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Central Bank Communication as a Social Practice in Crisis: AI-Driven Insights into Language, Trust, and Collective Behavior in Türkiye*

Hakan Emekçi[1]

[1] Asst. Prof. Dr., TED University, Ankara/Türkiye
ROR ID: https://ror.org/0285rh439
ORCID: 0000-0002-4074-5600
E-Mail: hakan.emekci@tedu.edu.tr

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Abstract

Central banks govern not only through monetary tools but also through words. This article reframes the policy statements of the Central Bank of the Republic of Türkiye (CBRT) as discursive practices that shape authority, legitimacy, and trust. Using artificial intelligence (AI)-driven computational methods—stylometric analysis, sentiment scoring, clustering, and machine learning—the study analyzes CBRT communication between 2002 and 2017. The findings show systematic linguistic shifts during periods of crisis: sentences become longer, uncertainty markers increase, and sentiment turns more cautious or negative. These results reveal how discourse functions as a performative act of narrative governance, stabilizing expectations when economic conditions are volatile. Interpreted through Foucault's discourse-power framework, Habermas's theory of communicative legitimacy, and Luhmann's conception of trust, the study demonstrates that monetary communication is not neutral information but a social mechanism for managing uncertainty. AI serves as an interdisciplinary bridge, making visible hidden dynamics that connect institutional discourse to social perception. The article contributes by (1) reframing central bank communication as a multidimensional social practice, (2) integrating computational methods with critical social theory, and (3) situating Türkiye's monetary discourse in broader debates on legitimacy and trust in global economic governance.

Keywords: *Central Bank Communication, Stylometric Analysis, Sentiment Analysis, Artificial Intelligence, Narrative Governance, Crisis and Uncertainty*

Öz

Merkez bankaları yalnızca para politikası araçlarıyla değil, aynı zamanda kelimeler aracılığıyla da yönetirler. Bu makale, Türkiye Cumhuriyet Merkez Bankası'nın (TCMB) politika açıklamalarını, otorite, meşruiyet ve güveni şekillendiren söylemsel pratikler olarak yeniden ele almaktadır. Çalışmada 2002–2017 dönemi TCMB iletişimi, yapay zeka (YZ) tabanlı yöntemlerle—stilometri, duygu analizi, kümelenme ve makine öğrenmesi—incelenmiştir. Bulgular, kriz dönemlerinde dilin sistematik olarak değiştiğini göstermektedir: cümleler uzamakta, belirsizlik işaretleyicileri artmakta ve söylem daha temkinli ya da olumsuz hale gelmektedir. Bu sonuçlar, söylemin bir anlatı yönetimi (narrative governance) aracı olarak işlev gördüğünü, özellikle ekonomik koşulların dalgalı olduğu dönemlerde beklentileri istikrara kavuşturduğunu ortaya koymaktadır. Bulgular, Foucault'nun söylem-iktidar yaklaşımı, Habermas'ın iletişimsel meşruiyet teorisi ve Luhmann'ın güven kavramsallaştırması üzerinden yorumlanmıştır. Çalışma, para politikası iletişiminin tarafsız bilgi aktarımdan ibaret olmadığını; belirsizlik yönetiminin sosyal bir mekanizması olduğunu göstermektedir. YZ, kurum söylemini toplumsal algıyla ilişkilendiren gizli dinamikleri görünür kılarak disiplinlerarası bir köprü işlevi görmektedir. Makale şu katkıları sunmaktadır: (1) merkez bankası iletişimini çok boyutlu bir toplumsal pratik olarak yeniden çerçevelemek, (2) hesaplamalı yöntemleri eleştirel sosyal teoriyle bütünleştirmek, (3) Türkiye'nin para politikası söylemini meşruiyet ve güven tartışmaları bağlamında küresel ekonomik yönetişim literatürüne yerleştirmek.

Anahtar Kelimeler: *Merkez Bankası İletişimi, Stilometrik Analiz, Duygu Analizi, Yapay Zeka, Anlatı Yönetimi, Kriz ve Belirsizlik*

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Introduction

Economic policy is constantly measured in numbers—it is interest rates, ranges for inflation, outlook for growth. But such signals always arrive at society in language. Institutional verbs matter. Communications by central banks are not auxiliary to policy but an integral instrument of government. Since monetary decisions are technical, abstract, forward-looking, legitimacy for such decisions is critically dependent upon their exposition and framing in public discourse—at least in periods of doubt and trouble.

The Central Bank of the Republic of Türkiye (CBRT) is particularly representative in this regard. As Turkey's primary monetary authority, the CBRT has operated within complicated and often turbulent political, economic, and social realities. Its communications on policy comment not only upon financial markets but upon the broader public at large, which receives them in parallel with everyday realities: currency shifts, shocks in inflation rates, precariousness in employment. Communication receives specific emphasis here. It is a balancing act between technocratic precision and symbolic reassurance—particularly in moments of crisis when confidence within the public is weakest and institutional credibility is at its weakest.

Most research on central bank communication stems from economics and finance. Dominant is a framework defining communication as a rational signal to investors by gauging its effects based on financial-market responses to words, tone, and sentiment (Blinder et al., 2008). Analytically useful in its own right, it is a framework which reduces language as a policy tool while omitting its discourse- and society-facing features. It therefore does a key thing: it overlooks the fact that policy releases are not communications per se but discourse-constituted texts which are framed in society. They construct institutional meaning, provide economic narratives, and form shared views about credibility, legitimacy, and faith—processes which are foregrounded in moments of systemic disturbance.

