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Research paper

Forming Performance Assessment System of Risk Management in Railway Transport Companies

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Abstract

The paper discusses the problems of assessing risk management performance in railway transport companies. The authors developed an algorithm of forming the competitiveness and risk level assessment system for railway transport companies; they assessed the risk of competitiveness of Ukrainian railway industrial enterprises, suggested measures to mitigate the adverse effect of the risks, a mechanism of working out and making effective management decisions to neutralize risks for railway transport companies.

Keywords: *Assessment; competitiveness; management; railway transport companies; risk*.

1. Introduction

In the current business conditions, railway transport companies are under continuous internal and external competitive pressure, therefore, corporate management needs regular assessment of the company performance and the level of its competitiveness. The level of competitiveness shows the enterprise financial standing, its strengths and weaknesses compared to its competitors and the market share the company has.

The concept of competitiveness is related to the opportunity to do business efficiently and effectively, manufacture products, which will be in demand at any time on the competitive market, the ability to adapt promptly to any changes in the market environment etc. However, at each stage a railway transport company faces risk situations that may be partially foreseen, but not always so. In addition, the risk may be associated with internal or external threats. Thus, railway company management need continuous analysis and assessment of the company competitiveness risks, which is a topical line in the corporate strategic management.

2. Literature Review

In the modern domestic and foreign research studies the issues of finding and neutralizing risks have been in the focus of attention of such economic researchers as I. Blank [1], V. Vitlinsky [2], V. Gudz [4], L. Donets [5], S. Illyashenko [6], V. Prokhorova [7] etc.

The purpose of the work is to form the performance assessment system of risk management in railway transport companies.

3. Research Findings

The analysis of activities of the railway transport companies as well as the competitiveness and risk level assessment, to our mind, should apply the developed algorithm of forming the risk assessment system for railway transport companies (Fig. 1).

To build the competitiveness and risk level assessment system in railway transport companies a number of Ukrainian railway companies were selected, namely: PrJSC Dnipropetrovsk locomotive maintenance and repair plant, PrJSC Zaporizzhya electric locomotive maintenance and repair plant, PrJSC Ivano-Frankovsk locomotive maintenance and repair plant, PrJSC Lviv locomotive maintenance and repair plant, PrJSC Kyiv electric carriage maintenance and repair plant.

The competitiveness assessment requires the use of a system of elements, covering all the railway transport enterprise activities, in particular: financial-investment, human resources management, operational, marketing, and innovative activities.

Following the results of the analysis of the railway enterprise competitiveness assessment, using the taxonomic calculations method, integral indicators were identified for the period of 2007-2016 (Table 1).

Risk analysis and assessment encourage railway transport companies to introduce the provisions of modern risk studies in their activities. These demand an active position aimed at the holistic restriction of risk in their business.

It is possible to assess the optimal risk level and develop an effective management model by studying theoretical and practical issues related to the approaches and processes of risk management in railway transport companies.

To assess the risk in railway transport companies it is necessary to apply qualitative and quantitative risk analysis [1, 2].

Risk qualitative analysis of railway transport companies is the most complicated and requires deep knowledge, experience and intuition in this area of economic activities.

Risk quantitative analysis is in the quantitative (numeric) identification of the degree of individual risks and the risk of this activity (project) on the whole.

