

Issues of the Impact of Production Risk Management on Industry Development

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Abstract

In the article, the types and formation of production risks, their causes, their impact on the financial result of the enterprise and the development of the industry were studied. Through the historical and logical methods of research, the stages of formation and development of ideas about risk and its impact on economic activity were analysed. Different definitions of risk available in international standards were reviewed, and the main points describing the economic content of risk were analysed. Based on the considered approaches, the author's definition of risk was given. Proposals and recommendations for improving production risk management were developed. In addition, attention is paid to different classifications of risks, and the most popular approaches to their classification were analysed. Consideration of risks from the point of view of quality management, on the one hand, allows integrating their management into the management system of existing enterprises, on the other hand, to respond more effectively to possible changes and use a unified management mechanism.

Keywords: Risk, Production Risks, Industrial Development, Lower Technologies, Mental Properties Of Industrial Enterprises

Introduction

The development of industrial enterprises not only ensures macroeconomic stability but also increases the well-being of the population. Ensuring the sustainable development of the industry is a complex process that requires macro-level decision-making based on analysis, which is calculated by numbers in the market economy.

According to preliminary data, in January-December 2018, industrial products worth 228.9 trillion soums were produced by the enterprises of the Republic, the growth rate compared to the corresponding period of the previous year was 114.4%, and the industrial production index was 110.6% [1,2,3].

These indicators show that the level of production in the network is stable. However, when analysing the quality indicators in industrial enterprises, it is possible to see the low level of technological support of production and the use of high technologies in the composition of the main assets used.

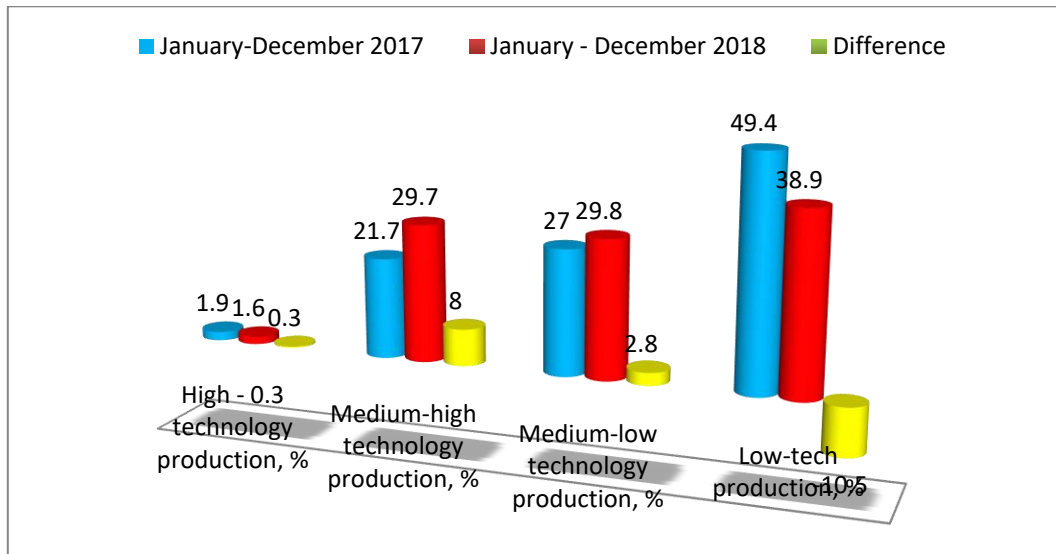


Figure 1. The composition of the industry that produces according to the technological composition of production, in % [1]

The rate of growth compared to the corresponding period of 2017 was 138.8%, with a significant contribution of medium-high technology products to the growth of the industrial product produced in the republic with an indicator of 9.6% [1,5,6].

As can be seen from this figure (Figure 1), high-tech production in the industrial sector accounted for 1.9% of the total production in 2017, and in 2018 there was a decrease in this indicator. Medium-high technology production accounted for 29.7% of the total production in 2018, an increase of 8% compared to the previous year. Medium-low technology production accounted for 29.8% in 2018, and growth increased by 2.8% compared to the previous year. Low-tech production accounted for 49.4% in 2017, and 38.9% in 2018, and decreased by 10.5% compared to the previous year. The decrease in the share of low-tech production in 2018 is explained by the increase in medium-low and medium-high technology production [4,5,6].

