SBI Research

Unravelling the Hidden Meanings of MPC Minutes through Natural Language Processing framework

Issue # 45, FY26 Date: 16 March 2026

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Executive Summary……(1/3)

- The minutes of every MPC meeting are published on the 14th day after the MPC meeting
- While a lot of research has been done by researchers on FOMC minutes as per our knowledge no comprehensive analysis has been done so far in the case of RBI MPC minutes using NLP technique
- Subsequently, we assiduously used the MPC minutes since inception using a **two-layer NLP framework**
  - **We prepared an RBI-specific hawkish/dovish dictionary and computed a normalized net-dovish score for each meeting, defined as 'dovish phrase hits minus hawkish phrase hits' per 1,000 tokens**
  - **We have tokenized the cleaned minutes, removed boilerplate and stop words, and used TF-IDF and a standard sentiment lexicon to generate word clouds and positive/negative vocabulary charts**
  - This allowed us to distinguish policy-tone intensity from broader communication style

SUMMARY OF MPC MINUTES

- India exhibited lower episodes of rate hikes post formulation of Inflation Targeting Regime. During 2010-2015, India witnessed 16 episodes of rate hikes and only 8 instances of rate cut
- RBI rate actions are mostly aligned with the stance except a few aberrations…**most of such actions happened during periods of neutral stance**… **Indicates central bank willingness to be nimble and be ready to act in any direction in an era of uncertainty**
- Two full CYs (2021 & 2024) were on hold. However, 2024 though was one of years of "Full Consensus" was also the "Year of Dissent" in MPC.. **The burden of consensus reveals a progressive increase in unanimity across Governor tenures**

SUMMARY OF NLP MODEL

We constructed an RBI-specific hawkish/dovish dictionary and computed a normalized net-dovish score for each meeting, defined as dovish phrase hits minus hawkish phrase hits per 1,000 tokens. We have tokenized the cleaned minutes and used TF-IDF and a standard sentiment lexicon to generate word clouds and positive/negative vocabulary charts

- Analyzing the minutes' word count against the backdrop of stance reveal that while meetings started with short discussions (less than 4000 words) it extended to more than 6,000 words during 2020-2022 (a period of accommodative stance). A period of policy tightening thereafter exhibited less verbose discussion. Recent period of neutral stance has brought the word count to less than 5,000
- Using positive and negative words in terms of policy stance reveal such words have almost equal share in withdrawal of accommodation regime and accommodative regime. However, **in neutral regime positive words outweigh negatives and in Calibrated Tightening negatives words outweigh positives**
- MPC tone changes as per the evolving economic situation
  - The overall net dovish tone / score is mostly but not always aligned with rate actions.
  - A higher cosine distance / not unanimous to MPC resolution, does not imply a different vote. Specifically, **MPC words attributable to Internal Members even when reveal higher disagreement with the ultimate resolution, it does not necessarily translate into rate decisions ….**

SUMMARY OF NLP MODEL

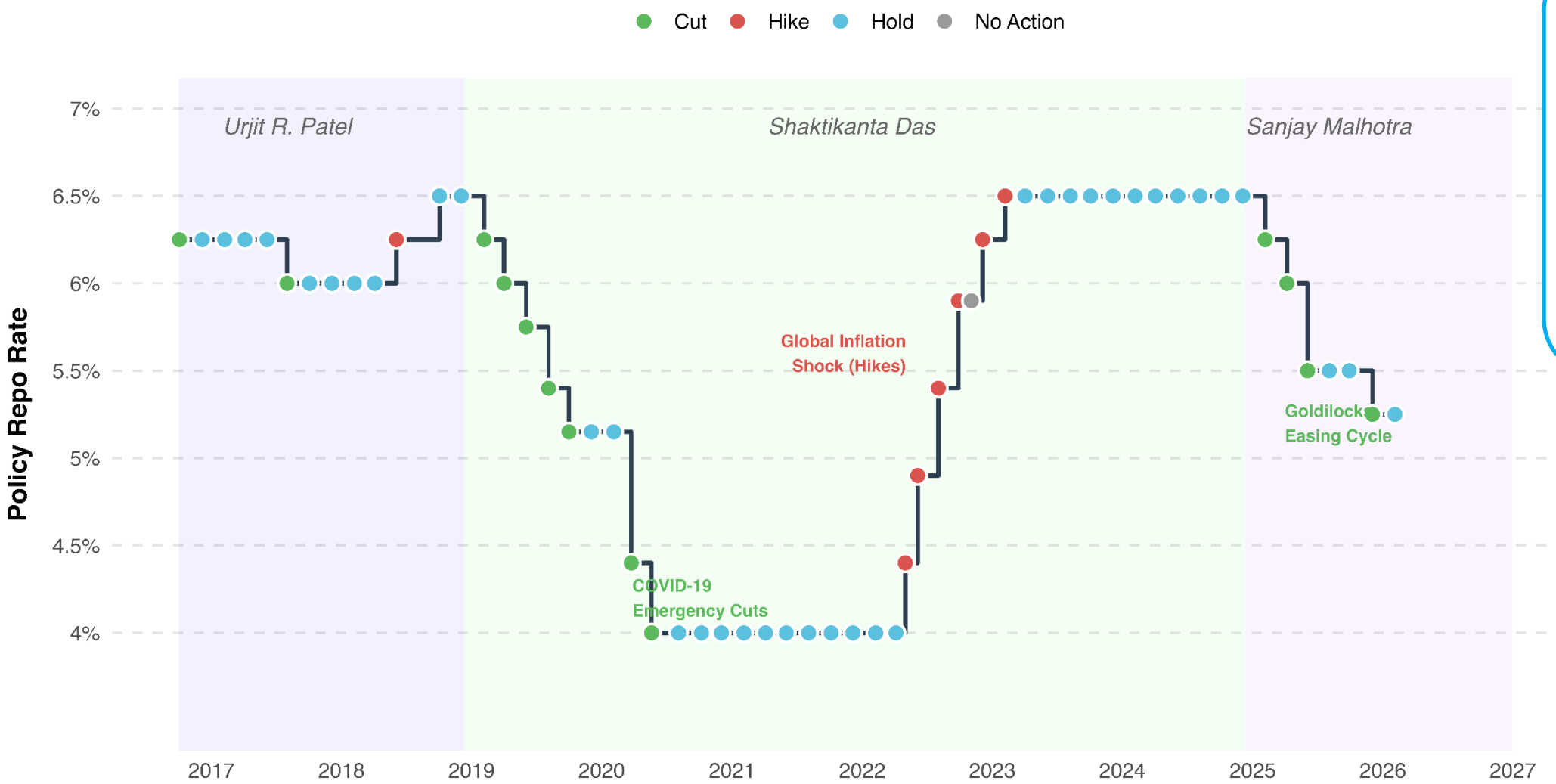
- Sentiment of minutes show a delicate balance between different lexicons across Governor regimen. Recent period has revealed more positive jargon…..
- India's MPC constitution is well constructed with proper representation of Hawks, Doves and Centrist /Pragmatic
- **The dynamic nature of current macro-economic situation is resulting in changing language of MPC members in successive minutes**
- **The textual vocabulary of MPC minutes has distinctly evolved across all Governors**
  - **Governor Urjit Patel's minutes** were tightly clustered, suggesting a consistent, rigid vocabulary focused primarily on building the new inflation-targeting framework
  - **MPC minutes under Governor Shaktikanta Das's** completely changed how it talked about the economy. The minutes captures the sheer variety of crises that Governor Shaktikanta Das had to manage over a 6-year period and thus capturing a huge footprint. For example, the MPC under his stewardship invented entirely new vocabularies for the COVID-19 pandemic (unprecedented growth support, whatever it takes..) and then pivot abruptly to fighting the 2022 global inflation shock
  - **Governor Sanjay Malhotra's** early meetings reveal Governor is clearly establishing his own distinct narrative but hasn't yet had to fully navigate the wild extremes
- It is not always true that a hawkish tone only results in hardening of G-sec yields. Even a dovish tone could result in yields hardening

How MPC fared so far?

