

Comparison of Methods for Estimating the Uncertainty of Value at Risk

Working Paper No. 927 Keep in mind

The series Working Papers on Economics is published by the Office for Economic Studies at the *Banco de la República* (Central Bank of *Colombia*). It contributes to the dissemination and promotion of the work by researchers from the institution. This series is indexed at Research Papers in Economics (RePEc).

On multiple occasions, these works have been the result of collaborative work with individuals from other national or international institutions. The works published are provisional, and their authors are fully responsible for the opinions expressed in them, as well as for possible mistakes. The opinions expressed herein are those of the authors and do not necessarily reflect the views of Banco de la República or its Board of Directors.

AUTHOR OR EDITOR Santiago Gamba Oscar Fernando Luis Fernando Melo Carlos Andrés Quicazán

AUTHORS AND/OR EDITORS Oscar Fernando

Value at Risk (VaR) is a market risk measure widely used by risk managers and market regulatory authorities. There is a variety of methodologies proposed in the literature for the estimation of VaR. However, few of them get to say something about its distribution or its confidence intervals. This paper compares different methodologies for computing such intervals. Several methods, based on asymptotic normality, extreme value theory and subsample bootstrap, are used. Using Monte Carlo simulations, it is found that these approaches are only valid for high quantiles. In particular, there is a good performance for VaR (99%), in terms of coverage rates, and bad performance for VaR (95%) and VaR (90%). The results are confirmed by an empirical application for the stock market index returns of G7 countries.

The series Borradores de Economía is published by the Economic Studies Department at the Banco de la República (Central Bank of Colombia). The works published are provisional, and their authors are fully responsible for the opinions expressed in them, as well as for possible mistakes. The opinions expressed herein are those of the authors and do not necessarily reflect the views of Banco de la República or its Board of Directors.