



Research Working Papers

The Missing Tail Risk in Option Prices

by: Jason P. Brown, Nida Çakır Melek, Johannes Matschke and Sai A. Sattiraju

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Investors in the oil market consistently underestimate the likelihood of very low oil prices.

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This paper contributes to the literature on deviations from rational expectations in financial markets and to the literature on evaluating density forecasts. We first develop a novel statistic to evaluate the overall accuracy of distributional forecasts, and find two methods that yield accurate distributional forecasts. We then propose another statistic to examine the relative accuracy over the entire distribution range. Our results indicate more oil price realizations in the left tail than predicted. We argue that this finding points to a persistent behavioral forecasting bias and a departure from the rational expectations hypothesis. Investors hence underestimate left tail risk and under-insure against very low oil prices.

JEL classifications: C52, C58, G12, G17, G41, Q47

Article Citations

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Related Research

- Christoffersen, Peter, Kris Jacobs, and Xuhui (Nick) Pan. 2022. "The State Price Density Implied by Crude Oil Futures and Option Prices." *Review of Financial Studies*, vol. 35, no. 2, pp. 1064–1103. Available at <https://doi.org/10.1093/rfs/hhab011>
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 - Dew-Becker, Ian, Stefano Giglio, and Bryan Kelly. 2021. "Hedging Macroeconomic and Financial Uncertainty and Volatility." *Journal of Financial Economics*, vol. 142, no. 1, pp. 23–45. Available at <https://doi.org/10.1016/j.jfineco.2021.05.053>
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Authors



Jason P. Brown

Vice President and Economist

Jason Brown is a Vice President and Economist in the Economic Research Department of the Federal Reserve Bank of Kansas City. In this role, he coordinates the regional and commodities research of the Bank and serves as liaison to regional and commodities researchers located in branch offices and in Kansas City. He conducts research on issues related to regional economic growth, emerging industries, natural resource development, and structural change in regional industry and labor markets. Prior to joining the Federal Reserve Bank of Kansas City, Jason was an economist at the USDA Economic Research Service in Washington, D.C. He holds a Ph.D. from Purdue University.



Nida Çakır Melek

Senior Economist

Nida Çakır Melek is a senior economist in the Economic Research Department of the Federal Reserve Bank of Kansas City. She joined the Bank in August 2013 after receiving her Ph.D. from UCLA. She holds a B.S. degree in Mathematics from Middle East Technical University, Ankara, Turkey and an M.A. degree in Economics from Bilkent University, Ankara, Turkey. Her primary areas of research are macroeconomics, international economics, and energy economics.



Johannes Matschke

Economist

Johannes Matschke is an economist in the Macroeconomics and Monetary Policy Division at the Federal Reserve Bank of Kansas City. He joined the Bank in 2021 after obtaining his Ph.D. in Economics from the University of California, Davis. He holds a master's degree in Statistics from the University of Munich and a master's degree in Economics from the University of Nebraska in Omaha. He received his bachelor's degree in Economics from the University of Munich. His research explores the implications of financial frictions and international markets on the optimal design of regulatory policies.