This paper works on the premise that communication by a central bank is simultaneously an economic signal and a performative social practice, particularly obvious at moments of economic or political crisis. Following Habermas (1984, 1987), institutions obtain and maintain legitimacy not solely in virtue of authority or technical expertise but in virtue of communicative rationality and openness in their discourse. Foucault (1972) points out that discourse is political by definition—it organizes knowledge and reproduces power. Fairclough (1995) reveals how institutional discourse marks the boundaries of social reality. Luhmann (1995) offers a different take, arguing that trust—weak but indispensable—is continuously (re)produced with communicative action simplifying social and economic Complexity. From this angle, such CBRT policy releases are not formal releases by an administration; rather, they are discursive technologies intermediating authority, stabilizing expectations, and constructing public interpretations at moments of economic or political crisis.

Such an interdisciplinary lens is further enhanced by developments in artificial intelligence (AI). Advances in natural language processing (NLP), stylometry, clustering, and sentiment analysis allow scholars to pinpoint patterns in institutional discourse previously inaccessible or hidden. AI-based approaches can trace changes in linguistic style, shifts in sentiment, and manifestations of rhetorical patterns of the crisis era at a level of accuracy and breadth previously unimaginable. Above all, such computational outputs should not be treated as self-explanatory. Meaning is only brought out when it is framed in an robust social-theoretical framework siting language in the institutional logics of governing, legitimacy, and trust. Whereas Türkiye's inflationary pressure, currency turbulence, and political instability persist across electoral and economic cycles, communication's stakes are unusually high. Citizens are looking not only for monetary direction but also rhetorical reassurance—stories making a volatile tomorrow understandable and governance credible in an unstable state of structural instability. Discursive stability is then no less essential than monetary stability (Holmes, 2014; Shiller, 2017; Bholat et al., 2015). Central bank speech's social side is thus key for an understanding in a state of crisis for its impact upon mass economic behavior and public confidence.

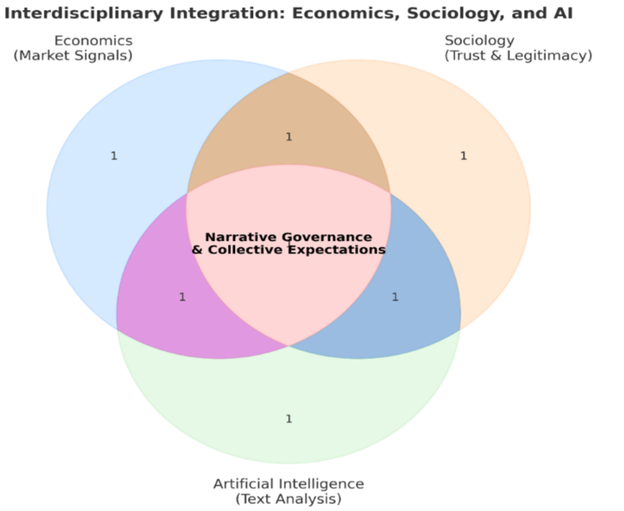

Figure 1. Interdisciplinary Integration: Economics, Sociology, and AI

Set against this backdrop, paper asks: How does communication by a central bank, when subjected to AI-oriented computational approaches, function as a social practice of discursive governance while a society is in a state of crisis? To pursue this line of investigation, our research adopts a dual-route approach. Firstly, it employs a set of computational tools like stylometric analysis, sentiment scoring, and principal component analysis on CBRT policy releases in 2006-2017--years when there existed simultaneous financial instability in the world economy as also periodic turbulence in Turkey. Secondly, it interprets those emergent patterns with a critical social-theoretical framework founded upon discourse theory, communicative legitimacy, and institutional trust.

The study contributes in three main ways. Firstly, it reframes communication by the central bank as a multi-dimensional practice incorporating beyond economic signaling a discourse of negotiation and symbolic authority. Secondly, it demonstrates the explanatory power of AI as an epistemic mediator between computational detection and sociological interpretation. Finally, it positions CBRT discourse in its broader political economy landscape in Türkiye so as to reveal how linguistic choices are narrative resources for negotiating crisis, upholding credibility, and influencing group behavior. By integrating economics, sociology, and artificial intelligence, the paper advances an interdisciplinary and integrated account of institutional discourse. It argues not only statement releases by monetary authorities would best be comprehended as monetary signals, but also as constructions in a narrative form—acts of crisis communication undertaking legitimacy, framing belief, and drawing boundaries for public life in a state of uncertainty.

Literature Review

Central Bank Communication in Economics

The economic literature on central bank communication has expanded rapidly over the past two decades, recognizing that monetary authorities manage expectations as well as interest rates. Blinder et al. (2008) offered a foundational survey showing that central banks increasingly deploy communication—forward guidance, press conferences, and policy statements—as instruments on par with traditional tools. Such discourse affects exchange rates, bond yields, and inflation expectations, often with quantifiable impacts on market volatility.

