

Special Research Project Title	Stock Index Replication by Principal Component Analysis
Special Research Project Credits	6
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Abstract

This research project seeks to identify main components of the Thai stock market in 2012. The underlying motivation is to represent the stock market movement with a subset of stocks in SET50 and SET100, allowing data reduction and shorter processing time. In determining the main components, this study analyzes daily returns using three techniques: Principal Component Analysis, Regression Analysis, and Pareto Analysis.

Results from the principal component analysis indicate that a replicated index, consisting 26 principal components, can explain approximately 70.5% of the stock market variance. Moreover, the replicated index is driven by 20 stocks in SET50 and SET100. In addition, these principal components are substantially correlated with SET50 and SET100.

Keywords: Principal Component Analysis / Stock Index Replication / Pareto Analysis / Component Loadings