Relevance of the research topic

In the total volume of industrial production, the use of lower technology is kept at about 38.9%, which affects increasing the risk in production processes and increases the cost. This level of technological availability further increases the need to manage production risks. The reason is that there is a huge difference in risk formation between high-tech production and low-tech production. If production is organized using high technologies in the enterprise, it is possible to reduce the risks related to breakdowns, defects and accidents in production to a minimum. In low-tech production, the above-mentioned production risks are likely to increase to a maximum. This can be seen by analysing the results of the involvement in the production of systems such as six sigma, known from world experience. In most cases, the use of low-tech production in industrial enterprises of our republic shows that the issue of effective management of production risks is urgent. In the total volume of industrial production, the use of lower technology is kept at about 38.9%, which affects increasing the risk in production processes and increases the cost. This level of technological availability further increases the need to manage production risks. The reason is that there is a huge difference in risk formation between high-tech production and low-tech production. If production is organized using high technologies in the enterprise, it is possible to reduce the risks related to breakdowns, defects and accidents in production to a minimum. In low-tech

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The purpose of the study: The purpose of this study is to systematize the production risks formed in production enterprises and expert assessment of their impact on the development of the industry.

Research methods: The methods of induction, observation and expert evaluation were used in conducting the research.

Main Results

Production risks are one of the manifestations of possible risks affecting the enterprise, described as the characteristics of risks formed during the production process or the supply of raw materials. Production risks are assessed by the impact of possible expected risks in production on increased costs and the probability of certain damages. The operational management structure in the organization is also taken into account when identifying production risks.

There is almost the same approach to production risks in all literature. This alleviates the difficulties of the situation related to the study of production risks. Production risks are the possibility of stoppages and interruptions of production processes, technological errors in the execution of operations, low quality of raw materials, and personnel-related losses or other additional costs [2,7].

To identify the risks of the production process, it is necessary to determine their classification forms. Several risk management scientists have been classifying production risks in almost the same order.

Production risks are divided into the following three groups:

1. Risks associated with the main production activity.
2. Risks associated with auxiliary production activities.
3. Risks associated with supply.
 1. The main production activity risks include:
 - failure of the technological order;
 - accidents, fire, emergencies;
 - technological interruptions in the enterprise's production cycle, and unplanned equipment downtime.

The main consequences of this type of risk are the loss of profits.

2. Risks of auxiliary production activities:
 - power supply interruptions;
 - repair period delays;
 - accidents in auxiliary systems;
 - deficiencies in the auxiliary production.

The main consequence of this type of risk is characterized by a decrease in the volume of production and the cost of production.

3. Risks associated with supply:
- interruptions in the service;
 - Outages in the information system.

These risks lead to the creation of an uncertain environment, a decrease in the possibility of risk identification, and an increase in the production of waste and defects.

In practice, it can be seen that production risks in industrial enterprises arise for the following reasons:

- Inadequate organization of quality systems in production.
- High levels of employee instability.
- Non-fulfilment of labour protection requirements.
- High rate of depreciation of fixed assets.
- A large share of low-level technologies in the composition of fixed assets.
- Absence of production risk management system.
- Poor quality and frequent interruptions of utility services.

As a result of the above-mentioned factors, the spectrum of production risks expands and can have a negative impact on the cost due to the increased risk of exposure.

From the essence of the analysis of production activity, it is possible to observe the impact of risks on the reduction of the volume of production, the increase of several costs or due to the decrease in the price of the finished product may impact the decrease in profitability.

A more in-depth analysis of production risks shows that the causes of their occurrence can be studied in two major directions.

Research conducted based on observations in industrial enterprises shows that the practical expression of production risks can also be seen in the following types of risks:

- Non-compliance of raw materials with contractual requirements. In this case, the raw materials, materials and semi-finished products delivered to the enterprise go beyond the terms of delivery agreed between the parties. For example, non-fulfilment of metrological requirements of the product specified in the contract, etc.
- Increase in spoilage and defects in production based on inferior technology. In this case, an increase in production costs is observed.