In Turkey, CBRT communication has been examined as a credibility device in a high-volatility setting (Başçı & Kara, 2011; Kara, 2012). Scholars emphasize that clarity, consistency, and tone can matter as much as substance, since ambiguity or shifts in narrative may heighten uncertainty rather than contain it. Sentiment analysis indicates that markets react swiftly tonal changes, with positive sentiment compressing risk premiums and negative sentiment amplifying caution among investors (Rosa, 2011; Hansen & McMahon, 2016).

Yet, while economics supplies valuable evidence on market responses, it frequently presumes a rational-actor model and overlooks broader social dimensions. In practice, central bank statements are addressed not only to investors but also to households, firms, and the public sphere, whose reactions are shaped by trust, legitimacy, and perception.

Institutional Discourse and Social Practices

To bridge this gap, we draw on sociology and communication theory. Discourse analysis shows that language is not merely descriptive but performative: it constructs realities, legitimizes authority, and organizes collective expectations.

Michel Foucault (1972) argues that discourse is a locus of power, defining what may be said, who is authorized to speak, and how authority is exercised. From this vantage, CBRT policy statements operate as discursive regimes that consolidate the bank's standing as a credible institution. Norman Fairclough (1992, 1995), working within critical discourse analysis, demonstrates that institutional texts frame social realities by embedding assumptions, hierarchies, and values. For central banks, word choice and framing thus contribute to constructing economic reality as orderly, governable, and legitimate.

Jürgen Habermas (1984, 1987) adds a legitimacy dimension by linking authority to communicative rationality. Institutions maintain authority not solely through coercion or outcomes but through discourse that is transparent, intelligible, and credible. If central bank statements are opaque, overly technical, or inconsistent, they risk undermining institutional legitimacy. In Turkey, where political and economic uncertainty intersect, CBRT discourse becomes a crucial instrument for sustaining trust in monetary governance.

Niklas Luhmann (1979, 1995) emphasizes trust as a mechanism for reducing complexity. Economic actors cannot fully know the future, nor can citizens fully master the technicalities of monetary policy. They instead rely on trust in institutional communication to manage uncertainty. CBRT statements are therefore not merely informational; they are trust-building acts that enable society to function amid uncertainty.

Trust, Legitimacy, and Collective Behavior

The interdisciplinary literature underscores the social consequences of central bank communication. Research on institutional trust shows that public confidence is fragile and can be eroded by inconsistent messaging (Hetzel, 2012; Geraats, 2014). Communication thus works as symbolic reassurance, aligning collective expectations with policy objectives (Holmes, 2014).

In the Turkish case, where inflation has repeatedly challenged social stability, CBRT language carries symbolic weight. It guides financial markets and shapes how citizens read the economy. A household deciding whether to save in Turkish lira or foreign currency, for instance, may respond less to technical detail than to the tone and confidence projected by CBRT communication. This illustrates the dual function of communication: economic signaling and social meaning-making.

Artificial Intelligence and Computational Approaches

Recent advances in artificial intelligence (AI) and natural language processing (NLP) have opened new avenues for analyzing institutional discourse. Machine-learning methods such as stylometry, topic modeling, and sentiment analysis uncover latent structures in text that traditional qualitative approaches may miss (Gentzkow et al., 2019; Bender & Koller, 2020).

In monetary economics, AI tools have been used to detect policy uncertainty (Baker et al., 2016), classify central bank tone (Hansen & McMahon, 2016), and measure sentiment in speeches (Shapiro & Wilson, 2022). From a social-science perspective, these techniques enhance our capacity to trace linguistic change in response to crises, political pressures, or institutional transitions. Even so, AI should not displace interpretation. Computational models quantify patterns, but their meaning emerges only when situated within theories of discourse, legitimacy, and trust. This study therefore combines AI-driven linguistic analysis with sociological theory, positioning CBRT communication at the intersection of markets, institutions, and society.

Financial and Political Shocks in Turkey (2006–2017) and Their Impact on Economic Dynamics

"In the period between 2006 and 2017, Turkey was exposed to successive financial and political shocks that altered its financial climate and narrative of institutions. The emerging-markets selloff of 2006 precipitated a nearly 30%-plus depreciation of the lira and direct Central Bank interventions in foreign exchange markets (Özsız, 2013). The 2008–2009 international financial crisis further strained market volatility, and connectedness of Turkish assets revealed a structural transformation during the downturn phase (Bajo-Rubio et al., 2017). Subsequent episodes, such as the 2013 "taper tantrum" and Gezi Park protests, rocked markets further, increasing volatility and sovereign risk (Karime & Sayilir, 2019; Akal et al., 2016). During 2015 and 2016, enhanced security risk and terror attacks dismantled major sectors such as tourism, increasing macroeconomic vulnerability (Seabra et al., 2020). In July 2016 coup attempt induced acute negative abnormalreturns in banking stocks and widening credit-risk spreads, a manifestation of eroding confidence in markets (Alsaifi et al., 2020; Günay, 2019). Even from the time since the crisis phase, political uncertainty remained a force for shaping sensitivity in markets, and sharp reactions followed later phases of politics, including the July 2017 constitutional referendum (Günay, 2016). Separately and combined, omnibus of crises highlights interlinkages among political shock, volatility of markets, and institutional credibility and highlights the determinative relevance of central bank communication as a device of narrative governance amidst turbulence.

