



MODELLING THE EXTREME RETURNS IN CHINESE STOCK MARKETS USING EXTREME VALUE THEORY

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Abstract

Extreme movements in Shanghai, Shenzhen, Hong Kong and Taiwan composite indices during the last decade are analyzed using extreme value theory (EVT). For comparison, Value-at-Risk (VaR) estimates are derived from the stock market indices using three methods: variance-covariance, RiskMetrics, and EVT. Within EVT, the block maxima and peak over the threshold (POT) methods are used. Backtesting results indicate that, at high confidence levels, EVT can be a better alternative to other commonly used VaR estimation methods. The probabilities of certain extreme events in these indices are estimated and potential implications for risk management are discussed.

Keywords and phrases: extreme value theory, variance-covariance, risk matrices, stock market.

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