The above classification of production risks cannot reveal its true nature. From the observations of the research, it is clear that production risks begin to form from the supply and can also occur during the consumption of the product by the consumer. Therefore, in the close study of production risks, it is necessary to visually represent the movement of raw materials before consumption and to distinguish production risks at each stage. In this situation, three types of production risks can be distinguished:

1. Production risks associated with supply.
2. Production risks associated with the production process.
3. Production risks associated with sales.

The concept of production risks covers the following enterprise processes:

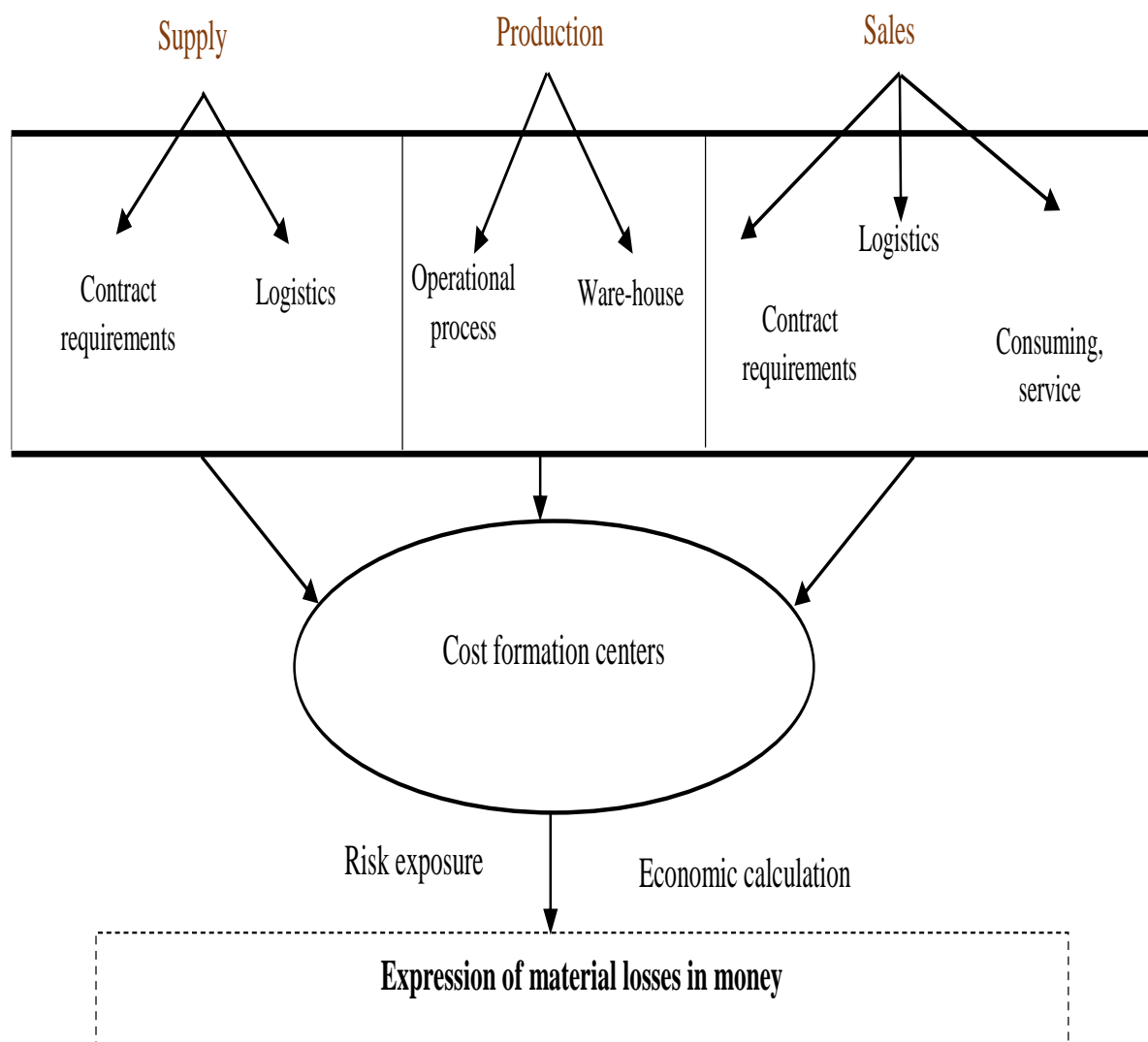


Figure 2. *Objects of formation and influence of production risks and their economic result*