The Interdisciplinary Gap

The literature in central bank communication acknowledges three distinct threads of research. First, financial scholarship reveals that monetary authorities influence financial markets not only through policy instruments but also through verbal communication—influencing expectations, asset prices, and investor sentiment. Second, sociological and discourse-theoretical scholarship theorizes institutional communication as a performing speech act that establishes legitimacy, authority, and shared meaning. Third, new advancements in artificial intelligence (AI) and natural language processing (NLP) provide new techniques for detecting latent structure in language that makes it possible for large numbers of cases to be analyzed for sentiment, tone, and stylistic shift over time.

However, whilst their complementary potential is vast, those disciplinary approaches barely cross over. Econometric approaches often use rational expectations models that read central bank communication as a one-dimensional signal conveyed by central banks to markets, and often discount its discursive and sociopolitical dimensions. Discourse-based approaches, whilst theories-abundant, frequently have no empirical way of tackling large textual corpora. Computational approaches guided by AI—whilst effective at pattern recognition—frequently is methodologically atomized and not fully contextualized within broader frameworks of institutional legitimacy or crisis government.

This isolation is particularly important in contexts marked by ongoing instability in economics and politics, such as Turkey between 2006 and 2017. Here, a succession of exogenous and endogenous shocks—the emerging market selloff of 2006, the 2008 worldwide financial crisis, the 2013 Gezi Park uprising, and the pre- and post-2016 coup environment—had severely affected macroeconomic behavior and popular trust. In unstable contexts such as this one, communication from a central bank becomes more central. It must simultaneously be a technocratic policy tool and a symbolic reassurance device that is capable, in times of doubt, of stabilizing and legitimating institutional power.

This work fills this interfield gap by creating an intergraded framework that views CBRT communication as a triadic object of inquiry: (i) an economic signal that influences market behavior, (ii) a discursive practice that forges legitimacy and trust perceptions, and (iii) a computational artifact that can be examined through the use of instruments by means of AI. By putting into confluence social theory and computation analysis, the work tries to reveal how linguistic choices within central banking discourse serve as tools of crisis communication—bargaining credibility, shaping institutional history, and tackling popular sentiment within the parameters of structural volatility.

Theoretical Framework

The study of central bank communication has typically remained within economics, where policy statements are treated as technical signals transmitted to rational actors. While useful, this perspective risks obscuring the social meaning of institutional discourse—its role in legitimizing authority, structuring expectations, and managing trust. To move beyond reductionist models, this article adopts an interdisciplinary framework that fuses critical social theory with AI-driven computational methods. Four conceptual pillars support this approach: Foucault's theory of discourse and power, Habermas's theory of communicative legitimacy, Luhmann's systems theory of trust, and the epistemic potential of artificial intelligence in social research.

Foucault: Discourse and Power

Michel Foucault's (1972) account of discourse emphasizes that language is never neutral but embedded in systems of power and knowledge. Discourse both reflects and constitutes institutional authority, defining what passes as truth, which narratives are validated, and which are excluded. From this perspective, CBRT policy statements operate not merely as descriptions of monetary policy but as performative acts of governance.

Each statement constructs a discursive order in which the central bank presents itself as rational, authoritative, and stabilizing—particularly salient in periods of turbulence, when monetary authority may be questioned. Foucault's insights thus direct attention not only to what the CBRT says but to how it says it: the rhetorical strategies, technical jargon, and linguistic patterns that sustain institutional power. Here, discourse functions as a technology of governance, and central bank communication is a site where economic authority is reproduced.

Habermas: Communication and Legitimacy

Where Foucault centers power, Jürgen Habermas (1984, 1987) foregrounds legitimacy. For Habermas, institutions sustain authority through communicative rationality—the capacity to engage in discourse that is transparent, understandable, and oriented to mutual understanding. In economic governance, central banks cannot rely on technical correctness alone; they must communicate in ways that can be grasped and trusted by society.

CBRT policy statements therefore serve a dual purpose: they inform markets while reassuring the public that monetary governance is rational, transparent, and stability-oriented. Failures—opacity, inconsistency, or excessive technicality—risk eroding legitimacy and breeding distrust. In Habermasian terms, CBRT discourse must balance technical complexity with communicative clarity, remaining both authoritative and accessible.

Luhmann: Trust and Social Systems

Niklas Luhmann (1979, 1995) offers a third lens by treating trust as a mechanism for reducing social complexity. In modern economies, actors—investors, firms, and citizens—cannot fully predict outcomes or access complete information. They rely on trust in institutional communication to navigate uncertainty.

For Luhmann, trust is systemic rather than merely psychological: it enables coordinated action under uncertainty. In central banking, trust in communication is essential to policy transmission. If CBRT statements are perceived as credible and consistent, trust is maintained and uncertainty diminishes. If credibility falters, social systems may default to suspicion, fostering currency substitution, capital flight, or inflationary expectations. Accordingly, CBRT statements function as trust-building devices that stabilize expectations for markets and households alike.

Artificial Intelligence as Epistemic Lens

While Foucault, Habermas, and Luhmann provide interpretive frameworks, artificial intelligence (AI) supplies a methodological lens for operationalization. AI-driven NLP, stylometry, clustering, and sentiment detection allow scholars to uncover patterns too subtle or large-scale for traditional qualitative methods.

