Discussion of “Can We Measure Inflation Expectations Using Twitter?” by Angelico, Marcucci, Miccoli, and Quarta

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Research Questions

1. Do tweets say something about inflation?
2. How can we exploit tweets to create a daily indicator for inflation expectations?
3. Can this index help in forecasting or nowcasting inflation expectations?

Overview

Why create a tweet-based indicator of inflation expectations?

- Survey-based measures capture “true” expectations, but are only available monthly.
- Market-based measures can be computed daily, but contain time-varying risk and liquidity premia.
- Tweet-based measures can be updated daily and capture “true” expectations.

Overview

Methods

- Use two Twitter-based datasets: long and short samples.
  - Long: Counts for targeted keywords
  - Short: Counts, full text, metadata, user bio
- Apply dictionary-based methods and topic model (LDA).
- Examine user metadata.

Overview

Results

- Twitter-based measure is highly correlated with market-based and survey-based measures.
- Contains predictive content.
- Economists and journalists appear to play an important role.

Comments

Comments

- Well-executed and carefully explained.
- Thoughtfully-constructed dictionary-based method.
- State-of-the-art topic model (LDA) from computational linguistics.
- New dataset and techniques for measuring inflation expectations at a high frequency.

Major Comment #1

Interpreting Counts

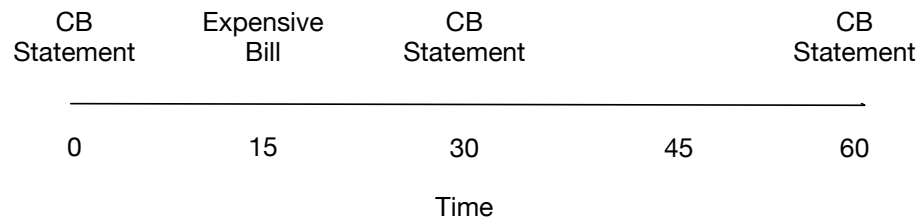
- Count levels and differences used in this paper.
- Filtering is needed to smooth and remove shocks.
- Index construction similar to Apel and Grimaldi (2014) and Malmendier et al. (2014).
- Semantic indices often use ratio to map counts to (-1,1):

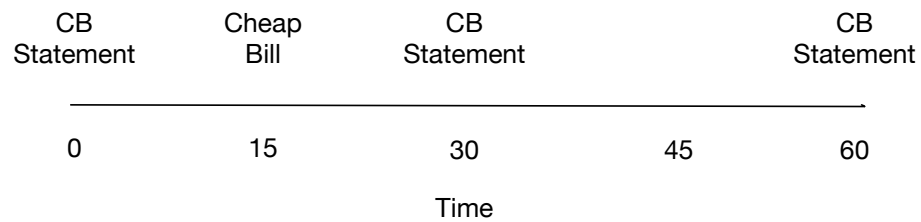
$$index = \frac{hawk}{hawk + dove} - \frac{dove}{hawk + dove} \tag{1}$$

Major Comment #1

Interpreting Counts

- What is expectation of inflation at $t < 15$ and $t > 15$?





- MA processes may capture part of this.

Major Comment #2

Intensity-Based Indices

- Using intensity-based measures could reduce spiking and strengthen the signal without the need to smooth.
- Loughran and McDonald (2011) use a dictionary-based methods to measure sentiment intensity within a document.
  - E.g. Pool tweets daily and then apply word count with normalization.
- Baker, Bloom, and Davis (2015) normalize by control group.
  - E.g. Perform separate query for Bank of Italy and place in the denominator.

Major Comment #3

Recombining LDA with Statistical Weights

- Identify many inflation components individually via topic model.
- Recombine or apply dimensionality reduction.
  - Principal components analysis
  - Factor model
  - Lasso regression
- This could yield interesting extension or second paper.
  - E.g. How important are shocks to components?