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## **Modelling of formation of the investment portfolio of shares of russian companies according to the principle of diversification. hedging portfolio risk**

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### **Abstract**

The relevance of the study of formation of adequate assessments and the use of mathematical models of the economy to generate an optimal investment portfolio, supported by publications of Russian and foreign authors. The purpose of the study is to simulate the formation of the investment portfolio of the shares of Russian companies on the principle of diversification with portfolio risk hedging. In the following research methods were used: statistical, economy and mathematics, graphical methods and Black-Scholes model to calculate the option premium. The article reveals the stages of the management process diversified portfolio of companies of the Russian Federation. This control makes it possible to earn income in any phase of the economic cycle, even in times of crisis. The paper presents the dynamic model of formation of a portfolio of securities, of companies from different sectors of economic activity («MMC Norilsk Nickel», «LSR Group», «M-Video»). For each model, we determined the structure of the investment portfolio, the average price of shares of companies and the yield of the securities portfolio. The premium option - put, calculated by the Black-Scholes formula. The reliability of the analysis and the proposed models, substantiated study of foreign experience and analysis of data for the period 2009-2016 gg. The results are presented in tables and graphs of the dynamics of return and risk of the company. Summary of the work can be used in the future for the statistical evaluation of the investment portfolio of Russian companies.

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### **Keywords**

Diversification, Hedging, Portfolio investment, Risks, Securities