Do Central Bank Words Move Markets?

A Sentiment Analysis of RBI Governor Speeches

1. Objective

This project aims to study whether the tone of Reserve Bank of India (RBI) Governor speeches influences Indian stock market movements. Using Natural Language Processing (NLP) techniques and financial data analysis, the project will explore the link between central bank communication and short-term market behavior.

2. Background & Motivation

Central bank communication has emerged as a powerful non-policy tool for guiding market expectations. RBI Governor speeches are closely followed by investors and policymakers. Given my background in data and business analysis and a growing interest in applied finance, this project provides a unique opportunity to:

- Understand the qualitative influence of financial communication.

- Gain exposure to text analytics and market data.

3. Methodology

Phase 1: Literature Review and Setup

- Study key papers on monetary policy communication.

- Understand the structure and content of RBI Governor speeches.

- Set up a Python environment with NLP and financial libraries.

Phase 2: Data Collection (Week 2)

- Collect 20–30 RBI Governor speeches from the past 5 years.

- Clean and preprocess the text data.

- Download NIFTY/SENSEX data 3 days before and after each speech using `yfinance`.

Phase 3: Sentiment Analysis (Week 3)

- Apply sentiment scoring using `TextBlob` or `VADER`.

- Create a labeled dataset mapping speech date to sentiment score.

Phase 4: Market Response Analysis (Week 4)

- Calculate returns and volatility pre/post speech.

- Analyze correlation between speech tone and market movement.

Phase 5: Interpretation & Reporting (Week 5)

- Identify patterns and outliers.

- Write an initial report with graphs and insights.

Phase 6: Finalization (Week 6)

- Finalize Jupyter notebook and code.

- Compile 4–5 page report summarizing methodology, results, and learning.

4. Tools & Technologies

- **Languages**: Python

- **Libraries**: `pandas`, `matplotlib`, `TextBlob`, `VADER`, `yfinance`

- **Platform**: Jupyter Notebook

- **Sources**: RBI website, Yahoo Finance

5. Expected Deliverables

- Clean dataset of speeches with sentiment scores

- Codebase with documentation

- Summary visualizations of market responses

- Final PDF report and conclusion

7. Why This Project

As an undergraduate with experience in consulting and business/data analysis, this project bridges my current strengths with an opportunity to gain hands-on exposure to financial analytics. The methodology is manageable within the timeframe while offering meaningful insight into a real-world economic question. I'm deeply motivated to explore this domain and contribute to research under your guidance.