A decade of MPC rate action reveals the repo rate completed a full circle during Governor Shaktikanta Das with the most volatile period

A Decade of the RBI Monetary Policy Committee (2016-2026)

Tracking India's Repo Rate across three Governors and unprecedented global shocks



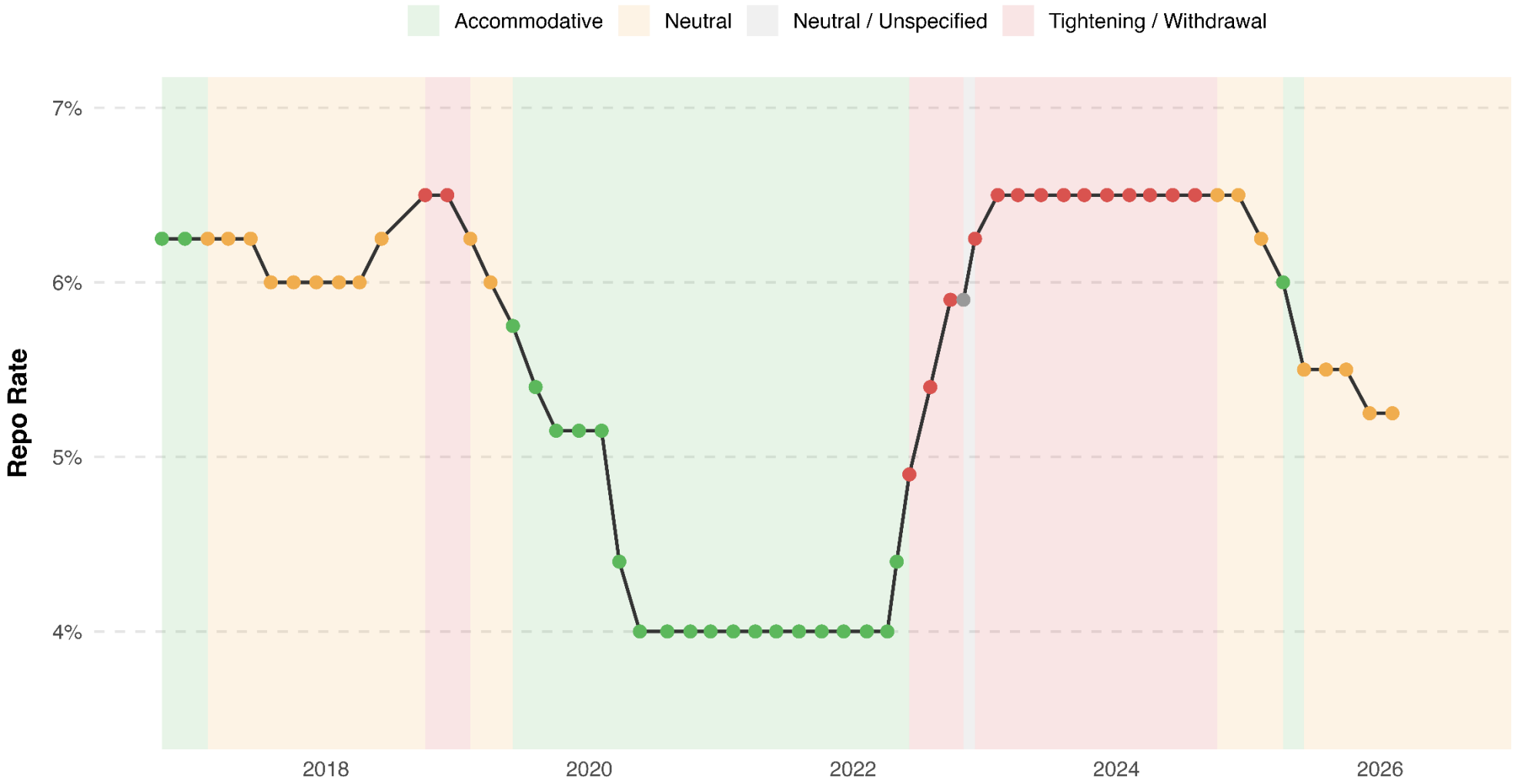
Source: RBI MPC Minutes & Decision Timeline

Governor Shaktikanta Das faced the most volatile period of MPC. Governor Das completed a full circle of repo rates

Monetary Policy Stance vs Repo Rate actions reveal that most of the rate actions happened when the monetary policy stance was neutral / unspecified..

