

We consider an investor who invests in a stock and money market and whose goal is to maximize the market value of her portfolio in the very long run. The goal of the thesis is to find an optimal trading strategy for the investor. The stocks' market values are simulated by multidimensional Brownian motion. The possibility to buy and sell stocks introduces a new dimension to the dynamics of the problem. By using the Ito calculus we derive the basic properties of the continuous model. Considering the continuous model difficulties with finding the optimal trading strategy, we approximate the continuous model by a discrete model. In the end, the thesis presents hints to use the Howard algorithm in the discrete case. The main contribution of the thesis is the introduction and proof of the Howard algorithm which can be used as a tool to find the optimal trading strategy in the discrete model.