

# A Least Squared approach on estimating the Conditional Tail Expectation for Heavy Tailed Losses

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## Abstract

Many different risk measure have been proposed in the literature. In this paper, we focus on the Conditional Tail Expectation (CTE), which is an important actuarial risk measure and a useful tool in financial risk assesement. Its asymptotic normality has been established in the literature under the classical assumption that second moment of the loss variable is finite. The noted result, however, is not applicable when the loss variable follows any distribution with infinite second moment, which is a frequent situation in practice. We thus focus on this framework and we use bias reduced estimators of high quantiles based on a least squared approach to propose a new estimator for the CTE. A small simulation study is proposed to illustrate the efficiency of our approach.

**Keywords:** Extreme values · Heavy-tailed · Conditional Tail Expectation · risk measure.