DETERMINING FACTORS FOR THE DEVELOPMENT OF STOCK MARKET IN LATIN AMERICA

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ABSTRACT

Given the growing role and acceptance of Artificial Intelligence in the world of Finance, this research proposes applying Machine Learning techniques to the management of equity investment portfolios, opening up the possibility to enhance the portfolio structuring process to yield optimal empirical results compared to traditional techniques, such as the Maximum Sharpe Ratio portfolio and the Equally Weighted portfolio. In contrast to these traditional techniques, the Affinity Propagation Clustering Technique is applied as the main approach to identify patterns of similar behavior among companies, complemented by the Graphical Lasso algorithm to estimate the data dependency structure, and Multi-Dimensional Scaling to improve the visual representation of the Clusters. Through the results, it is identified that the portfolio that maximizes the measures of risk and return is the one formed using these Machine Learning techniques. It is concluded that by combining these three Machine Learning techniques, a viable and effective alternative is obtained in the management of investment portfolios in the equity market.

Keywords: Portfolio Optimization, Machine Learning, Graphical Lasso, Clustering Affinity Propagation, Muti dimensional Scaling.

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