Dynamic Correlations and Portfolio Optimization between Islamic and Conventional Equity Indexes: A Vine Copula-Based Approach

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Abstract : This study examines conditional Value at Risk by applying the GJR-EVT-Copula model, and finds the optimal portfolio for eight Dow Jones Islamic-conventional pairs. Our methodology consists of modeling the data by a bivariate GJR-GARCH model in which we extract the filtered residuals and then apply the Peak over threshold model (POT) to fit the residual tails in order to model marginal distributions. After that, we use pair-copula to find the optimal portfolio risk dependence structure. Finally, with Monte Carlo simulations, we estimate the Value at Risk (VaR) and the conditional Value at Risk (CVaR). The empirical results show the VaR and CVaR values for an equally weighted portfolio of Dow Jones Islamic-conventional pairs. In sum, we found that the optimal investment focuses on Islamic-conventional US Market index pairs because of high investment proportion; however, all other index pairs have low investment proportion. These results deliver some real repercussions for portfolio managers and policymakers concerning to optimal asset allocations, portfolio risk management and the diversification advantages of these markets.

Keywords : CVaR, Dow Jones Islamic index, GJR-GARCH-EVT-pair copula, portfolio optimization
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