Programming the Global Market

Studying the Evolution of Federal Reserve Statements as a Performative Instrument of Monetary Policy across Six Macroeconomic Regimes

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Abstract

Can a central bank program human expectations? For decades, the Federal Reserve spoke in “Greenspan speak”, a style of intentional incoherence designed to keep the public in the dark. But as traditional interest rate levers became less effective, the Fed built a new tool: The Narrative. This project uses Python and the Loughran McDonald financial lexicon to analyze 19 years , 2004- 2023, of Fed policy across six distinct rhetorical regimes. I mapped the institutional narrative arcs through the Pre Global Financial Crisis (GFC) baseline, the GFC Crisis, the Quantitative Easing (QE) Era, the Normalization period, the Pandemic emergency, and the modern Inflation/Resolve era. By applying Savitzky Golay smoothing to the corpus, I distinguished between descriptive Economic Sentiment (how the Fed perceives external reality) and performative Policy Resolve (how the Fed signals its internal willpower). Statistical analysis reveals that while economic sentiment remains an institutionally neutralized flatline across all these eras, policy resolve has been strategically utilized. It has evolved from a simple concluding formality into carefully designed rhetoric to program the global economy into stability.

Introduction

In the mid 1990s, the most reliable economic indicator was not a chart or a spreadsheet, but the thickness of Alan Greenspan’s briefcase. Traders and journalists would gather to watch the Chairman walk from his car to his office. A thick briefcase suggested that a major policy shift was hidden in the dozens of pages within. A thin briefcase suggested that no change was coming. Greenspan once joked to Congress that if he seemed unduly clear, his audience must have misunderstood him. This was a time when the central bank believed its power came from secrecy and a clinical distance from the public.

The 2008 financial crisis shattered this architecture of silence. As the housing market collapsed and traditional tools like interest rate cuts hit a floor of zero, the Federal Reserve found itself at an impasse. The Committee had to move from the mumble to a strategy of forward guidance. They began to tell deliberate stories about the future to stabilize the present. This project explores the idea that the Fed uses narrative arcs to hack the psychology of global markets, effectively *programming humanity* to believe in economic stability even when the numbers suggest otherwise.

To understand this transformation, we must distinguish between two linguistic tracks that the Fed manages simultaneously. First, there is economic sentiment. This is a descriptive, clinical observation of external reality. It answers the question of how the world looks to the bank. Second, there is policy resolve. This is the Fed’s performance of willpower: a signal of internal determination and commitment to its mandate. By mapping these two tracks across six distinct economic eras from 2004-2023, this project aims to reveal a twenty year evolution in the Fed’s rhetorical DNA.

Methodology

Corpus Construction and Linguistic Processing:

I began with the automated acquisition of every official FOMC policy statement released between 2004 and 2023. The corpus was segmented into six distinct rhetorical regimes:

- Pre GFC: January 2004 - August 2007.
- GFC Crisis: September 2007 - December 2009.
- QE Era: January 2010 - December 2016.
- Normalization: January 2017 - December 2019.
- Pandemic: January 2020 - December 2021.
- Inflation/Resolve: January 2022 - December 2023.

I utilized the Loughran McDonald financial lexicon to distinguish between two specific linguistic tracks. Economic sentiment measures the descriptive observation of the external world, while policy resolve measures the performative willpower of the institution. Because statement lengths vary significantly across decades, I calculated the density of these signals as the number of occurrences per 100 words. This normalization ensures that the rhetorical intensity of a short 2004 statement can be accurately compared to a lengthy 2023 document. The calculations for these metrics are defined by the following formulas:

- Economic Sentiment Density = [(Count of Positive Words - Count of Negative Words) / Total Word Count] * 100.
- Policy Resolve Density = [Count of Resolve Words / Total Word Count] * 100.

I then applied Savitzky Golay smoothing to the binned data. I employed specific hyperparameters: a window length of 11 sentences and a polynomial order of 2, to ensure that the sharp pivots in the narrative arcs remained visible.