Monetary Policy Stance vs. Rate Reality

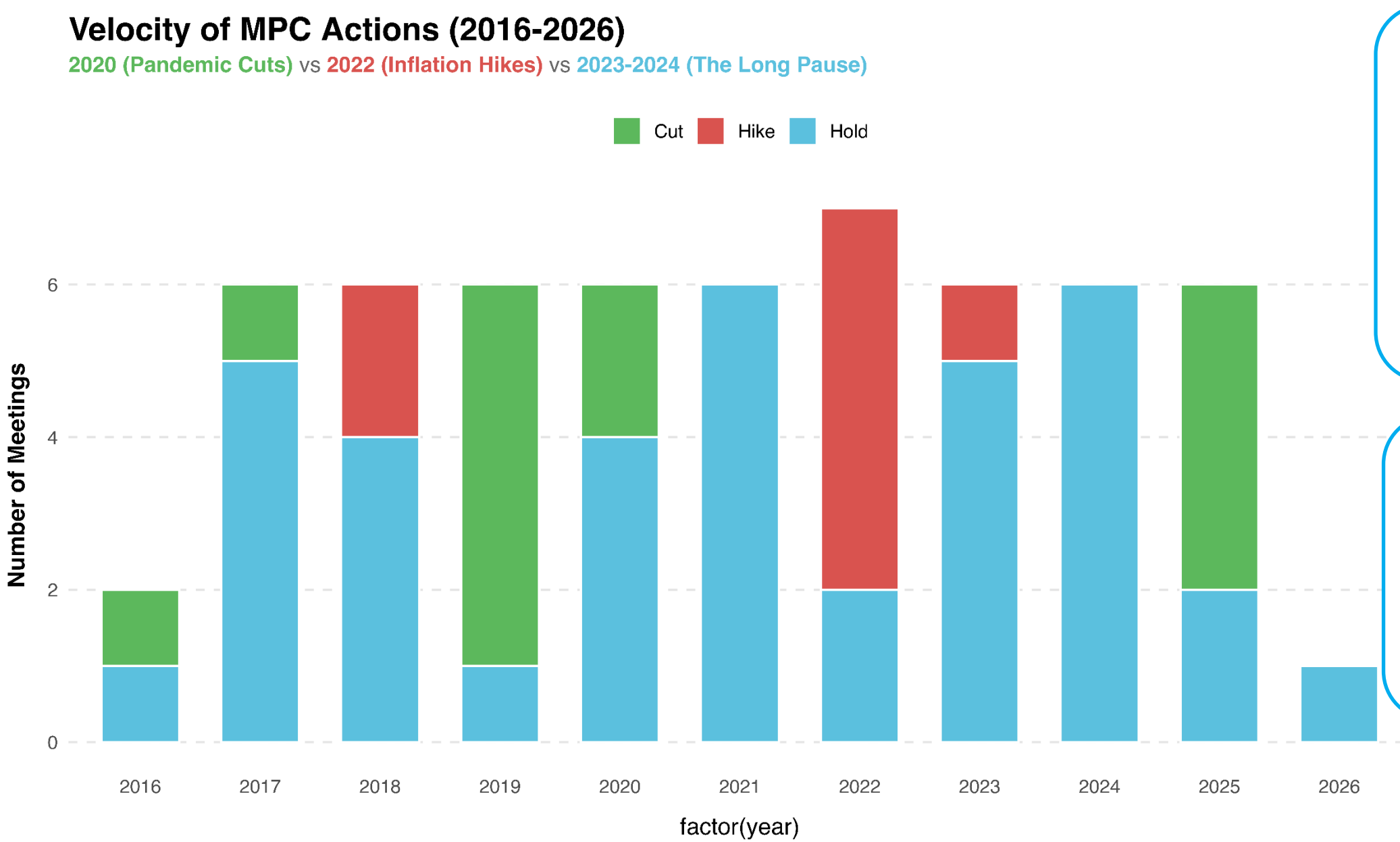
How the RBI's forward guidance (Stance) shifted to accommodate crises and fight inflation



Source: RBI MPC Minutes

India's Rate actions are mostly aligned with the stance except a few aberrations…**Most Rate actions happened during periods of neutral stance**… Indicates central bank willingness to be nimble and be ready to act in any direction in an era of uncertainty

History of Rate Actions show India has transitioned to much less episodes of rate hikes post introduction of Inflation Targeting Regime ….



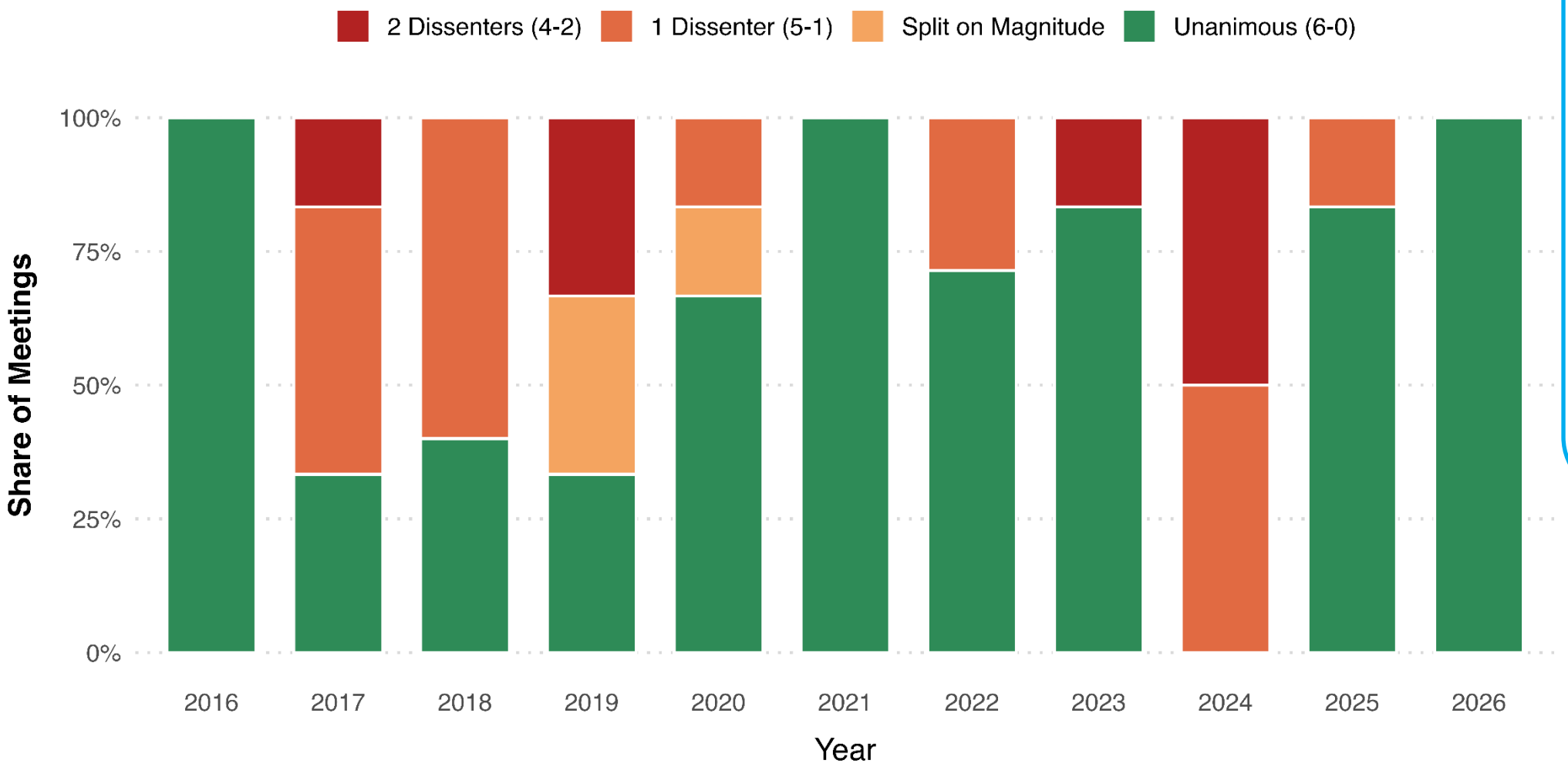
India exhibited very less episodes of rate hikes post inflation targeting regime…**Two full CYs (2021 & 2024) are on hold only**

Surprisingly, during 2010-2015, India witnessed 16 episodes of rate hikes and only 8 instances of rate cut

…However, 2024 is the Year of "Full Consensus" as well as the "Year of Dissent" in MPC.. 2021 the year of pandemic was the year of "Full Consensus" and "Unanimous"…

