



# FED Announcements

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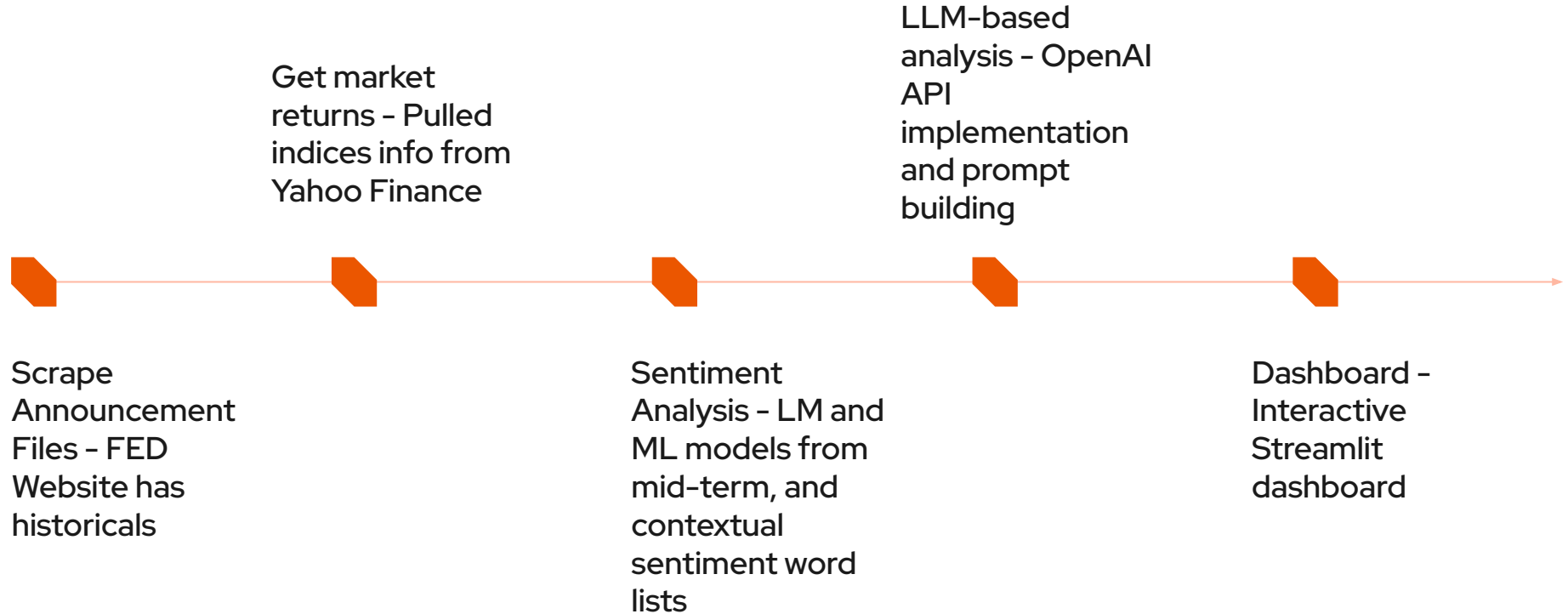


# Overview

- FED communication
  - Statements
  - Press Conferences
  - Intermeeting transcripts
  - Economic projections
  - Speeches
- Effect on the market
  - Different Indices instead of individual stocks

**How do financial markets process monetary policy information from central bank communications?**

# Process

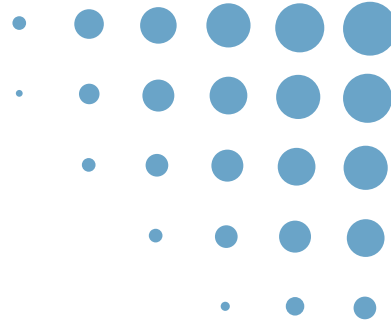


# Building the Dataset

Category	Variable(s)	Description
1. Event Data	Event_id, Date, Doc_type, Doc_url	Unique ID, Date of the event, Type of document (statement, press conference, intermeeting minutes), URL to Source
2. Market Returns	SP500_ret(-10) to SP500_ret(10), NASDAQ_ret(-10) to NASDAQ_ret (10), DIJA_ret(-10) to DIJA_ret(10), Etc.	The daily log of returns from 10 days before to 10 days after each FOMC communication for each index
3. Textual Sentiment Metrics	ML_sentiment, LM_sentiment	Sentiment scores using the ML and LM models
4. Topic Specific Sentiment	Monetary_policy_sentiment, Guidance_sentiment, Economic_sentiment, Balance_sheet_sentiment	Sentiment scores by policy topic which are filtered using keywords which will be displayed at the bottom of this document
5. LLM-Based Structured Labels	Overall_bullishness, monetary _policy_view, Guidance_view, Economic_view, Balance_sheet_view	Categorical sentiment/view labels (bullish = 1, neutral = 0, bearish = -1), generated via LLMs (ChatGPT)

# ChatGPT Analysis

- Imported OpenAI api into jupyter labs
- Must pip install OpenAI
- Cost some money to use the model



## Step 1 - Import OpenAI and load in your secret key

```
from openai import OpenAI  
# secret key
```

## Step 2 - Create the prompt

```
response = client.chat.completions.create(  
    model="gpt-4",  
    messages=[  
        {"role": "user", "content": "Once upon a time"}  
    ],  
    max_tokens=50  
)
```

## Step 3 - Get Output

```
print(response.choices[0].message.content)
```

```
in a land far, far away, there existed a kingdom known as Eldorin. Eldorin was a beautiful, prosperous realm known  
for its verdant forests, crystal-clear rivers and towering mountains that pierced the sky. The people of Eldor
```

# ChatGPT Analysis Continued.....

```
for date, filename in dated_files:
    try:
        with open(os.path.join(folder_path, filename), 'r', encoding='utf-8') as f:
            soup = BeautifulSoup(f, 'html.parser')
            fomc_text = soup.get_text(separator=' ', strip=True)

            prompt = f"""
            You are a financial analyst specializing in monetary policy communications. Read the following FOMC announcement and answer the following questions:

            1. What is the sentiment at the beginning of the announcement? (Bearish, Neutral, Bullish)
            2. Provide a final numerical sentiment rating to the entire document based on your analysis of the tone
               -1 = Bearish
               0 = Neutral
               1 = Bullish
               The rating can be a decimal (e.g., -0.9,-0.8,-0.7,-0.6,-0.5, -0.4,-0.3,-0.2,-0.1, 0.1, 0.2, 0.3, 0.4)

            Just output the rating number without any explanation.

            FOMC Text:
            {fomc_text}
            """

            response = client.chat.completions.create(
                model="gpt-4",
                messages=[{"role": "user", "content": prompt}],
                max_tokens=500,
                temperature=0.4
            )

            response_text = response.choices[0].message.content
            match = re.search(r"2\\.s*(-?\\d*\\.\\d+|\\d+)", response_text)

            if match:
                extracted_rating = float(match.group(1))
            else:
                extracted_rating = None

        except Exception as e:
            print(f"Error processing {filename}: {e}")
            extracted_rating = None

        ratings.append(extracted_rating)
        time.sleep(1.2)

statements_chat_df = pd.DataFrame(ratings, columns=["Sentiment_Rating"])
print(statements_chat_df)
print(f"\nTotal processed: {len(statements_chat_df)}")
```

	Sentiment_Rating
0	-0.7
1	-0.7
2	-0.7
3	-0.2
4	-0.2
..	...
195	0.1
196	-0.1
197	-0.1
198	0.2
199	0.1

**Let's check out the dashboard.....**

<https://fed-announcements.streamlit.app/>