SHAP analysis of LSTM-MDN-RV-IV ES 97.5% estimates High  $IV_{10-day}$  (1 day ago)  $IV_{10-dav}$  (2 days ago)  $BPV_{1-min}$  (1 day ago)  $RV_{5-min}^{-}$  (1 day ago) Feature value  $BPV_{5-min}$  (1 day ago)  $IV_{10-dav}$  (3 days ago)  $IV_{30-dav}$  (1 day ago)  $BPV_{1-min}$  (2 days ago)  $RV_{1-min}$  (1 day ago)  $RV_{1-min}^{-}$  (1 day ago) Low 0.005 -0.010-0.0050.000 0.010 0.015

SHAP value (impact on model output)