The Rise and Fall of MPC Consensus

Percentage of meetings per year with Unanimous vs. Dissenting votes on the Repo Rate



Year 2024 was a year of "Full Consensus" and the "Year of Dissent"

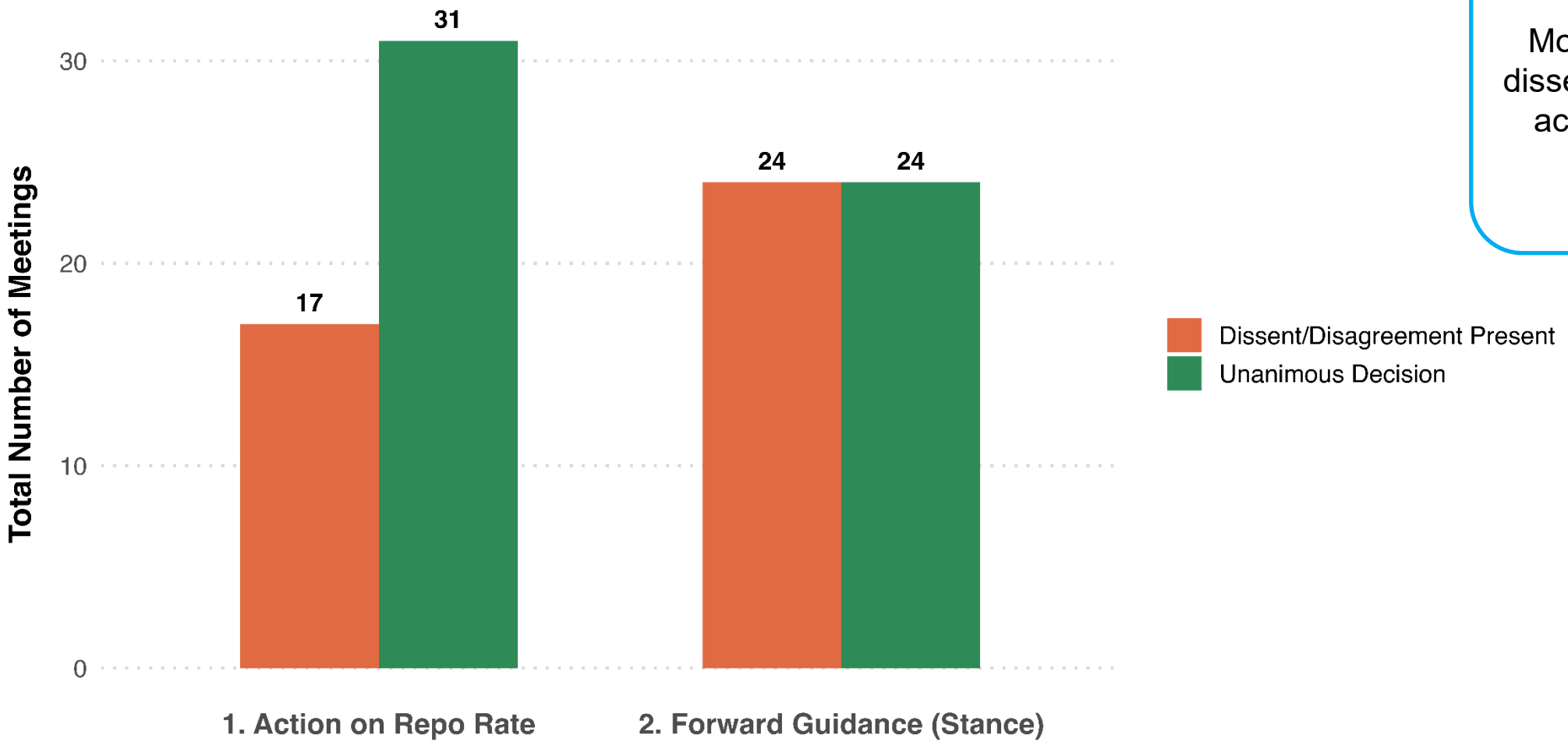
Only 2 years are of full consensus of which 2021 exhibited unanimity on both rates and votes

Source: RBI MPC Minutes

MPC members dissent more on Stance

Where Does the Committee Disagree Most?

Comparing dissent occurrences on the actual Rate vs. the accompanying Policy Stance



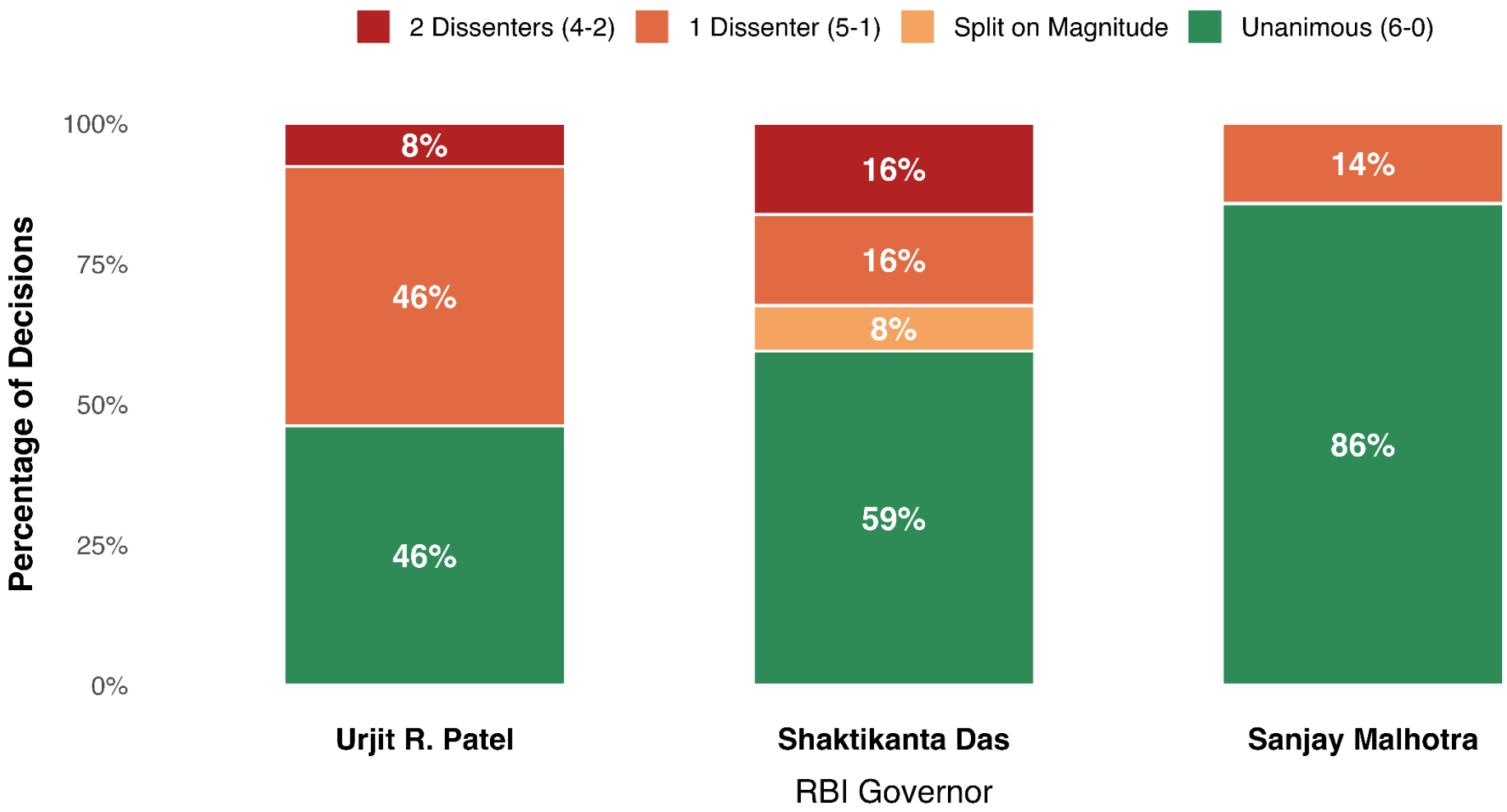
Mostly MPC members dissent on Stance….Rate action exhibited more consensus

