Thierry RONCALLI
Head of Research & Development
Lyxor Asset Management & Evry University

Portfolio optimization versus risk-budgeting allocation

Portfolio allocation is generally based on optimization method (Minimum variance, Markowitz, Merton, Black-Litterman, etc.). The first part of this presentation is to show that portfolio optimization faces several drawbacks in terms of concentration, stability and management. We will show that risk-budgeting techniques is an alternative method which appears more robust. In particular, we will focus the second part of the presentation in one of the most simple risk-budgeting methods, when the risk budgets are the same. In this case, we obtain the ERC (Equal Risk Contribution) portfolio. After giving the mathematical properties of the ERC portfolio, we will present some applications to manage equity funds (like alternative-weighted indexes) and diversified funds (like risk parity funds). In the third part of the presentation, we will focus on risk-budgeting methods, when the risk budgets are not the same. We will generalize some properties of the ERC portfolio and present an application to manage the sovereign credit risk in bond portfolios.

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For any information, please contact
Frédérique JEAN-LOUIS
(01 34 43 32 49 / jeanlouis@essec.fr)

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