Risk contributions of trading and non-trading hours: Evidence from commodity futures markets

Qingfu Liu and Bo Huang
Institute for Financial Studies
Fudan University, Shanghai, China

Yunbi An
Odette School of Business
University of Windsor
Windsor, Ontario, Canada N9B 3P4

Abstract

This paper focuses on risk contributions of trading and non-trading hours in Chinese commodity futures markets. We first examine integrated risks of Chinese copper, rubber, and soybean futures markets within the copula-VaR (value at risk) and copula-ES (expected shortfall) frameworks. Then, we evaluate the component VaR and component ES of the trading and non-trading periods to gauge their respective risk contributions to the integrated risks. We find that copula-based VaR models can appropriately measure integrated risks, as the typical VaR and ES based on close-to-close returns underestimate overall market risks. In addition, we document that the financial information accumulated during non-trading hours contributes substantially to the overall risk of futures markets, with component VaR and ES weights ranging from more than 40% to nearly 60% in these markets. In particular, the information during non-trading hours is more important than that in trading hours in explaining the total risk of copper futures in China. Moreover, the risk contribution of non-trading periods increases with their lengths, reflecting the fact that information flows constantly over time.

Keywords: risk contribution; value at risk; expected shortfall; futures markets; trading hours; non-trading hours

JEL classification: C32, G15

---

1 This research was supported by National Nature Science Funds of China (71073026).

2 Corresponding author. Email: yunbi@uwindsor.ca