In the present thesis we deal with the quantitative risk measures estimating the influence of market risk on the investments to the financial instruments. The most commonly used measure is Value at Risk which we introduce with its characteristics and modifications. Applying the methods to real data we deal with the problem of approximation of its distribution, especially in the multidimensional cases when the risk factors are dependent on each other. This leads us to explore copula functions that are in the thesis used to include the dependence structures of the risk factors to calculation of the risk measures. Chosen methods of approximation and evaluation of the risk measures are applied to real data and stated with outputs and their comparison.