On the Validity of Value-at-Risk: Comparative Analyses with Expected Shortfall

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Abstract

Value-at-risk (VaR) has become a standard measure used in financial risk management due to its conceptual simplicity, computational facility, and ready applicability. However, many authors claim that VaR has several conceptual problems. Artzner et al. (1997, 1999), for example, have cited the following shortcomings of VaR. (1) VaR measures only percentiles of profit-loss distributions, and thus disregards any loss beyond the VaR level ("tail risk"), and (2) VaR is not coherent since it is not sub-additive. To alleviate the problems inherent in VaR, the use of expected shortfall is proposed. In this paper, we provide an overview of studies comparing VaR and expected shortfall to draw practical implications for financial risk management. In particular, we illustrate how tail risk can bring serious practical problems in some cases.

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