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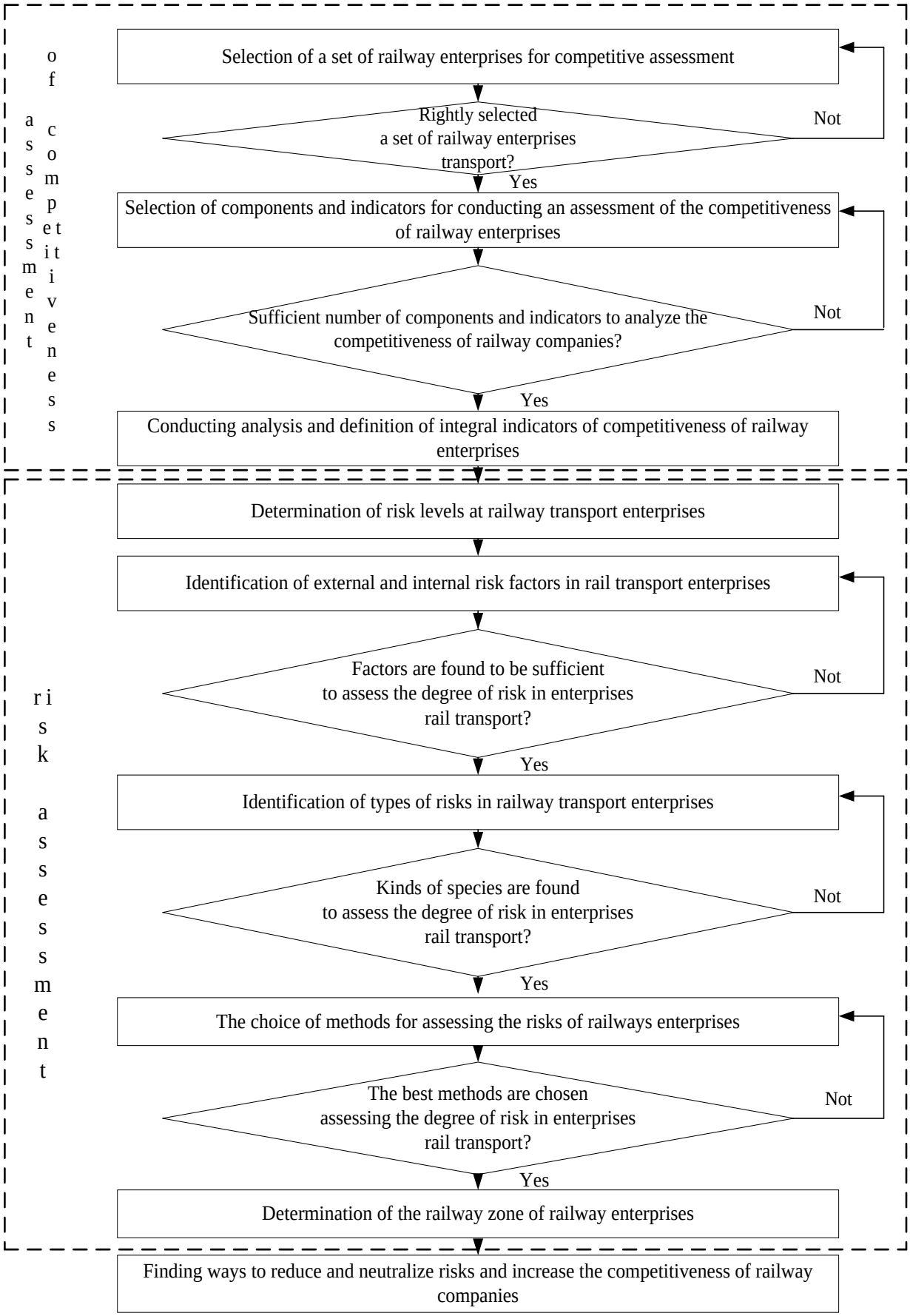


Fig. 1: An algorithm for the development of a system for assessing competitiveness and risk level in railway transport enterprises.

Table 1: Assessment of the risk of competitiveness of industrial enterprises of rail transport (based on the integral indicator)

Name of Company	Years										Risk assessment
	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	
PJSC «Dnipropetrovsk Diesel Locomotive Works»	0.321	0.283	0.326	0.322	0.322	0.316	0.322	0.327	0.298	0.303	**0.01**
PJSC «Zaporozhye Electric Locomotive Works»	0.313	0.246	0.292	0.328	0.247	0.319	0.247	0.293	0.2	0.292	**0.02**
PJSC «Ivano-Frankivsk Locomotive Repair Plant»	0.296	0.334	0.362	0.414	0.463	0.381	0.463	0.361	0.416	0.365	**0.05**
PJSC «Lviv Locomotive Repair Plant»	0.271	0.24	0.19	0.266	0.246	0.272	0.246	0.239	0.277	0.274	**0.017**
PJSC «Kyiv Electrovagonorepair Plant»	0.355	0.367	0.377	0.42	0.374	0.428	0.417	0.378	0.415	0.411	**0.035**

Within the risk assessment in railway transport companies the classification of risk zones may be used: no risk zone; acceptable risk zone; critical risk zone and the catastrophic risk zone.

Essential risk classification criteria are profit, earnings, equity capital of a railway transport company, losses, and the risk factor.

Railway transport companies will be able to determine their approaches and methods of risk management only provided they can properly distinguish between the kinds of risks and promptly find their factors and threats. Railway transport companies' activities are influenced by different risks.

The system of risk quantitative assessment indicators for railway transport companies includes: absolute figures (dispersion, standard deviation, semi-variation, semi-squared deviation); relative (probability, variation factor, risk factor).

The most widely spread risk level measurement in railway transport companies is: the probability of losses or shortfall in revenue compared to the forecast value; dispersion, standard deviation, variation factor.

Two different approaches are singled out in considering the priority of local objects in the multi-criterial tasks of management decision making: the principle of rigid priority consideration and the principle of flexible priority consideration.

The level of competitiveness risk emergence was specified, which enabled to assess the standing of the company railway transport in its market environment.

The results of calculations show that among the companies under consideration PrJSC Dnipropetrovsk locomotive maintenance and repair plant may be regarded as an enterprise with the lowest threat of losing its competitive positions, whereas PrJSC Ivano-Frankovsk locomotive maintenance and repair plant has a 5 times higher risk level than that of PrJSC Dnipropetrovsk locomotive maintenance and repair plant.

The assessment of risk related to the loss of competitive positions on the railway transport market allowed rating the enterprises to further develop specific measures and lower the risks for each company taking into account its own specific high risk zones.

In its business operations each modern enterprise directly or indirectly faces the risks associated with its production, investment and other activities. Risks especially increase during the periods of economic and political instability in the country.

