

Discourse and Sentiment Analysis of the FOMC during the Covid-19 Pandemic

Tyrli Aikaterini-Lilika

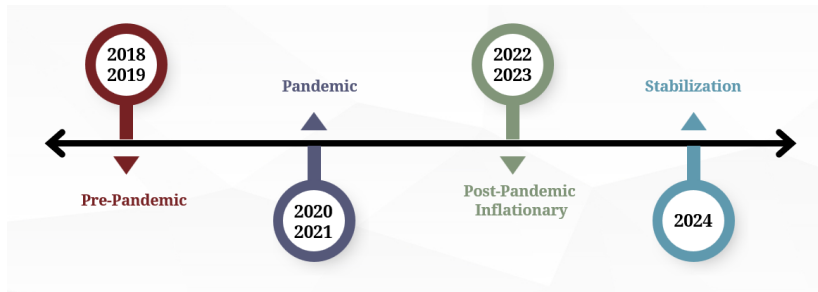
Athens University of Economics and Business (AUEB)
Department of International and European Economic Studies (DIEES)

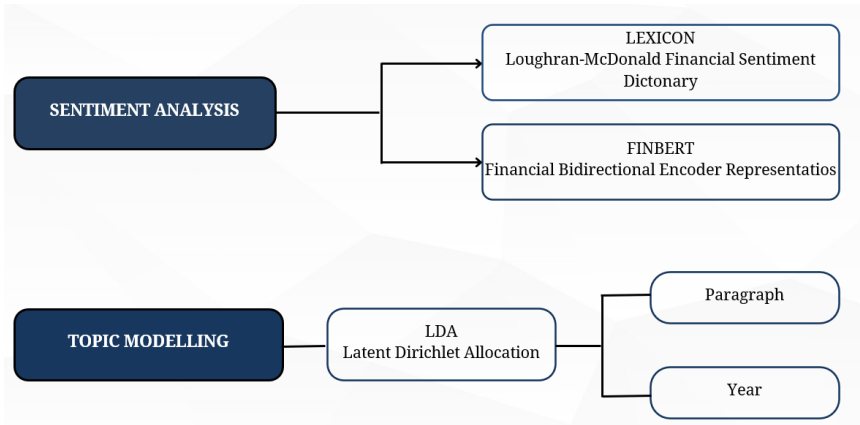
June 29, 2026

What is the FOMC?

- **Federal Open Market Committee** : the main monetary policy body of the US Federal Reserve
- Sets interest rates and conducts open market operations
- Publishes *Minutes* after each meeting - a rich textual record of policy deliberation

- **56 FOMC Minutes** (Jan 2018 – Dec 2024), 8 meetings per year
- Source: FederalReserve.gov





Sentiment Analysis & Lexicon

Word Distribution by Category

Category	Count	%
Negative	2,345	45.2%
Litigious	903	17.4%
Uncertainty	297	5.7%
Positive	347	6.7%
Constraining	184	3.5%
Weak Modal	27	0.5%
Strong Modal	19	0.4%

Annual Statistics (2018–2024)

Year	Score	Pos%	Neg%
2018	-0.0082	2.14	3.08
2019	-0.0197	1.87	3.91
2020	-0.0205	2.14	4.36
2021	-0.0095	2.79	3.64
2022	-0.0233	1.91	4.41
2023	-0.0242	1.62	4.24
2024	-0.0143	2.19	3.73

Formula:

$$\text{Sentiment} = \frac{(\text{Positive} - \text{Negative})}{\text{Total}} = -0.017$$

Slightly negative sentiment

Sentiment Analysis: FinBERT

Year	Score	Pos%	Neg%	Neu%
2018	-0.0249	27.50	43.20	29.30
2019	-0.2086	17.90	50.00	32.10
2020	-0.2578	12.40	55.30	32.30
2021	-0.1824	19.90	48.50	31.60
2022	-0.1789	20.10	47.30	32.60
2023	-0.2234	15.10	51.10	33.80
2024	-0.1222	23.30	44.50	32.20