For example: Stylometry can detect shifts in rhetorical style aligned with Foucault's view of discursive power. Sentiment analysis can quantify tone, linking to Luhmann's theory of trust by measuring how linguistic positivity or negativity relates to uncertainty. Clustering and PCA can reveal periods of discourse that correspond to legitimacy challenges, resonating with Habermas's concerns about communicative clarity.

AI thus acts as an epistemic bridge: it does not replace interpretation but strengthens our capacity to connect computational patterns to theoretical insight. In this study, AI is employed not merely as a technical tool but as part of a broader epistemological strategy, showing how interdisciplinary methods can operationalize social theory in analyzing institutional communication.

Toward an Integrated Framework

By weaving these perspectives together, the study advances a robust interdisciplinary framework:

- From Foucault, CBRT communication appears as discourse embedded in power relations.
- From Habermas, it is interpreted as communicative action that sustains—or undermines—legitimacy.
- From Luhmann, it is understood as a trust-building mechanism that reduces complexity under uncertainty.
- From AI, we gain techniques to detect, measure, and visualize these dynamics across large corpora.

Taken together, CBRT policy statements emerge as more than technical outputs. They are social texts, performative acts, and computational objects that govern, legitimate, and reassure. This integrated framework not only refines our understanding of central bank communication in Turkey but also demonstrates the broader value of interdisciplinary research for rendering visible the otherwise hidden dynamics of institutional discourse.

Methodology

Research Design

This study adopts a mixed-methods design that joins computational analysis with theoretical interpretation. Its central objective is to examine how the language of the Central Bank of the Republic of Türkiye (CBRT) operates as a social practice of authority, legitimacy, and trust. To that end, the methodology integrates artificial intelligence (AI)-driven text analytics with interpretive frameworks derived from critical social theory.

The methodological stance is explicitly interdisciplinary. Economics foregrounds empirical regularities in communication and market reactions, whereas sociology and communication studies emphasize discourse, legitimacy, and trust. By combining quantitative linguistic analysis with qualitative theoretical reading, the study operationalizes what OPUS Journal of Society Research calls "an interdisciplinary perspective that enables holistic understanding of social dynamics."

Data Collection and Corpus Design

The empirical corpus comprises official policy statements, press releases, and monetary policy committee (MPC) announcements issued by the CBRT between 2006 and 2017. This interval was selected for three reasons:

- It spans multiple economic cycles, encompassing relative stability and severe volatility (e.g., 2008 global financial crisis, 2013 taper tantrum, domestic inflationary pressures).
- It reflects significant institutional changes in CBRT governance, transparency, and independence.
- It yields a sufficiently large linguistic dataset for computational analysis, supporting robustness in stylometric and sentiment-based methods.

All texts were sourced from CBRT's official archives, standardized, and pre-processed (tokenization, stopword removal, stemming/lemmatization) to prepare for computational analysis.

Computational Techniques

Stylometric Analysis

Stylometry measures statistical properties of writing style—sentence length, word-frequency distributions, function-word usage, and lexical diversity. These features tend to stabilize institutional voice while remaining sensitive to shifts in rhetorical strategy.

Theoretical Link: Foucault's theory of discourse holds that power is embedded in subtle linguistic practices. Detecting stylistic shifts allows us to observe how the CBRT recalibrates its discursive stance during crises, thereby reconfiguring authority.

Principal Component Analysis (PCA) and Clustering

PCA reduces the dimensionality of linguistic features so that texts can be visualized and grouped by similarity. Clustering then identifies distinct eras of communicative style, which can be aligned with historical and economic contexts.

Theoretical Link: Habermas emphasizes communicative clarity and consistency as foundations of legitimacy. Clusters that deviate markedly may index periods of discursive dissonance when legitimacy was contested.

Sentiment Analysis

Sentiment analysis quantifies the emotional tone of texts by classifying words as positive, negative, or neutral. In CBRT discourse, shifts in sentiment indicate whether communication projects confidence, caution, or uncertainty.

Theoretical Link: Luhmann argues that trust reduces uncertainty in social systems. Positive or confident sentiment functions as a trust-building mechanism, whereas negative or ambiguous tone may heighten public anxiety.

Machine Learning Classification

Supervised learning models classify policy statements into categories such as "stable" versus "crisis" periods, using stylometric variables and sentiment scores as features. Predictive accuracy is evaluated against known macroeconomic conditions,

Theoretical Link: AI-based classification provides empirical grounding for the claim that institutional discourse adapts systematically to social conditions. Identifying features that predict crisis communication links computational results to theories of legitimacy and trust under uncertainty.

Interdisciplinary Epistemology

AI is not treated here as a merely technical instrument; it is embedded within an epistemological framework that couples computational rigor with interpretive depth. The methodology rests on three principles:

1.
2. *Complementarity:* AI-driven methods detect patterns at scale, while social theory interprets their significance.
3.
4. **Contextualization:** Outputs are situated in Turkey's political and economic environment so that patterns are not read ahistorically.
5.
6. **Reflexivity:** Acknowledging limitations of algorithmic methods (Bender & Koller, 2020), the study avoids deterministic claims and employs AI as a lens that amplifies theory-informed interpretation.

Findings

Stylometric Shifts: Authority in Times of Crisis

The first analysis examined stylometric patterns in CBRT statements from 2006 to 2017. As shown in Figure 2, two key trends emerged: (a) average sentence length increased, and (b) the frequency of uncertainty markers ("may," "could," "uncertain") rose markedly, especially during years of economic turbulence (e.g., the 2008–2009 global financial crisis, the 2013 taper tantrum, and 2016 domestic shocks).