Note: Members often vote for the rate action, but dissent on the language/stance guiding the market.

The Burden of Consensus reveals a progressive increase in unanimity across Governor tenures… The regime of Shaktikanta Das for a period of 6 years shows ~60% unanimous rate decisions

Governor Tenures: The Burden of Consensus

Proportion of Unanimous vs. Divided rate decisions under each RBI Governor



The burden of dissent becomes much lighter with the current Governor, though the duration is only for around 14 months

Source: RBI MPC Minutes (2016-2026)

Hidden Meanings of MPC Minutes

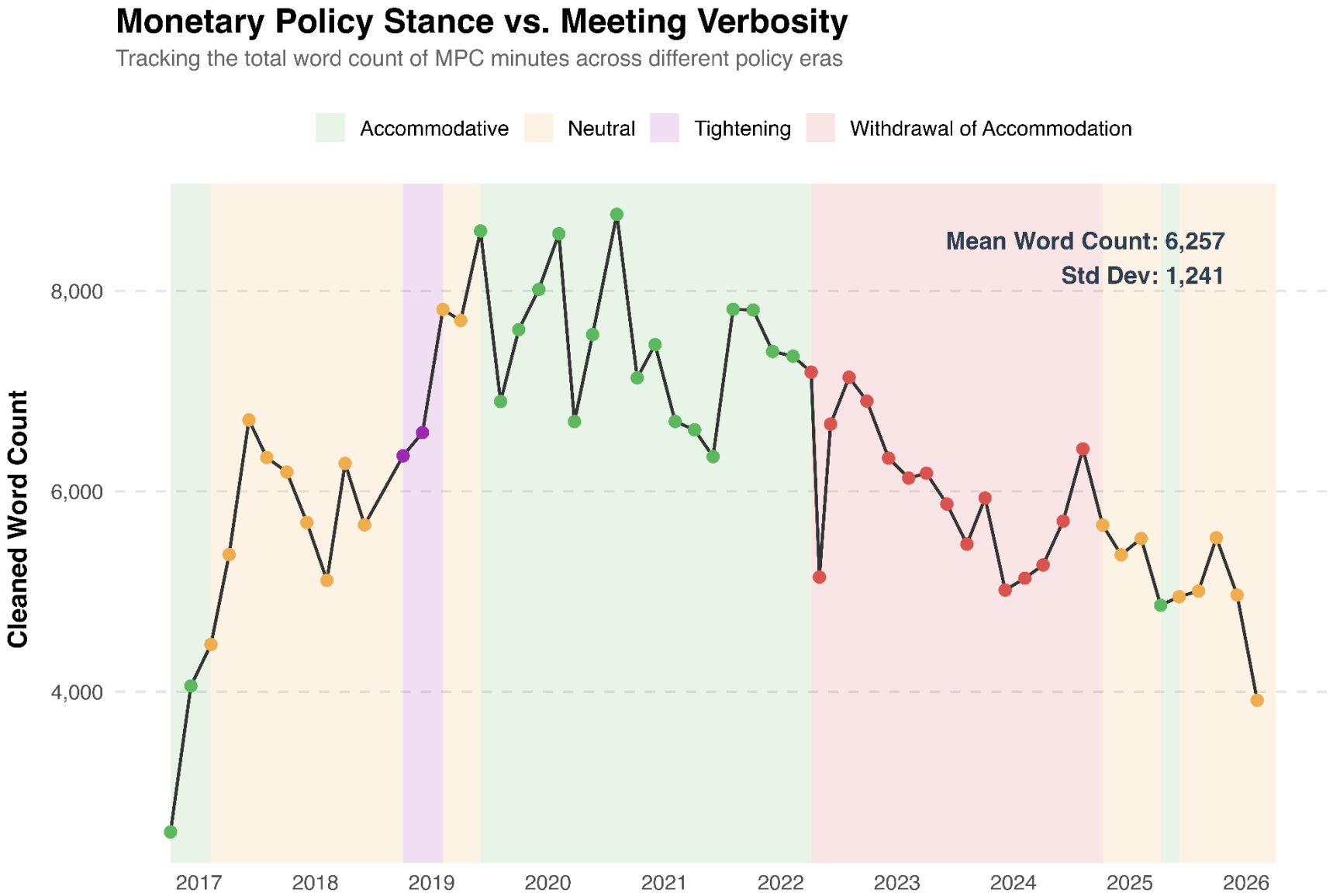
Motivation & Methodology

- The monetary policy communication practices in India mirror global experiences wherein most central banks publish their analysis of economic conditions, including outlooks for growth and inflation with central banks explaining the reasons for their policy decision through press conferences. **The release of the MPC minutes two weeks after the policy by the RBI is also in line with international best practices** (Source: RBI Report on Currency and Finance, 2021)

- In case of US, the minutes—released roughly three weeks after each Federal Open Market Committee (FOMC) meeting—offer an in-depth, behind-the-scenes look into Fed officials' policy-making process and internal debate. The minutes may include insights into who's worried about inflation or how much consensus really exists behind the Fed Chairman's press conference sound bites. It's essential reading for investors and traders who are often navigating interest-rate-driven markets (Source: Charles Schwab)
- Against this backdrop, we have endeavoured to analyse the MPC minutes to fathom the hidden mysteries

- We have built a **descriptive NLP framework using two layers**:
  1. **An RBI-specific hawkish/dovish dictionary and computing a normalized net-dovish score for each meeting, defined as dovish phrase hits minus hawkish phrase hits per 1,000 tokens**
  2. **We have tokenized the cleaned minutes, removed boilerplate and stopwords, and used TF-IDF and a standard sentiment lexicon to generate word clouds and positive/negative vocabulary charts**
- This allowed us to distinguish policy-tone intensity from broader communication style

