

Description for
“High-Frequency Risk-Neutral Density Reactions
to the FOMC Announcement in March 2015”

Data Description (Abstract)

This dataset contains cross-sections of the last observed option quote for each strike of 17 underlyings 30 minutes before and after the Federal Open Market Committee (FOMC) announcement at 13:00 Chicago time (CT) on 18 March 2015. It is extracted from the confidential bulk CBOE OPRA data provided by the Options Price Reporting Authority (OPRA) and is employed to estimate the high-frequency risk-neutral density (RND) of the selected underlyings and examine the intraday changes in these RNDs following the FOMC announcement. This dataset underlies the empirical application on RND extraction of Andersen et al. (Journal of Financial Econometrics, 19(1), 128-177, 2021).

Data Content

Table 1 briefly describes the data fields contained in the dataset, which provide information about the option class or underlying ticker, the date and time of each quote, option specifications (expiry, put or call, exercise price), quoted bid and ask prices, and the associated last best bid and ask quotes of the underlying right before the option quotes, for a selected sample of 17 underlyings reported in Table 4 of Andersen et al. (2021). These data fields are a subset of those contained in the original bulk OPRA data. For more information about the structure of the bulk data, please refer to Section 4 of Andersen et al. (2021).

Table 1: Information contained in the dataset

No	Column name	Example	Description (Data type)
1	CLASS_SYMBOL	AAPL	Options class/underlying symbol (character)
2	DATE	20150318	Quote date in the format yyyyymmdd (numeric)
3	TIME	123000	Quote time, in Chicago time (CT), in the format hhMMss (character)
4	EXPIRATION_DATE	20150327	Expiration date in the format yyyyymmdd (numeric)
5	PUT_CALL_CODE	C	Either “P” for puts or “C” for calls (character)
6	EXERCISE_PRICE	90	Strike price of the option (numeric)
7	BID_PRICE	36.5	Quoted bid price of the option (numeric)
8	ASK_PRICE	36.85	Quoted ask price of the option (numeric)
9	STOCK_BID_PRICE	126.67	Best quoted bid price of the underlying (numeric)
10	STOCK_ASK_PRICE	126.68	Best quoted ask price of the underlying (numeric)

This dataset only contains quotes on standard option contracts (whose option class symbol is the same as the underlying ticker) on 18 March 2015 with the shortest time to maturity that exceeds 3 calendar days. For each underlying/option class, the last observed option quote for each strike is retained to form cross-sections of options at 30 minutes before and after the FOMC announcement at 13:00 CT. Potentially erroneous quote entries that are described in Step 1 of Web-Appendix F.2 of Andersen et al. (2021) are removed.

This dataset provides the inputs for the estimation and investigation of the intraday reactions of the high-frequency RNDs to the FOMC announcement on 18 March 2015 for the selected 17 underlyings. Technical details of this analysis are provided in Web-Appendix F of Andersen et al. (2021), with notable findings and discussions presented in Section 6.2 of the paper.

Reference

Andersen, T., Archakov, I., Grund, L., Hautsch, N., Li, Y., Nasekin, S., Nolte, I., Pham, M.C., Taylor, S. and Todorov, V. (2021). A Descriptive Study of High-Frequency Trade and Quote Option Data. *Journal of Financial Econometrics*, 19(1), 128-177.