Statistical Analysis:

I utilized the Kruskal Wallis H Test to compare the mean densities of sentiment and resolve across the six defined economic regimes. This non-parametric test was chosen because linguistic data can contain outliers and therefore may not follow a perfectly normal distribution. The statistical analysis was designed to test two central hypotheses. The first hypothesis evaluated whether economic sentiment significantly fluctuates between eras, which would indicate a highly reactive and emotional institutional voice. The second hypothesis evaluated whether policy resolve is used as a dynamic policy instrument, with its density increasing or decreasing based on the strategic needs of the regime. An alpha level of 0.05 was used.

Results

The graphical data reveals that the structural relationship between Economic Sentiment and Policy Resolve has evolved significantly across different macroeconomic regimes. The arcs reveal a structural evolution in Federal Reserve storytelling. The Pre GFC Arc shows resolve as a mere concluding signature while the GFC Crisis and Pandemic Arcs demonstrate an acknowledgment handoff where negative sentiment is followed by a steep ramp of resolve to anchor expectations. The QE Era Arc reflects maximum intensity with high resolve. Finally, the Inflation Resolve Arc shows a total hollowing of sentiment in favor of a 20 year peak in resolve density.

Statistical Analysis:

The statistical tables provide the final proof that these shifts are intentional and strategic rather than random. The table for Economic Sentiment yielded a p value of 0.301. This non significant result is a major finding for this project. It proves that the Federal Reserve maintains a clinical and neutralized descriptive mood regardless of the economic environment. The descriptive voice of the Federal Reserve is an emotional robot that remains sober even in a state of crisis. In contrast, the table for Policy Resolve yielded a statistically significant p value of 0.015.

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STATISTICAL ANALYSIS: SENTIMENT
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DESCRIPTIVE STATISTICS:
                     mean     std  count
era
GFC Crisis        -0.0834  2.9536     25
Inflation/Resolve  0.2650  4.3081     42
Normalization      1.9374  3.7988     17
Pandemic           1.4660  4.0155     28
Pre-GFC            1.0682  2.9406     15
QE Era             1.2733  4.9534     41

Kruskal-Wallis H-test p-value: 0.301669
RESULT: No significant differences detected.

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STATISTICAL ANALYSIS: RESOLVE
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DESCRIPTIVE STATISTICS:
                     mean     std  count
era
GFC Crisis         1.8129  2.9175     25
Inflation/Resolve  2.6866  5.6826     42
Normalization      1.9172  3.0644     17
Pandemic           2.2673  3.6689     28
Pre-GFC            0.6667  2.5820     15
QE Era             3.4260  3.2572     41

