THE UNIVERSITY OF CHICAGO | DEPARTMENT OF STATISTICS

Master's Thesis Presentation

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"Controlling Tail-Risk Amplification under Market Stress (A Bounded Dynamic Model for VaR and Expected Shortfall)"

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Abstract

This thesis develops a bounded, stress-dependent model for joint VaR–ES forecasting. Relative tail severity responds persistently and nonlinearly to observable market stress, while a logistic link limits excessive ES extrapolation. Evidence from nine cryptocurrencies and simulation experiments shows that the model is competitive under selected conditions, but not uniformly superior. Its main value is therefore tail-risk control rather than universal forecasting dominance.

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