MPC minutes initially were short discussions with <4000 words, turned more verbose initially during pandemic with >6000 words and recent period again witnessing <5000 words



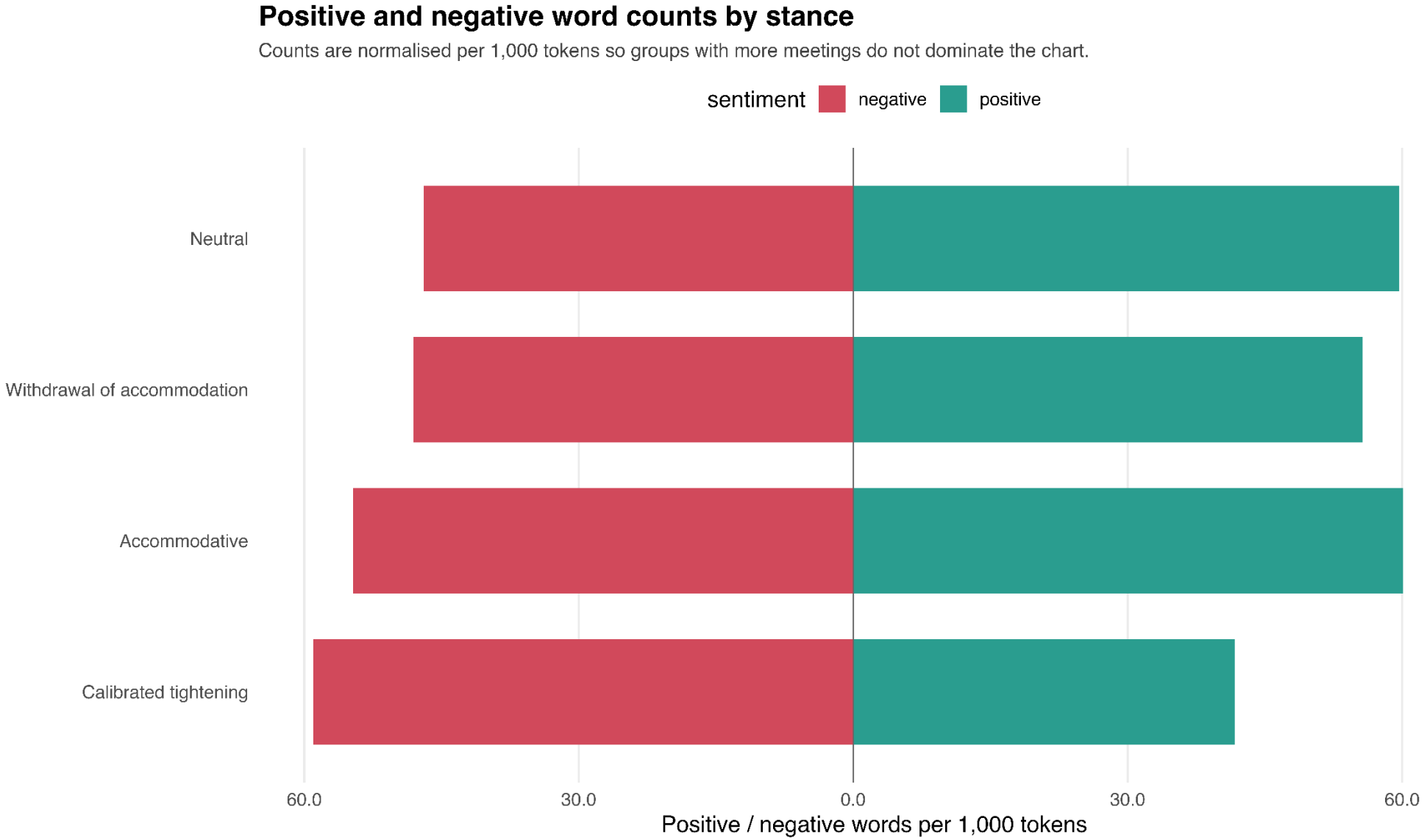
Source: RBI MPC Minutes

We have analyzed the minutes' word count against the backdrop of stance and found that while meetings started with short discussions (less than 4000 words) initially extend to more than 6,000 words during 2020-2022 (a period of accommodative stance)

A period of policy tightening exhibited less verbose discussion

Recent period of neutral stance bring total word count to less than 5,000

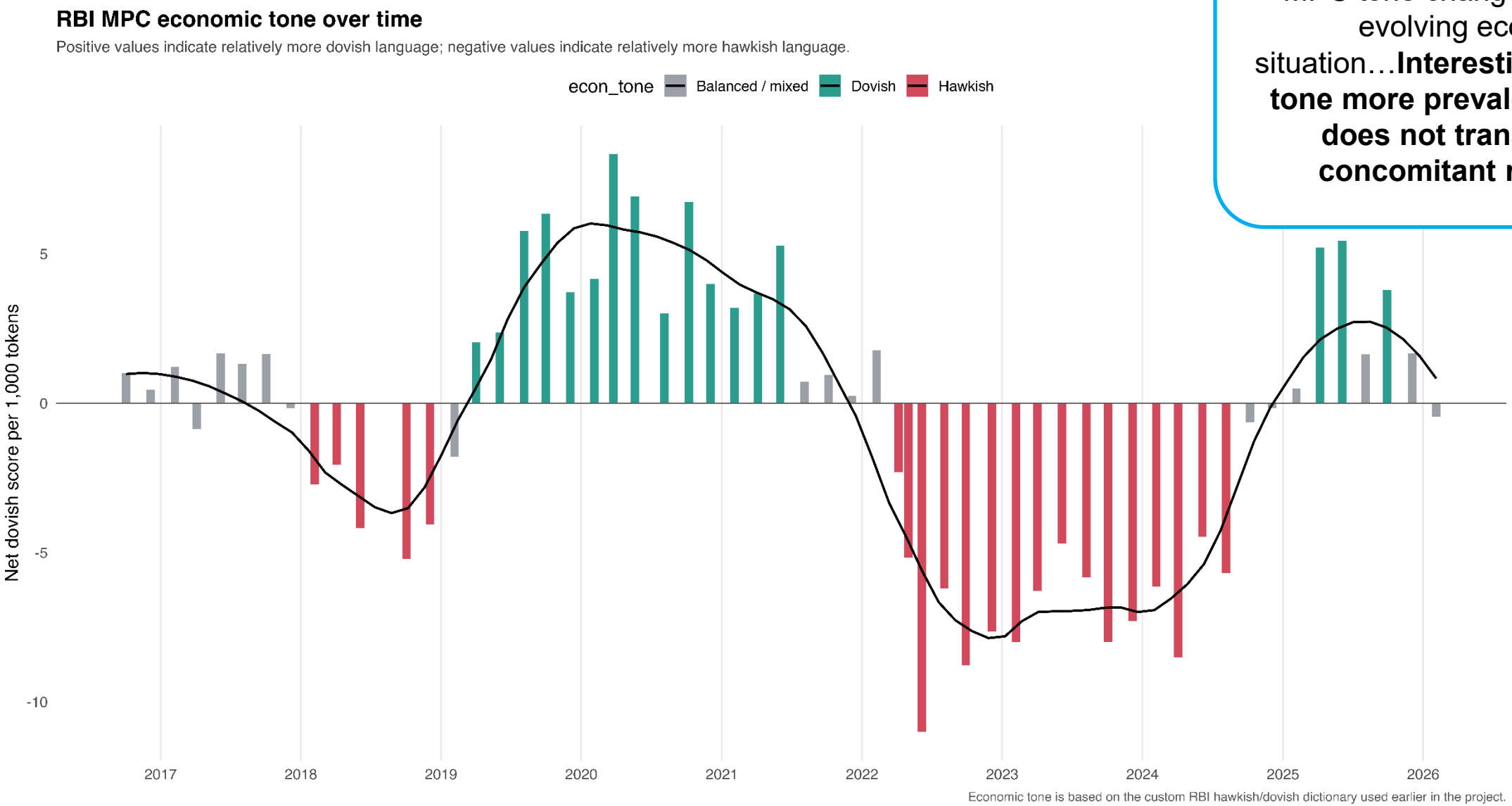
Sentiment of minutes by Stance reveal a marginal bias towards positive sentiments in neutral stance, but a bias towards negative sentiment in calibrated tightening…