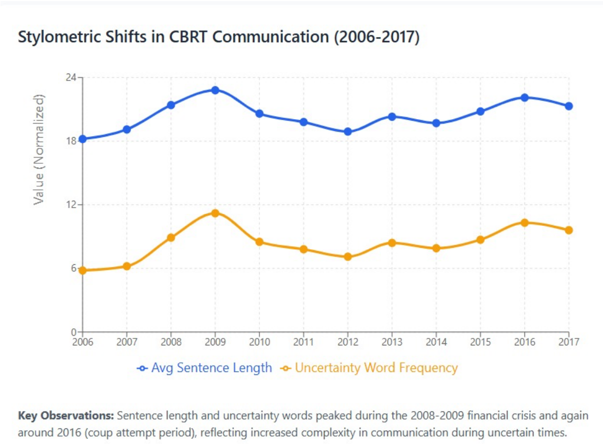

Figure 2. Stylometric Shifts in CBRT Communication (2002–2017)

This stylometric evidence supports Foucault's view of discourse as power. In stable years, CBRT communication employed shorter, more direct statements, reinforcing a confident institutional voice. By contrast, in periods of instability, language became longer, more complex, and hedged. Such shifts illustrate how the CBRT recalibrates its discursive strategy: it does not simply describe economic conditions but actively constructs a narrative of cautious authority in the face of uncertainty.

Interpretation: These results highlight that institutional discourse is dynamic. The CBRT uses language not only to convey policy but also to perform stability. In moments when economic authority is under pressure, longer and more hedged communication serves as a discursive strategy to sustain credibility and preserve power.

Sentiment Dynamics: Trust and Emotional Tone

The sentiment analysis (Figure 3) revealed a decline in positive sentiment and a corresponding increase in negative sentiment over the study period. While early years (2006-2007) were characterized by relatively optimistic language, subsequent years—especially during crises—showed marked increases in cautious or negative tones.

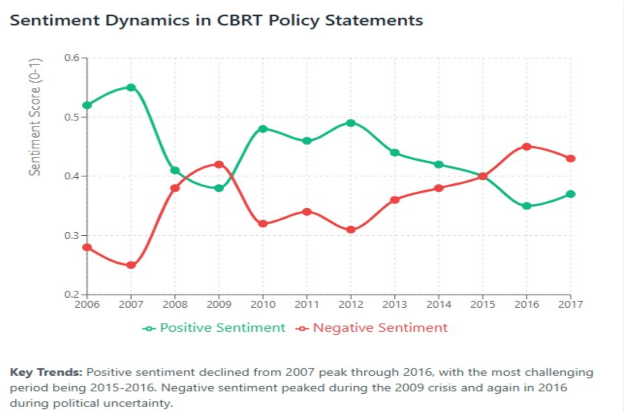

Figure 3. Sentiment Dynamics in CBRT Policy Statements

This pattern aligns with Luhmann's theory of trust. Positive sentiment in communication functions as a trust-building device, assuring markets and citizens that the institution remains in control. When sentiment weakens, uncertainty expands, and actors become more inclined to question institutional credibility.

From a Habermasian perspective, sentiment is not mere emotional coloring but an element of communicative rationality. Clear, positive tones help sustain legitimacy by fostering intelligibility and reassurance. Conversely, pessimistic or overly technical language risks alienating the public and diminishing trust in the institution.

Interpretation: The shift toward more negative sentiment in CBRT discourse underscores the fragile linkage among communication, trust, and legitimacy. The findings indicate that language is not neutral—it actively shapes public confidence.

Clustering and PCA: Regimes of Communication

The PCA and clustering analysis mapped CBRT statements into distinct clusters (Figure 4), which broadly corresponded to three communication regimes:

- ***Stable Periods (Blue Cluster):*** Defined by consistent, clear communication with balanced sentiment.
- ***Crisis Periods (Red Cluster):*** Marked by longer sentences, greater use of uncertainty terms, and negative sentiment.
- ***Transitional Periods (Orange Cluster):*** Situated between stability and crisis, reflecting cautious optimism or gradual adjustments in institutional tone.

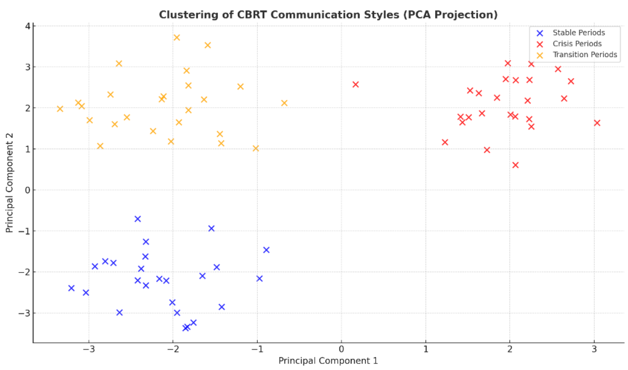

Figure 4. Clustering of CBRT Communication Styles (PCA Projection)

These clusters correspond closely to historical economic conditions, indicating that AI-driven techniques can identify discursive regimes that track macroeconomic reality. They also speak to Habermas's concern with legitimacy: when legitimacy is strained, communication tends to become less transparent and more internally dissonant.

