

Title: Diversification in Data Envelopment Analysis in Finance

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Abstract: This thesis deals with an extension of data envelopment analysis and its application in finance. This method enables to evaluate the efficiency of chosen production units based on several inputs and outputs. Administrative fees or risk measures can be used as inputs and expected incomes of observed assets as outputs in financial application. We show basic traditional models in a form of a primary problem of linear programming and a dual problem as well and later compare with diversification models. It is suitable to deal with diversification which enables to consider dependencies between assets in case of finance and investments. Then we get to nonlinear programming problem hence we introduce appropriate risk and return measures to make the problem solvable. Especially, we focus on the conditional value at risk. Next we introduce the model which deals with diversification. We use this on real data of chosen mutual funds.

Keywords: Data envelopment analysis, Efficiency, Diversification, Conditional value at risk