use of external and internal factors or by mobilizing internal resources.

An ideal enterprise should minimize the costs of production, not create problems with its existence for the environment, and provide its customers with goods or services of appropriate quality.

There are many criteria for assessing the competitiveness of an enterprise, but the quality of products is of primary importance in choosing consumer preferences.

The process of managing the competitiveness of an enterprise is closely correlated with product quality management.

Wear resistance, maintainability, safety, environmental friendliness, durability, aesthetics of the product determines its consumer properties, and therefore usefulness to the consumer.

From the investor’s point of view, an investment object that provides greater profitability with less risk is more useful for investing.

5 Conclusions

The competitiveness of the enterprise depends on environmental factors, among which the most important is the consumer demand for the products produced by the enterprise. Achieving commercial success is possible only with the release of high-quality products that are useful to the buyer. The demand for products is proportional to its usefulness to the buyer.

References

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