Both the positive and negative sentiments in terms of policy stance have almost equal share in withdrawal of accommodation regime and accommodative regime. **In Neutral, positives outweigh negatives and in Calibrated Tightening, negatives outweigh positives**

…However, coupled with such stance and tone, the MPC minutes not match with Rate actions….1/3

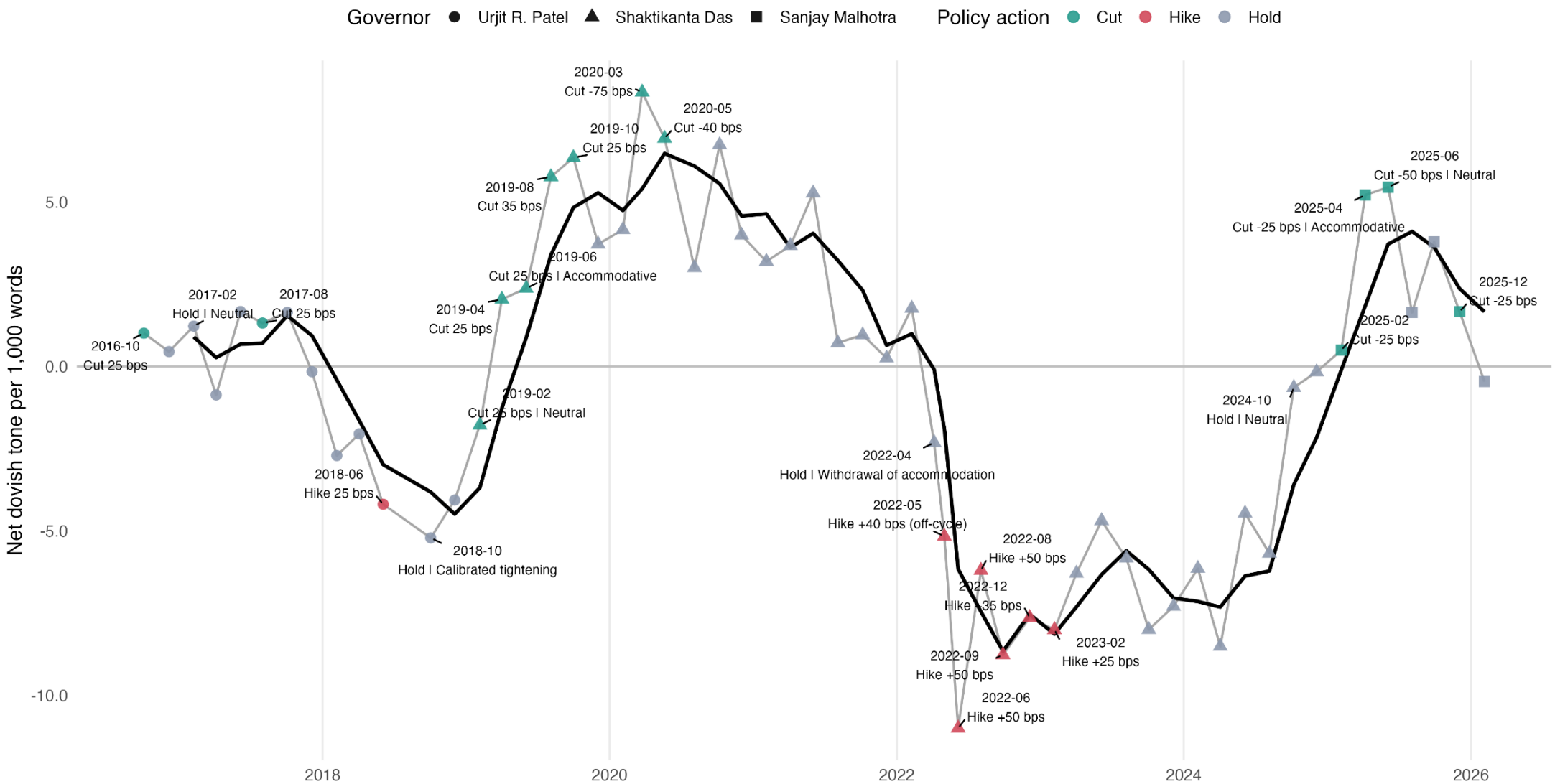
MPC tone changes as per the evolving economic situation…**Interestingly, hawkish tone more prevalent though it does not translate into concomitant rate hikes**



