Description for the general public

The academic purpose of the project is to develop new procedures of the correct estimation of capital cost with the use of ICAPM.

Specific sub-goals are determined to achieve the main objective:

Goal 1. *The design of the theoretical model and computer code, simulating, in light of the ICAPM, estimated values of systematic risk and market risk premium.*

Goal 2. *The sensitivity analysis of impact of penny stocks and speculative stocks on the systematic risk and risk premium.*

The values of the systematic risk and risk premium will be simulated using the theoretical model developed by goal 1, and by chosen literature procedures. The performed analysis will allow to understand the causes of inaccurate estimates of risk premium by classic CAPM.

Goal 3. *The sensitivity analysis of impact of studied methods of risk premium assessment on capital cost of chosen companies and portfolios.*

The values of capital cost, estimated on the basis of different applications of risk premium assessment, consistent with ICAPM, should be convergent. The realization of this objective will allow to evaluation practical possibilities of ICAPM to estimate of capital cost.

The work will cover the capital cost estimates for the companies included in the WIG30 index, the chosen companies included in the individual industries, as well as other sub-index quoted by the WSE.

The sensitivity analysis of capital cost estimate relates to 22 different procedures: one simplified method of the determination of the risk premium, seven procedures on the basis of the classic CAPM, seven procedures on the basis of the Fama-French model, and seven procedures on the basis of the aggregated three-factor model, proposed by author of this study.

Present reasons for choosing the research topic

The correct estimation of capital cost is one of the basic problems of the company's financial policy. Investment projects characterized by lower profitability than the cost of capital eventually generate costs. The capital cost of companies listed on the stock market is generally estimated using classic CAPM. Studies conducted in the 1970s showed the compatibility of stock pricing in light of the CAPM. Since the 1980s, however, there have been a number of cases rejecting CAPM. Most of the studies carried out in Polish and developed markets contradict the idea that stock pricing is consistent with the pricing that could be observed with classic CAPM validity.

To my knowledge, there are no studies which explain the reasons for this anomaly. Preliminary studies, conducted by the Author of this project, suggest that a large number of speculation and penny stocks on the Polish market after 2004 are the cause of inconsistent pricing in light of the CAPM. The presence (in the market portfolio) of stocks, priced contrary to a rational pricing of capital, may lead to inaccurate estimation of the risk premium. An additional factor of incompatible pricing may be the incorrect procedures of forming portfolios with low return spreads.

The results of proposed research may be a clue to explain inconsistent pricing in light of the classic CAPM on developed markets since the beginning of the 1980s. Also, the conducted research should contribute to the correct and accurate methods of capital cost assessment of companies.

A scalar risk premium, determined by classic CAPM, may not be sufficient to precisely describe returns, and hence to appropriately estimate capital cost. Therefore, it seems necessary to undertake studies on the use of multifactor pricing applications, and especially ICAPM application, for the estimation of capital cost. In each tested procedure it appears to be necessary to eliminate speculation and penny stocks on the assumed level.