This thesis presents ways how investors can construct optimal portfolios on on-line peer-to-peer lending platforms. Thesis uses standard portfolio theory and unique dataset from Lending Club platform of over 886 thousand loans issued since 2008 till the end of 2015. Firstly, this thesis shows that there is a non-zero covariance between loans from different credit grades and it is necessary to include it in portfolio management optimization. Secondly, the thesis with the help of a logistic regression identifies loan default determinants. Using the default predictions, the portfolio performance can be improved significantly. Thirdly, the thesis simulates diversification benefits stemming from investing into multiple loans.