# THE USE OF PROBIT REGRESSION IN ASSESSING THE RISKS OF AN INVESTMENT PORTFOLIO

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Many random factors of macro and micro-economic nature affect the final financial result of the investment activity. Therefore, during the implementation of portfolio investments, a special attention should be paid to reducing risks that depend on the investor. These risks can be related to a number of facts that are objective or subjective, and it is considered to be a risky financial transaction if its effectiveness (profitability) is not fully known to the investor at the time of its conclusion. The tasks of financial investments managing are complex optimization and probabilistic problems, the solution of which is conjugated with difficulties of a computational and mathematical nature. Problems of this kind were first considered by Markowitz, but due to constantly changing markets, constant modification and improvement of the models in question are required. In modern economic systems, we constantly face risks that often exceed the risks of portfolio investment and the construction of new regression models that are different from the existing classical ones is an actual task of economic and mathematical modelling. In the article presented, basing on the construction of models different from the well-known models of H. Markowitz and W. Sharpe, a model that allows evaluating investment decisions depending on rational expectations in the stock market is constructed. While building the model, it was assumed that the change in the market affects only the probability with which the yield of financial asset changes. As a consequence, the relationship between the component of the financial return of an asset that is expected and the changes in the market is described by a probit-model or a probit regression.

It is shown that the risk can be represented as a superposition of two components, the first of which determines the current situation in the financial market, and the second characterizes the amount of securities risks in the portfolio. It is shown that the minimization of securities risks can be carried out by optimizing the portfolio structure. The presented calculations make it possible to conclude that the calculated risk is predictable but a number of factors, by which it is possible to adequately describe the rationality of expectations, require additional studies.