Integrated Risk-/Return-Management Approach for the Bank Portfolio

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Abstract

In an intensifying international competition banks are forced to place increased emphasis on enterprise wide risk-/return management. Financial risks have to be limited and managed from a bank wide portfolio perspective. Risk management requirements have to be met from an internal as well as from a regulatory point of view. Banks need to maximize their expected returns under these constraints. This leads to a generalized portfolio optimization problem under different capital restrictions.

We pursue a two-step Risk-/Return Management Approach ("RRM-Approach") [3]. At first we formulate an optimization model that maximizes the expected returns of the bank portfolio to the planning horizon under internal and regulatory loss risk limitations. The restriction on the internal economic capital is based on the risk measure of Conditional Value at Risk (CVaR), that has been proved to be appropriate for measuring bank wide loss risk [1]. The regulatory capital restrictions represent the actual Basle Rules of risk limitation. The optimization model of step 1 of the RRM-Approach is solved by an application of the CVaR-optimization approach by Rockafellar/Uryasev [1].

In the second step, we derive a consistent risk-/return key ratio system from the optimum portfolio of step 1. We estimate the risk and return contributions of each single asset in the portfolio and achieve additive, linear representations of the expected returns and the regulatory and internal risk contributions. The latter we obtain by an application of Euler's Formula on CVaR [2]. We sum up the risk and return contributions of the single assets on the business line level. In this way we deduce consistent return targets and capital limits of the economic and the internal capital for each business line. These quantities represent basic planning information ensuring maximum return targets and an efficient capital allocation of the economic and the regulatory capital. The impact of the RRM-Approach is shown by a brief application example.

References

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[3]   Theiler, U.: Integrated Risk-/Return-Management Approach for the Bank Portfolio (in German). Ph.D. Thesis, Wiesbaden, 2002.