Real-time Price Discovery via Verbal Communication: Method and Application to Fedspeak

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Research Contribution

- The paper is empirical.

- They link high frequency financial data to time-stamped words from videos.

- The authors find positive correlation between asset price changes over two non-overlapping periods (around the FOMC statement, and the FOMC press conference). Intraday momentum.

- They conclude that the results provide evidence that investors fail to fully incorporate information (underreact).
• Under risk neutral investors, discounted prices are martingales.

• However, for risk-adverse investors, predictability need not be a sign of market inefficiency, it might be a compensation of risk-taking.

• Under asset pricing theory, price changes are martingales under the risk-neutral measure (not necessarily under the physical measure):

\[ E_t[M_{t+h} \Delta P_{t+h}] = 0 \]

• Therefore, predictability \( \Delta P_{t+h} \) depends on

\[ \text{cov}_t[M_{t+h}, \Delta P_{t+h}] \]

• Predictability on quadratic variation?

• Whether there will be a press-meeting is part of the information set.
Evidence of Risk-Taking

- There are large deviations from expectations, suggesting non-trivial risks.
- Have you performed small sample testing (i.e. bootstrap distribution)?
- What about the peso problem? Large but unrealized risks -> look at option prices of SPX.
- Obtain *M state prices* from option prices to formally test the hypothesis.
- Have auto-correlations changed over-time?
Alphas

• I would like to see the bootstrapped distribution of alphas:
  • Test the null (alpha == 0).
  • Also, analyze the risk (e.g. max drawdown).
• For Eurodollar futures 60-Month, the estimated alpha of the strategy is around 1bp = $25.

• 1 Euro dollar futures contract, notional exposure $1MM.

• You need to consider:

  • Bid-ask spread (0.5 bp).

  • Commissions (0.2bp).

  • Taxes, up to 50% of profits.

  • Market impact.

• In practice, it doesn’t look like a great ex-ante risk-reward trade-off.
Final remarks


• It is very important to talk about the link between risk and expected returns. Let’s be extremely skeptical and include costs, risks, small sample testing.

• Perhaps, the authors want to make the opposite argument: markets are highly efficient even if price changes have predictability …
  • Not “underreaction” during placebo periods.
  • Trading volume increases during press-conference vs. placebo.
  • Risk-taking may justify predictability.