Production risks include the process from the supply of the enterprise to the after-sales services. In the supply process, the contractual requirement for the quality and availability of raw materials creates the risks associated with poor quality and non-arrival. This means that risks are formed from scratch through institutional requirements. That is, considering that the relations between the goods supplier and the purchasing company are formed as a result of the contract, the structure of this contract initiates new relations. And in economics, any economic relationship is based on risk. Because the demand is based on the contract and its specific conditions. In that case, regardless of which party accepts the possibility of risk, the contract can be viewed as a process that creates risk at the beginning of the relationship.

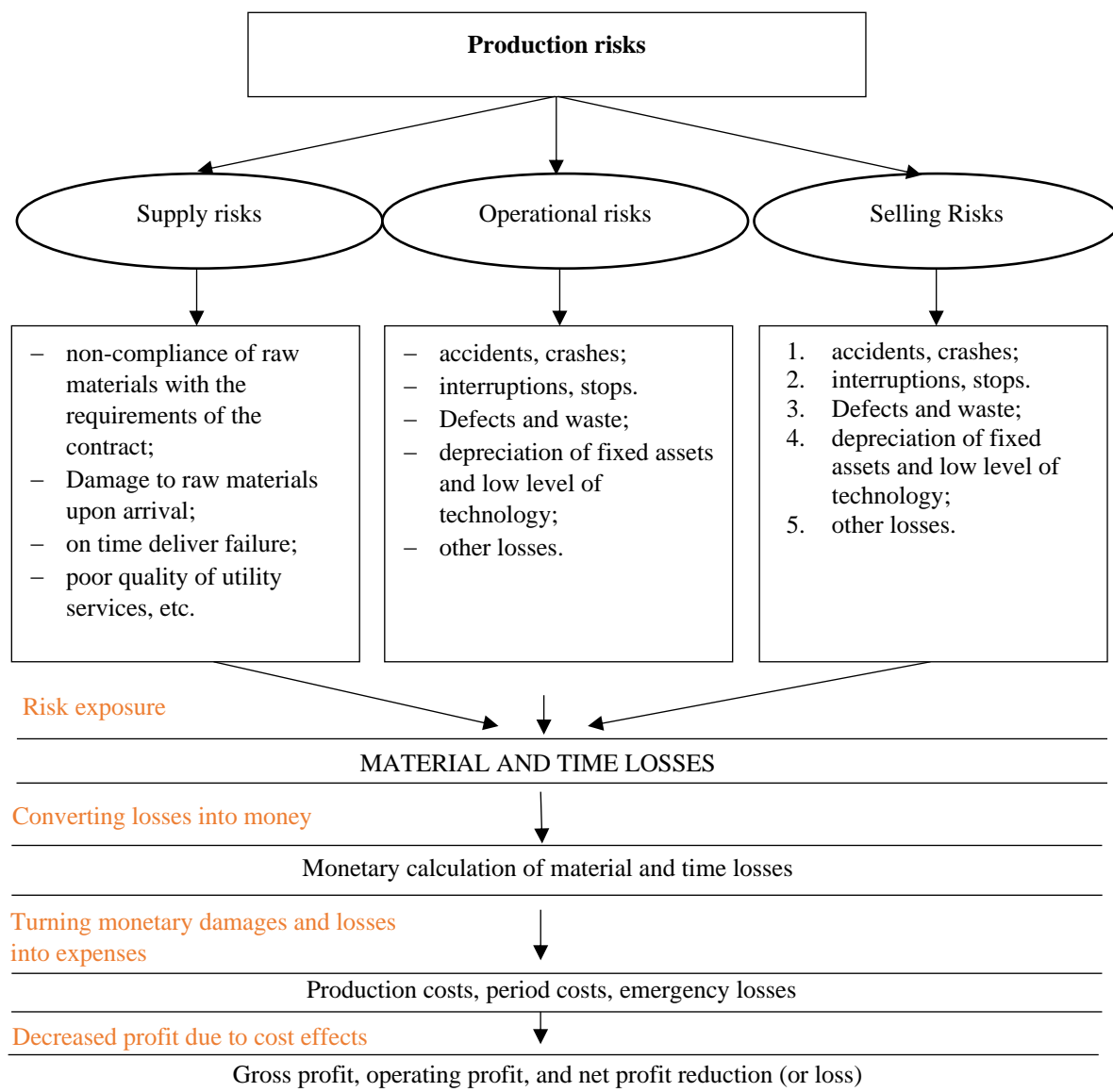


Figure 3. *The model of the impact of production risks on economic activity*

The formation of risks in the above three stages (supply, production and sales) is directly related to the cost centre. The probability of risk shapes costs at each stage and is reflected in deviations from planned goals. According to economic calculations, the impact of risk is determined by the monetary expression of material losses in the process of supply, production and sale, and losses are calculated. Damages and losses are included in the cost of production in the form of material costs, labour costs or other costs. In the composition of period expenses, in most cases, it is described in the items of sales and other operating expenses. As a result of accidents, disasters, and negative consequences of non-compliance with civil protection appear in the emergency losses article [9,10,11].

Observations have shown that the industrial enterprises of the Republic, unlike enterprises of other countries, have almost the same mental characteristics. That is, if any branch of industry is analyzed, it faces production risks of almost the same form or content. This situation indicates that the properties of problems and risks formed in industrial enterprises have a mental nature. Most of the factors listed above as causes of production risks are found in almost all industrial enterprises.

The similarity of intra-industry problems and production risks of the light industry, food industry or other industries, which are also present in other enterprises of the same industry, forms a chain of losses and damages that bring risks to the industrial network.

In this chain, the accumulated loss and damage are showing a negative impact on the development of the industry.

This process may not be visible when markets are analysed, competitors and their market shares are studied, and export plans and localization programs are evaluated. However, when the enterprises of the industrial sector are studied individually, it can be observed that they are in the vortex of the same production risks and that they are an obstacle to the overall development of the industry. These include staff instability, poor quality of utilities, poor technology, lack of quality and risk management systems, and supply and security issues [13,14,15].

The impact of production risks on the development of the industrial network can be seen through the following model (Fig. 4).

It can be seen from Figure 4 that the losses and damages formed at the social level under the influence of production risks show their negative impact on damage to the market mechanism and conjuncture, as well as on the socio-economic policy of the state by reducing industrial development.