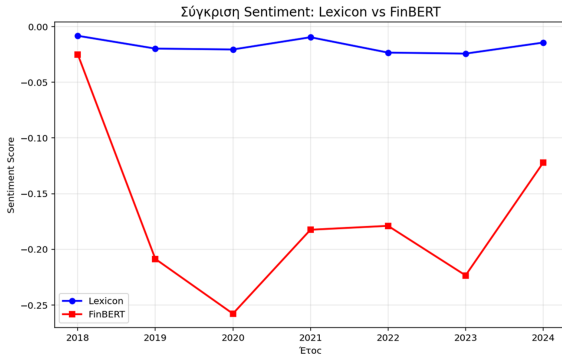
Positive 19.3% Negative 43.1% Neutral 37.6%

Formulas:

$$\text{Net Sentiment}_t = P_t(\text{pos}) - P_t(\text{neg})$$

$$\text{Sentiment Score}_t = \frac{1}{k} \sum_{j=1}^k \text{Net Sentiment}_j$$

Lexicon Vs FinBERT



Similarities:

- Peak negativity in 2020 (pandemic)
- Second negativity wave in 2023 (inflation)
- Improvement in 2024

Need for Complementarity:

- *Lexicon*: Transparent, reproducible
- *FinBERT*: Captures **deeper** context

Topic Modeling (LDA) & Paragraph-level

- 1,876 paragraphs → 5 stable topics

- **The 5 Topics:**

- ① Inflation and Price Stability
- ② Labor Market and Employment
- ③ Financial Conditions and Stability
- ④ Monetary Policy Instruments (rates, QE)
- ⑤ Economic Outlook and Uncertainty

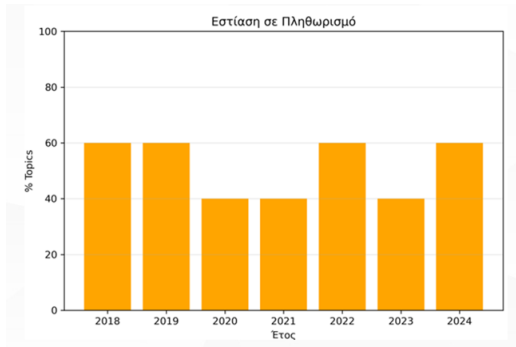
WordClouds Topics – FOMC Minutes 2018-2024



Topic Modeling (LDA) & Annual Dynamics

Year	Dominant Topics
2018	Inflation, Policy
2019	Inflation, Growth
2020	Inflation, Financial
2021	Inflation, Pandemic
2022	Inflation, Financial
2023	Inflation, Banking
2024	Inflation, Labor

Inflation dominates across all years



Monetary Vs Fiscal Policy Response

Monetary Policy (FOMC)

- **Main actor:** Federal Reserve / FOMC
- **Instruments:** Interest rates, QE, lending programs
- **Reflected in:** FOMC Minutes (directly)
- **Analysis:** Sentiment & Topic Modelling (NLP)

Fiscal Policy (Government)

- **Main actor:** Federal Government / Congress
- **Instruments:** Spending packages, stimulus, tax cuts
- **Reflected in:** Not directly in FOMC Minutes
- **Analysis:** Quantitative (not linguistic)

Monetary policy is *directly reflected* in FOMC Minutes (NLP analysis), while fiscal policy provides the *economic context* for FOMC deliberations.

Can Sentiment Predict Unemployment?

- Pearson correlation between FOMC sentiment and initial jobless claims:

$$r = -0.254$$

- **Direction:** Negative sign — improved sentiment co-occurs with falling unemployment claims.
- **Strength:** Very weak linear relationship.
- **Conclusion:** Sentiment is a **coincident indicator** (reflects current conditions), **not a leading (predictive)** indicator.
- Language responds *to* the economy — it does not forecast it.

- **Sentiment Analysis:** Persistently cautious/negative tone, peaking during crises (COVID, inflation, banking turmoil). FinBERT reveals *deeper* negativity than Lexicon.
- **Topic Modelling (LDA):** Stable pillars (Inflation, Employment, Financial Conditions) with dynamic shifts in priorities during crises.
- **Policy & Predictive Power:** Language *reflects* policy decisions but has **no predictive power** — it is a coincident, not leading, indicator ($r = -0.254$).
- **FOMC Minutes as Text:** Not just a record of decisions, but a record of *how* policymakers think and perceive the world under extreme uncertainty.

Thank you!

Tyrli Aikaterini-Lilika
Supervisor: Prof. Vella Eugenia

Athens University of Economics and Business