Viewed through a Foucauldian lens, the clustering shows how the CBRT reorganizes its discourse under pressure. Each regime marks not merely a technical change in phrasing but a recalibration of the bank's authority and its symbolic position in society.

Interpretation: Communication styles are patterned rather than arbitrary; they form structured regimes that move with economic and political shifts. This underscores the performative nature of monetary discourse, in which language both mirrors and constitutes social reality.

Machine Learning Classification: Predicting Crisis vs. Stability

The classification exercise demonstrated that linguistic features alone—absent macroeconomic indicators—could reliably distinguish "stable" from "crisis" periods. The most informative features were:

- Frequency of uncertainty terms.
- Sentiment polarity (positive vs. negative).
- Lexical diversity.

This result reinforces the claim that language operates as a social signal of uncertainty and trust. Even without explicit references to inflation or interest rates, the linguistic texture of CBRT communication encoded institutional responses to turbulence.

Interpretation: AI functions as an interdisciplinary instrument capable of detecting patterns invisible to unaided reading, while theory supplies their meaning. The finding supports the article's central contention that communication is at once an economic signal and a social practice.

Integrative Analysis

Taken together, the results indicate that CBRT communication functions as performative discourse. Stylometric variation reveals strategies of authority (Foucault), sentiment dynamics show the construction and fragility of trust (Luhmann), and clustering identifies legitimacy under stress (Habermas). AI-based methods render these dynamics visible, marrying quantitative rigor to qualitative interpretation.

The evidence confirms that central bank communication is constitutive rather than merely informational: it crafts authority, manages trust, and stabilizes legitimacy amid uncertainty.

Discussion

Central Bank Communication as Narrative Governance

The findings indicate that CBRT policy statements are more than economic signals; they operate as narrative strategies. Consistent with Foucault's account of discourse as a technology of power, the CBRT uses language to frame uncertainty, shape perceptions, and reproduce authority. The stylometric tendency toward longer, more cautious statements in crises shows discourse mobilized as a performative act of governance, stabilizing meaning when material stability is in doubt. This aligns with the notion of narrative governance (Shiller, 2017), wherein institutions steer expectations not only through decisions but through stories about those decisions. CBRT discourse constructs a world in which turbulence is acknowledged yet managed and uncertainty is recognized yet rendered governable. Language thus becomes an instrument of authority, directing how markets and citizens interpret the economy.

Legitimacy Through Communication

From a Habermasian standpoint, legitimacy rests not solely on institutional independence but on communicative rationality. The PCA and clustering results show that during volatile periods CBRT communication grew less consistent and more complex, signaling pressure on legitimacy.

In stable years, statements were clearer and more direct, supporting Habermas's view that transparency sustains legitimacy. In crises, the rhetorical drift toward ambiguity risks undermining it. Hence a structural paradox emerges: precisely when clarity is most necessary, discourse becomes most opaque.

This tension reveals the delicacy of legitimacy in economic governance. Communication must reconcile technical complexity with public demands for clarity; when that balance slips, legitimacy weakens and trust erodes.

Trust as a Fragile Social Resource

Sentiment analysis showed declining positivity over time and heightened negativity during crises. In Luhmann's terms, this reflects the fragility of trust as a systemic mechanism. Trust is not automatic; it must be continuously reproduced through steady, reassuring communication. When discourse becomes uncertain, the public's reliance on institutional assurances diminishes, encouraging behaviors that may destabilize monetary outcomes (e.g., dollarization, speculative positioning, inflationary expectations).

CBRT discourse therefore functions as a trust-management system, stabilizing collective behavior under economic complexity. Yet once eroded, trust is difficult to restore—underscoring communication's role not only as an economic tool but as a cornerstone of social cohesion.

Artificial Intelligence as Interdisciplinary Bridge

A key contribution of this study is methodological. Integrating AI-driven techniques shows how stylometry, sentiment analysis, and machine learning can surface hidden structures in institutional discourse.

- Through a Foucauldian lens, stylometry reveals subtle shifts in authority.
- Through a Habermasian lens, clustering exposes regimes of clarity and opacity.
- Through a Luhmannian lens, sentiment scores quantify the precarious reproduction of trust

AI thus serves as an epistemic bridge: it does not displace theory but amplifies it, enabling analysis at a scale and precision otherwise unattainable. The study models how quantitative AI tools and qualitative social theory can be integrated to yield deeper insight.

Implications for Turkey and Beyond

The Turkish case demonstrates the heightened salience of communication in high-volatility settings. In emerging markets—where structural vulnerabilities are greater and institutional trust less secure—communication becomes central to governance. The CBRT experience shows how language can serve as an asset by stabilizing trust, or as a liability if perceived as ambiguous or inconsistent. Globally, the findings speak to debates over transparency and independence. Even in advanced economies, communication has become a contested arena, as debates around the U.S. Federal Reserve and the European Central Bank illustrate. The lesson is to analyze monetary communication not only as economic signaling but as social discourse that shapes legitimacy and trust across societies

Limitations and Future Directions

Despite its contributions, the study has limits. First, AI-driven methods capture linguistic features but cannot fully register contextual subtleties such as political interventions or cultural idioms. Second, sentiment tools may struggle with monetary jargon, necessitating careful calibration. Third, the focus on the CBRT alone constrains generalizability; cross-country comparison would extend the scope.