Kruskal-Wallis H-test p-value: 0.015189
RESULT: Significant differences exist between eras (p < 0.05)
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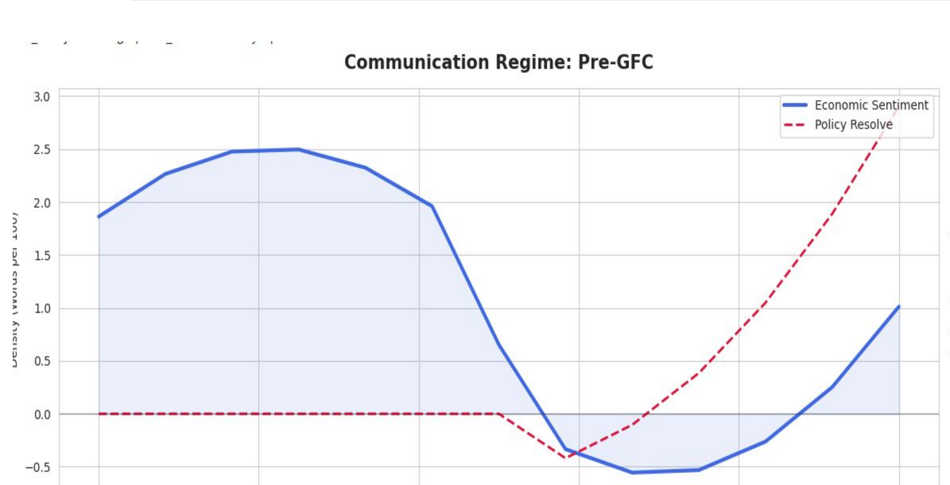
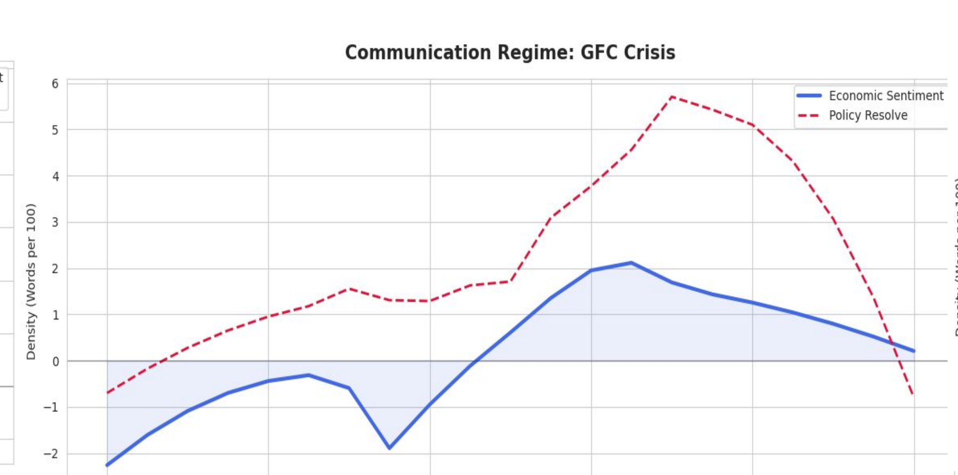
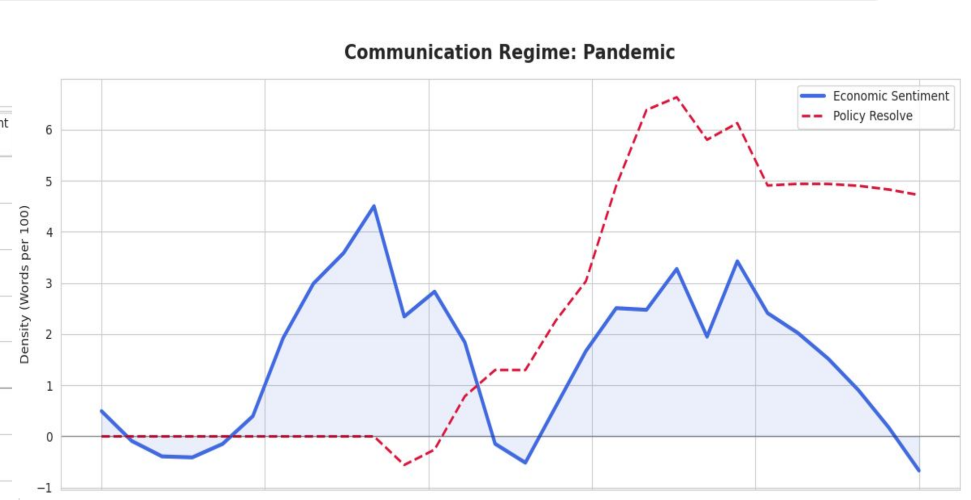
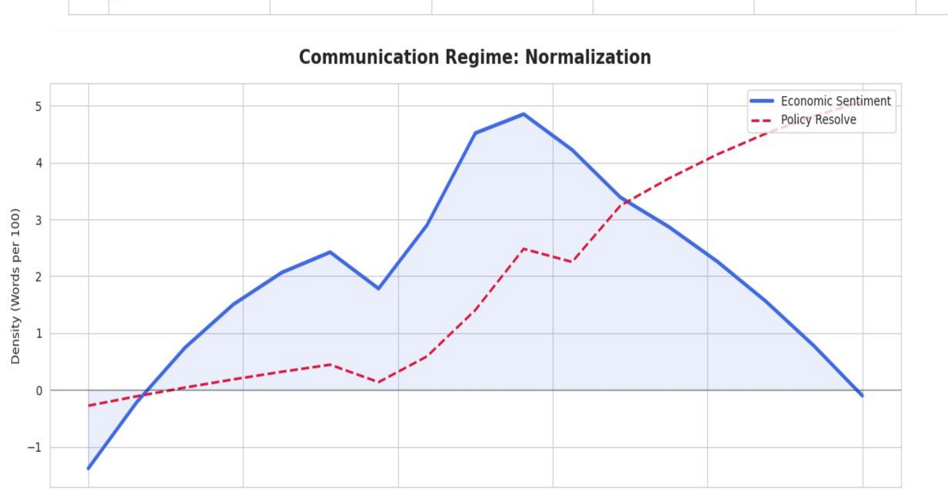
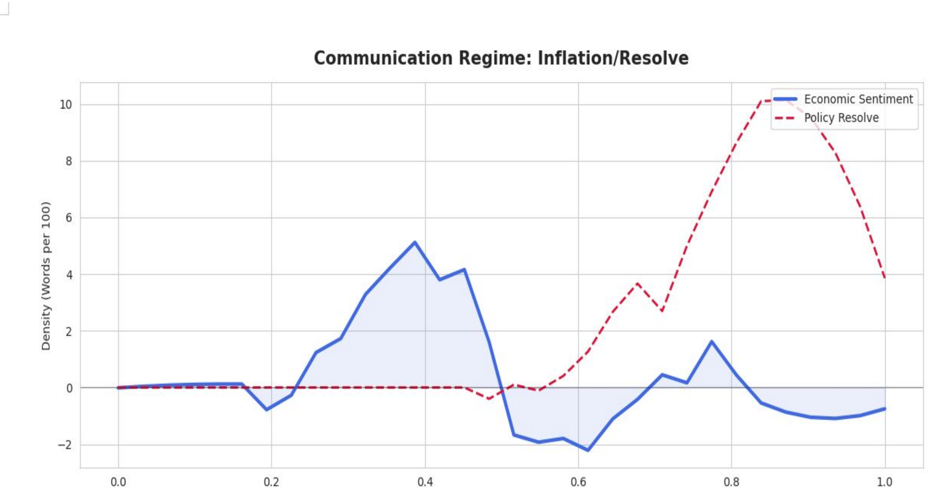
This confirms that Resolve is the active lever of the Federal Reserve. While the Committee does not change how it describes the world, it significantly changes the density of its willpower to match the needs of the regime. The jump in mean Resolve from the Pre GFC baseline of 0.66 to the QE peak of 3.42 demonstrates that the Federal Reserve successfully programmed its voice to manage global expectations when its traditional interest rate tools were exhausted. These results show that the narrative structure itself has become an indispensable and statistically significant instrument of monetary policy.











