

# Abstract

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## APPLICATION OF DATA ENVELOPMENT ANALYSIS TO IDENTIFY UNDERVALUED EQUITIES ON THE DOW JONES INDUSTRIAL AVERAGE

Ryan L. Kotzebue

Two factors that drive investors to and away from the stock market are reward and risk, respectively. By using a stock selection strategy that is quantitative, investors may feel more comfortable and secure with their decisions. However, there lacks a quantitative strategy that can produce increased returns with lower risk by purchasing a small number of stocks. The objective of this project was to formulate a quantitative stock trading strategy that produced exceptional returns with low risk while also fulfilling additional requirements to benefit the common investor.

By using a linear programming based operations research technique known as data envelopment analysis (DEA), a solution was generated that produced a portfolio of stocks that experienced superior performance to the Dow Jones Industrial Average over eight years. From the results, it is reasonable to conclude that data envelopment analysis is a suitable tool for generating a portfolio of stocks that is superior to the pool of stocks it was created from. It is also safe to recommend the use of data envelopment analysis to the common investor by selecting stocks exactly as shown in this project or to the institutional investor by developing DEA efficient exchange-traded-funds (ETFs).