Investment Selection by Means of DEA and Stochastic Dominance

Leili Javanmardi, Yuri Lawryshyn

Abstract

This paper investigates the problem of statistical testing for second order stochastic dominance (SSD) relations among a set of of stocks. The SSD rule is the desirable condition that all risk averse, non-satiated investors seek. Due to the fact that SSD is not significantly confirmed by statistical tests, in most cases, weak dominance of some of stocks over others can't be rejected at high level of confidence (95% or higher). Therefore the efficient set, i.e. the sets of non-dominated stocks, is still large. For this reason, we have tested the necessary rules of SSD efficiency incorporated into data envelopment analysis (DEA) models, recently proposed, on SSD statistical test results to remove the stocks that are weak SSD efficient. Weak SSD efficiency refers to stocks that are never dominated by others and reported as SSD efficient, but they rarely dominate others. Based on an empirical study of 80 Canadian stocks, 30 stocks were determined to be SSD efficient. Applying DEA, this number was reduced to 4. These four stocks are desirable choices for the class of investors who prefer having more wealth to less and are risk averse.
Keywords: stochastic

Leili Javanmardi, Yuri Lawryshyn
Center for Management of Technology and Entrepreneurship
University of Toronto
{l.javanmardi, yuri.lawryshyn}@utoronto.ca