Economic Narratives and Market Outcomes: A Semi-Supervised Topic Modeling Approach

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Introduction

Inspiration
- Popular stories in daily conversation can affect individual and collective behaviors.
- Studying these stories helps predict major economic events.

Research question
- Extract 10 narratives from 7 million New York Times (NYT) articles over 150 years
- Examine whether these stories can predict the market returns

Measuring Panic?
A model-free method combining
- text data
- computing power
- machine learning.

Main findings
- Panic is the most important topic encompassing various anxiety-related themes.
- Panic is a strong positive predictor of market return (both in- and out-of-sample).
- Panic proxies for time-varying risk aversion consistent with the ICAPM.
- Panic has predicting power beyond the actual events.

Methodology

General idea
Extract the attention of news articles allocated to each topic (narrative) in any period.

Topic model (LDA)

Seed words for Panic
bank failure, bank panic, crisis, depression, epidemic, fear, financial panic, pandemic, panic, recession, tension, war, etc.

Main results

Figure 4. Time series of Panic weight

Table 4. Predicting market returns

Table 10. Out of sample R²

Additional results

Prediction results hold at the portfolio and daily level.
- Topics from seeded LDA outperform those from frequency count of seed words.
- Results with 2 millions WSJ articles:
  - The narrative index is still a positive market predictor.
  - Stock market bubble is the most important topic and a negative predictor.
  - Media with different target audiences have diverse impacts on the market.

Conclusion

- This paper extracts Shiller’s 10 narratives from 7 million NYT and 2 million WSJ articles.
- Panic positively predicts market, proxies for time-varying risk aversion, and has power beyond actual stressful events.
- The estimation scheme can be extended by
  - daily estimation
  - applying to other languages

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