

MEASURING DIVERSIFICATION VIA RISK MEASURES

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ABSTRACT. We propose a new notion of diversification indices, called the diversification multipliers (DM). Defined through a parametric family of risk measures, DM satisfy three natural properties, namely non-negativity, location invariance and scale invariance, which are shown to be conflicting for traditional diversification indices based on a single risk measure. We pay special attention to the two important classes of risk measures, Value-at-Risk (VaR) and Expected Shortfall (ES). DM based on VaR and ES enjoy many convenient technical properties, and they are easy to optimize in portfolio selection problems. The two popular multivariate models of elliptical and regular varying distributions are further analyzed in detail. It turns out that DM can properly distinguish tail heaviness and common shocks, which are neglected by traditional diversification indices. Portfolio optimization with DM is illustrated with financial data and its performance is competitive when contrasted with other diversification methods

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Date: March 29, 2022.