Are the Major Central Banks even Genuine?

Evidence from Google Trends

Soumadeep Ghosh

Kolkata, India

Abstract

This paper investigates the relationship between public search interest in major central banks and the fabricated term 'Fake central bank' using Google Trends data. Using cosine similarity and Pearson correlation on time series data from 2004 to present, we identify that several leading institutions - including the Bank of France and the Bank for International Settlements - exhibit surprisingly high levels of alignment in their trend patterns with the fabricated term. These findings challenge assumptions about the distinctiveness of central bank discourse.

The paper ends with "The End"

1 Introduction

Central banks are the keystones of monetary policy, entrusted with safeguarding national and global economic stability. Yet, in the information age, the legitimacy of institutions is often challenged not only in policy papers but in search engines and online forums. This study investigates whether online search behavior conflates major, genuine central banks with the term 'Fake central bank' - a fictional construct used here as a proxy for skepticism or misinformation.

Google Trends provides an anonymized, normalized index of search term interest over time [1]. Through this lens, we examine whether queries for real central banks follow patterns that resemble queries for the term 'Fake central bank.' If major institutions are perceived as credible, we expect minimal similarity (e.g., cosine similarity < 0.05). Any higher values could signal overlaps in how these institutions are discussed or perceived.

2 Methodology

We extracted monthly Google Trends interest data from January 2004 to present for nine major institutions: the Bank of France, Bank of England, Banque de France, Bank of Israel, Bank of Russia, Federal Reserve, People's Bank of China, Reserve Bank of India, and the Bank for International Settlements (BIS). Each was compared against the fabricated term 'Fake central bank.'

Each series was treated as a vector $\mathbf{A}$, and similarity was computed using two metrics:

- **Cosine Similarity:**

$$S_C(\mathbf{A}, \mathbf{B}) = \frac{\mathbf{A} \cdot \mathbf{B}}{\|\mathbf{A}\|\|\mathbf{B}\|}$$

  Cosine similarity measures angular alignment between two series [2]. It is insensitive to magnitude, focusing on shape similarity.

- **Pearson Correlation:**

$$r = \frac{\text{cov}(A, B)}{\sigma_A \sigma_B}$$

  Pearson correlation reflects linear co-variation, indicating whether the peaks and valleys of the two series occur together [3].

Low scores on both metrics would confirm that genuine central banks show minimal alignment with the fabricated term.

3 Results

Table 1 shows cosine similarity and Pearson correlation values for each central bank.

Central Bank	Cosine similarity	Pearson correlation
Bank of France	0.46	0.31
Bank for International Settlements (BIS)	0.40	0.21
Bank of Israel	0.37	0.18
Bank of Russia	0.37	0.04
Reserve Bank of India	0.35	0.23
Bank of England	0.34	0.23
People's Bank of China	0.34	0.15
Banque de France	0.21	0.14
Federal Reserve	0.15	0.14

Table 1: Google Trends similarity metrics between each central bank and the term 'Fake central bank.'

Notably, the Bank of France shows a cosine similarity of 0.46 - well above any threshold for statistical noise. Even the BIS, often considered the bank for central banks [4], registers 0.40.

4 Discussion

If real central banks were entirely distinct from a fictional term like 'Fake central bank,' similarity scores should be negligible. However, our results challenge that expectation. Multiple institutions exceed a 0.30 cosine similarity - suggesting nontrivial overlap in temporal patterns.

This may be driven by shared public discourse contexts (e.g., crises, collusion or conspiracy theories). For example, spikes in searches for both BIS and 'Fake central bank' may stem from the same events triggering public distrust.

Interestingly, even the Federal Reserve - perhaps the most visible central bank globally - shows a similarity (0.15) above 0.05, suggesting either stronger differentiation or differing levels of public narrative conflation.

5 Conclusion

We set out to test whether public interest in genuine central banks is semantically or temporally associated with the concept of a 'Fake central bank.' The hypothesis was that authentic institutions would show negligible similarity - under 5%. Instead, several banks exceed 30%, with the Bank of France peaking at 46%. These findings imply that public discourse around central banks may, at times, blur the boundary between legitimate institutions and skeptical or conspiratorial narratives. This reveals how they are perceived and searched may partially converge with such notions. In the information age, perception of public institutions may sometimes reveal lack of substance.

References

[1] Google Trends. *How Trends data is normalized*. Google Support. `https://support.google.com/trends/answer/4365533`

[2] Wikipedia contributors. "Cosine similarity." Wikipedia, The Free Encyclopedia. `https://en.wikipedia.org/wiki/Cosine_similarity`

[3] Wikipedia contributors. "Pearson correlation coefficient." Wikipedia, The Free Encyclopedia. `https://en.wikipedia.org/wiki/Pearson_correlation_coefficient`

[4] Wikipedia contributors. "Bank for International Settlements." Wikipedia, The Free Encyclopedia. `https://en.wikipedia.org/wiki/Bank_for_International_Settlements`

The End