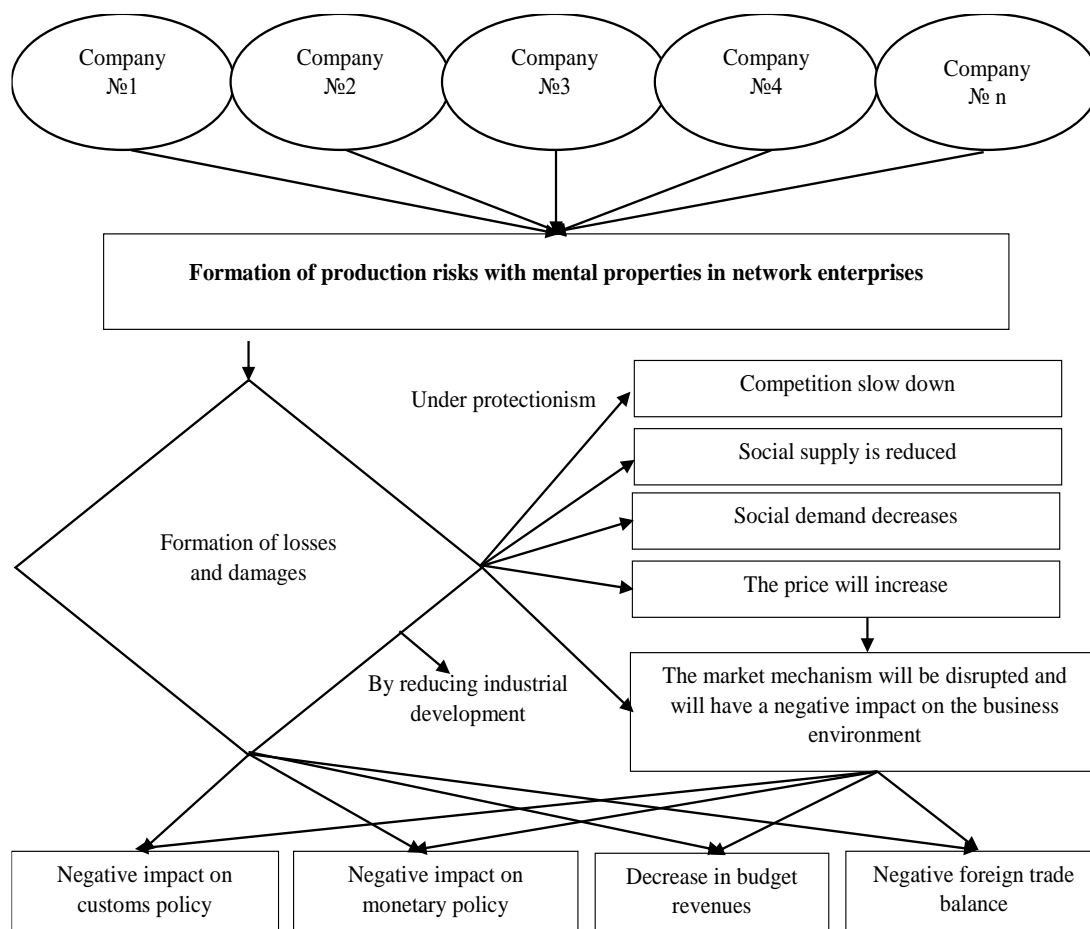


Figure 4. A model of the impact of production risks on industrial development

As a result, the obsolete or non-existence of a single production risk management system ensures macroeconomic instability. The reason is that if the procedure for managing production risks with mental properties is not introduced in every industrial enterprise, it will cause social problems in the industry. Because, as mentioned above, such problems have a chain connection and form a set of damages and losses as a result of the risk.

The result of the above observations showed that combating production risks and creating an effective management system increases the competitiveness of the industry in the regional and world markets.

Creating a system for combating, eliminating and managing production risks in the industrial network is not a task that can be performed only at the enterprise level. Since the formation and impact of production risks have a mental nature, each enterprise must implement risk management with mutual experiences and integrative methods.

Conclusions and Recommendations

In market conditions, the organization of production risk management with a general system or corporate methods seems to lead to the weakening of competition. However, to compete from local markets to regional and global markets, it is necessary, at least of a corporate nature, to create an institutional environment of risk management. Or it is necessary to develop a system of specific principles of industrial risks of the republic. Thus, it is possible to form values in this direction in local enterprises. With the formation of values, their implementation or improvement creates conditions for the development of a naturally competitive environment between enterprises.

In our opinion, it is necessary to implement institutional measures of a corporate nature in order to eliminate the production risks that have a mental nature in the networks and to form the initial values of management:

First, the establishment of a dispatch centre that identifies mental risks and helps to eliminate them by the top organization of the network. This dispatching centre is engaged in determining, identifying, analyzing production risks of mental nature in enterprises in the network, and determining probable damages. This centre performs this function as a result of systematic research.

Secondly, the development of production risk management principles by the dispatch centre must be followed in certain branch enterprises. This system of principles helps to form the initial elements of production risk management in enterprises.

Thirdly, the development of the "Production Risk Management Code" by the dispatch centre to bring the production risk management system to the level of company value in certain industry enterprises. This code brings the management and elimination of production risks to the level of value for enterprises.

Fourth, the introduction of a rating evaluation system by the dispatch centre for the introduction of the production risk management system in a specific industry. As a result of announcing this rating system in mass media, it is possible to increase the image of the enterprise in the market.

As a result of institutional measures of the corporate nature of production risk management, the activities of enterprises are not only stabilized but also have a positive effect on the development of national industrial enterprises.

The successful operation of national enterprises locally operating in regional and global markets further increases the level of competition in the domestic market.

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