Risks cannot be eliminated, and therefore, each railway transport company must develop a risk management system and plan measures to mitigate their adverse effects (Fig. 2).

In the contemporary conditions, high risk railway transport company operations require activation of the activity which will enable to ensure competitiveness of these enterprises on domestic and foreign markets.

Especially pressing are the issues of developing risk management mechanisms in railway transport companies. Identification of the risk level of their activities belongs to the high priority tasks, since the assessment of risks and the development of management methods are basic and essential for forming strategies of the above companies.

4. Conclusion

Thus, highly competitive environment forces railway transport companies to make certain management decisions as to the application of the systematic approach to the risk analysis and the focus on the decision-making quality and efficiency. Risk assessment needs to be systematic in terms of both quality and quantity.

Owing to the analysis it is possible to point out a large group of risks, which emerge in the business operations. It is also possible to assess the optimal level of risk and develop an effective management model due to the study of theoretical and practical issues of the approaches and processes in the risk management of railway transport companies

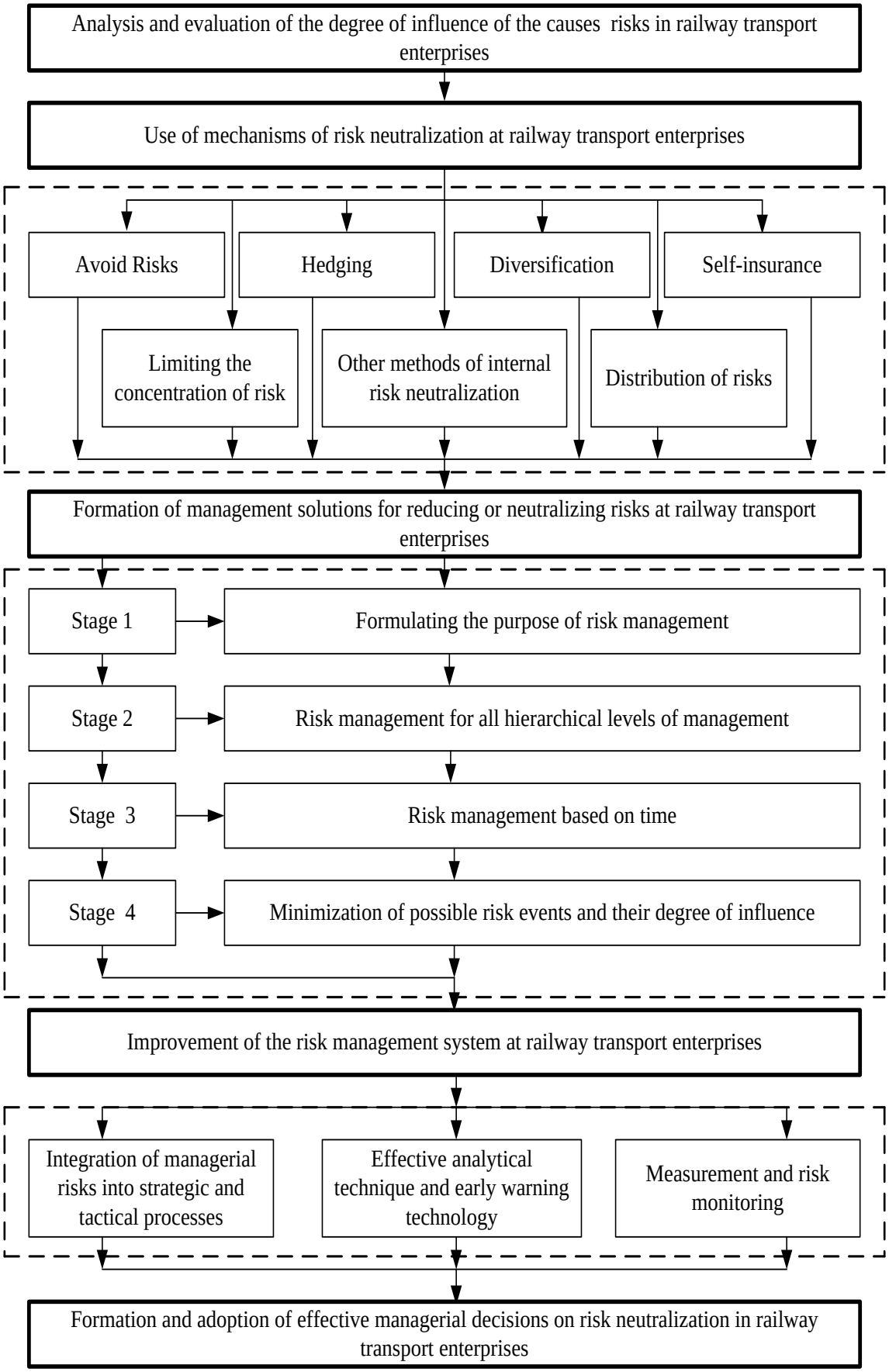


Fig. 2: Mechanism of formation and adoption of effective management decisions on risk neutralization at railway enterprises.

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