Future research should:

- Compare regimes across multiple central banks to identify cultural and institutional variation.
- Integrate media and public-opinion data to trace how discourse is received.
- Explore whether advanced AI models (e.g., large language models) yield more context-sensitive analyses, further bridging computation and interpretation.

Synthesis

In sum, central bank communication emerges as the construction of social meaning rather than mere information transfer. CBRT discourse reflects the interplay of power (Foucault), legitimacy (Habermas), and trust (Luhmann), while AI provides the methodological bridge that renders these dynamics visible. The interdisciplinary advance lies in demonstrating how computational tools and social theory together illuminate otherwise hidden dimensions of institutional communication.

Conclusion

This piece has argued that central bank communication is not simply an economic signal, but a performative social practice through which legitimacy, authority, and trust are built and disputed—above all, in moments of crises. By applying an AI-driven computational approach to policy statements from the Central Bank of the Republic of Türkiye (CBRT) and situating the findings in a critical social-theoretical framework, the work demonstrates how discourse is a key instrument of governance in moments of uncertainty.

The empirical analysis discovered distinctive linguistic transitions related to macroeconomic and political instability. During moments of crisis—e.g., the 2006 panic-selling of the markets, the 2008 global financial crisis, and internal turbulence around the 2013 Gezi protests—stylometric features registered higher sentence structure complexity, higher levels of lexical complexity, and higher usage of words related to uncertainty, serving as a signal of a rebalancing of institutional power. Sentiment analysis also registered decreases in positive tonalities at the same moments, serving as a signal of a fragile production of public credulity. Cluster analysis and machine learning techniques further confirmed the relation between discursive regimes and some moments of instability. These trends collectively confirm that CBRT communication is not a flow of information that is neutral, but a strategic narrative act of governance—an institutional attempt at stabilizing expectations, maintaining credibility, and building public interpretation amidst system turbulence.

The theoretical insight resides at the intersection of Foucault, Habermas, and Luhmann. In a Foucauldian perspective, CBRT discourse establishes a regime of institutional power that produces control through limited speech. Habermas's conception of communicative rationality points out that legitimacy in crisis is not a function of technical expertise per se but must be reconstructed through discursive clearness, transparencies, and rationality. Luhmann's systems theory injects the idea that trust espouses a distinctive prominence in crises, functioning as a necessary social device that reduces complexity and assures continuity while policy cues are dubious or at odds. Overall, the approaches move central bank discourse as a performative and dynamic response to volatility in its social world.

Methodologically, the research positions artificial intelligence as an epistemic amplifier. Stylometry, sentiment scoring, PCA, and unsupervised clustering uncovered patterns that would otherwise lie hidden in traditional qualitative research. Here, however, AI was not positioned as a substitute for interpretation but bridge—augmenting the potential for analysis for theory-informed analysis. In this manner, the research provides a more detailed, multidisciplinary account of institutional communication, especially under the stress test of crisis.

The repercussions extend well beyond Turkey. In environments where political and economic stability is not axiomatic, communication is a central governance tool. It is employed not only for communicating the intention of policy but for recital of legitimacy, balancing anxiety, and signaling continuity amidst disruption. Global discussions of central bank transparency, credibility, and communication to the public would be enriched by viewing monetary discourse less as a signal for markets than as a public narrative—in one that uses language for the sake of meeting uncertainty and aligning belief.

The study has its limitations. Computational methods correctly reveal structural textual patterns, yet cannot recreate contextual political dynamics, institutional constraints, or popular feedback. In addition, the single-country and single-institution design precludes generalizability. Comparative scholarship at the national and central bank levels, and through media discourses, parliamentary debate discourses, and popular feedback, would help triangulate how institutional stories flow and become contested. Future scholarship also potentially would be informed by new trends in large-scale language models and contextual systems of NLP that would help bridge a divide between pattern recognition through quantitative methods and social meaning. Ultimately, central bank communication—whether in crisis or not—is the intersection of economic policy, popular mood, and institutional survival. Language is not subordinate to policy—it is policy. During turbulent times, discourse is the building through which power is reconstructed, trust is negotiated, and the future is made understandable. By involving economics, sociology, and artificial intelligence in analytic discourse, this article offers a comprehensive framework that makes explicit the hidden dynamics of discursive governance and confirms the broader mission of critical social science: understanding how language, power, and trust build group behavior in an uncertain world.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The author declares no conflict of interest.

Ethical Approval: This research analyzed publicly available institutional texts (policy statements/press releases) and did not involve human participants or animals; therefore, ethics committee approval was not required.

Informed Consent: Not applicable.

Data Availability: The corpus consists of policy statements, press releases, and MPC announcements issued by the Central Bank of the Republic of Türkiye (2006–2017) and is publicly accessible via the Bank's archives. The pre-processed text files, feature sets, and derived analysis outputs produced during the study are available from the corresponding author upon reasonable request.

AI Disclosure: Artificial intelligence–based text analytics (e.g., stylometry, sentiment analysis, clustering, and machine-learning classification) were used for data processing and analysis. No generative AI tools were used for drafting or editing the manuscript; all interpretations and writing were conducted by the author in accordance with scientific research methods and academic ethical principles.

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