Conclusion

By separating descriptive Economic Sentiment from performative Policy Resolve, the Committee behaves like an emotional robot. It maintains a clinical and non significant mood while aggressively tuning its resolve to influence global belief.

The historical trajectory of the corpus reveals how this narrative instrument was forged in response to crisis. In the Pre GFC era, the Fed operated under the Greenspan doctrine of secrecy and descriptive boilerplate. My results show that in this period, resolve was nearly absent because traditional interest rate levers were still effective. Everything changed as we approached the 2008 Global Financial Crisis. As the housing market collapsed and the Fed hit the Zero Lower Bound, the Committee discovered that it could no longer act in silence. This era marks the where the Fed learned to admit economic pain (Negative Sentiment) as a prerequisite for building a ramp of willpower (Resolve). This strategy reached its quantitative peak during the QE Era, where the mean Resolve density of 3.42 represents the moment that Forward Guidance became the primary tool of the American central bank.

The modern Inflation Resolve era from 2022 to 2023 represents the ultimate evolution of this rhetorical machine. Unlike the Pandemic or GFC eras where the Fed tried to reassure a panicked public, the inflation fight required a display of cold and unwavering discipline. In these statements, the Committee almost entirely abandoned the human act of describing the economy. Instead, they maximized the density of resolve to its twenty year peak of 10.0. This was a deliberate attempt to program the market's expectations and anchor the very belief in the future value of the dollar.

Ultimately, these findings prove that the Federal Reserve uses narrative structure as a functional extension of its policy tools. The statistical proof of a non significant sentiment (p = 0.301) alongside a highly significant resolve (p = 0.015) suggests that the Fed’s credibility is no longer earned through descriptive transparency. This suggests that the humanity of the institution has been replaced by an algorithmic discipline, where the story is no longer meant to inform the public, but to control the outcome of the future.

Future and Ethics Statement

By deprioritizing descriptive transparency, the Fed risks losing respect from the general public. When financial institutions are doubted, devastating consequences are seen. I believe this poses a serious threat to the American economy..

References/Acknowledgements

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