Tone of MPC mostly but not always aligned with rate actions.. 2/3

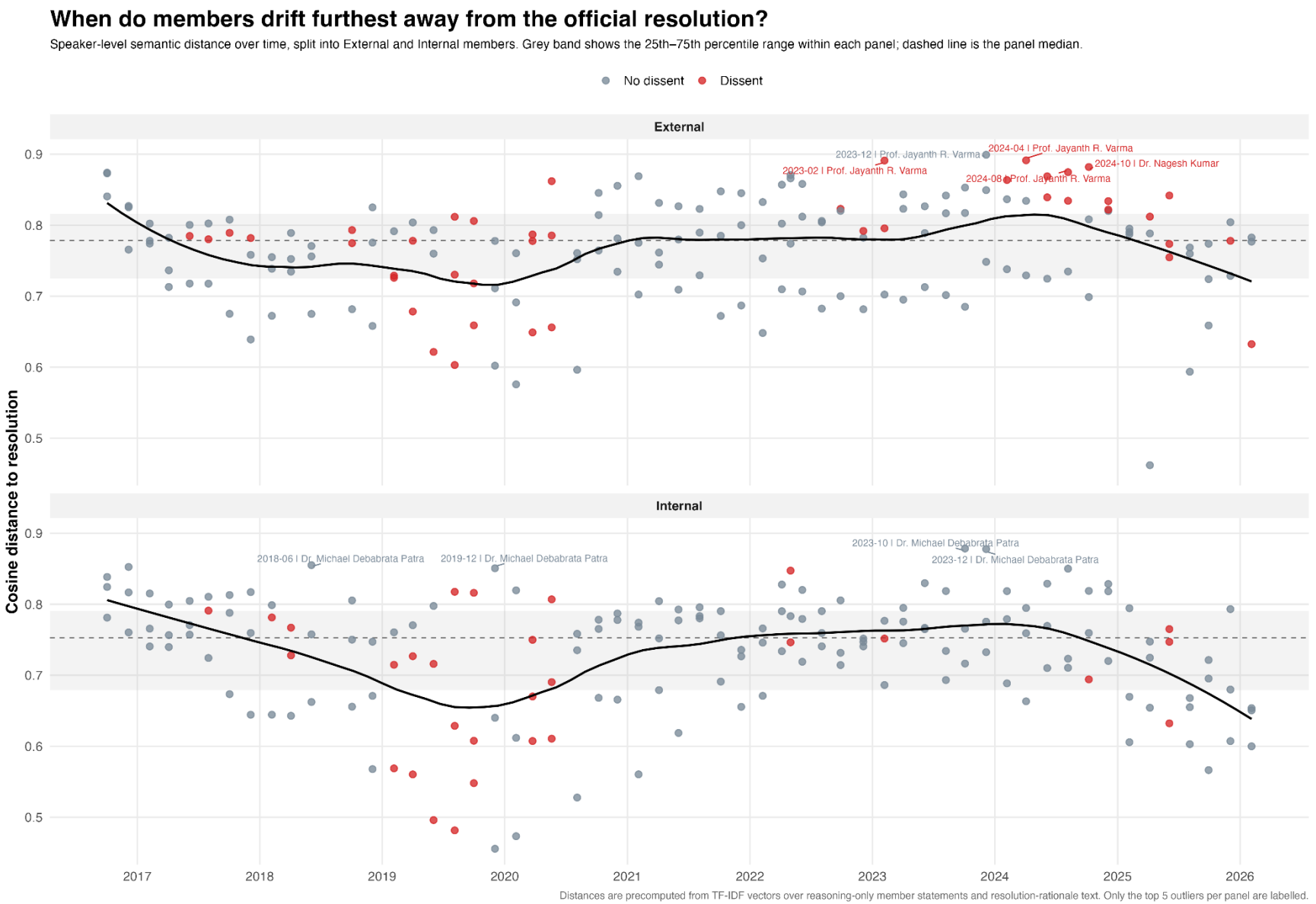
RBI MPC tone over time, with policy actions highlighted

Points are meetings; colour shows cut/hold/hike. Black line is a 3-meeting rolling mean. Positive values indicate more dovish language per 1,000 words.



Text basis: resolution text.

A higher cosine distance to resolution does not imply a different vote, Specifically for Internal members a higher / lower distance does not translate into rate decisions ….3/3



Dissent is not the same thing as semantic distance. A unanimous vote does not always mean a fully unified narrative

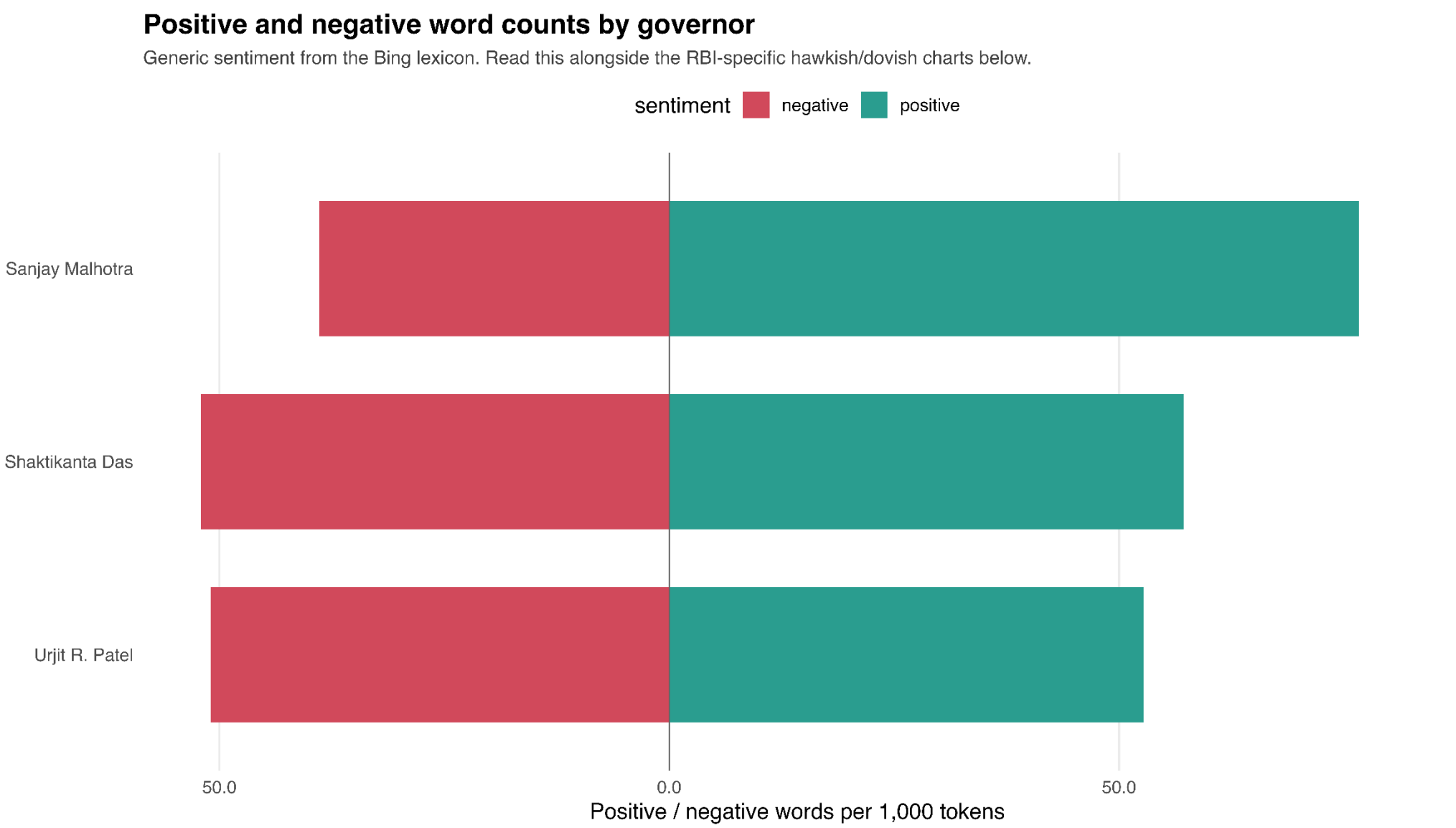
The **red points** matter, but the chart shows that formal dissent and language divergence are related not identical

Some non-dissenters also use noticeably different reasoning while still ending up at the same vote (a **grey dot** on higher side indicate that)

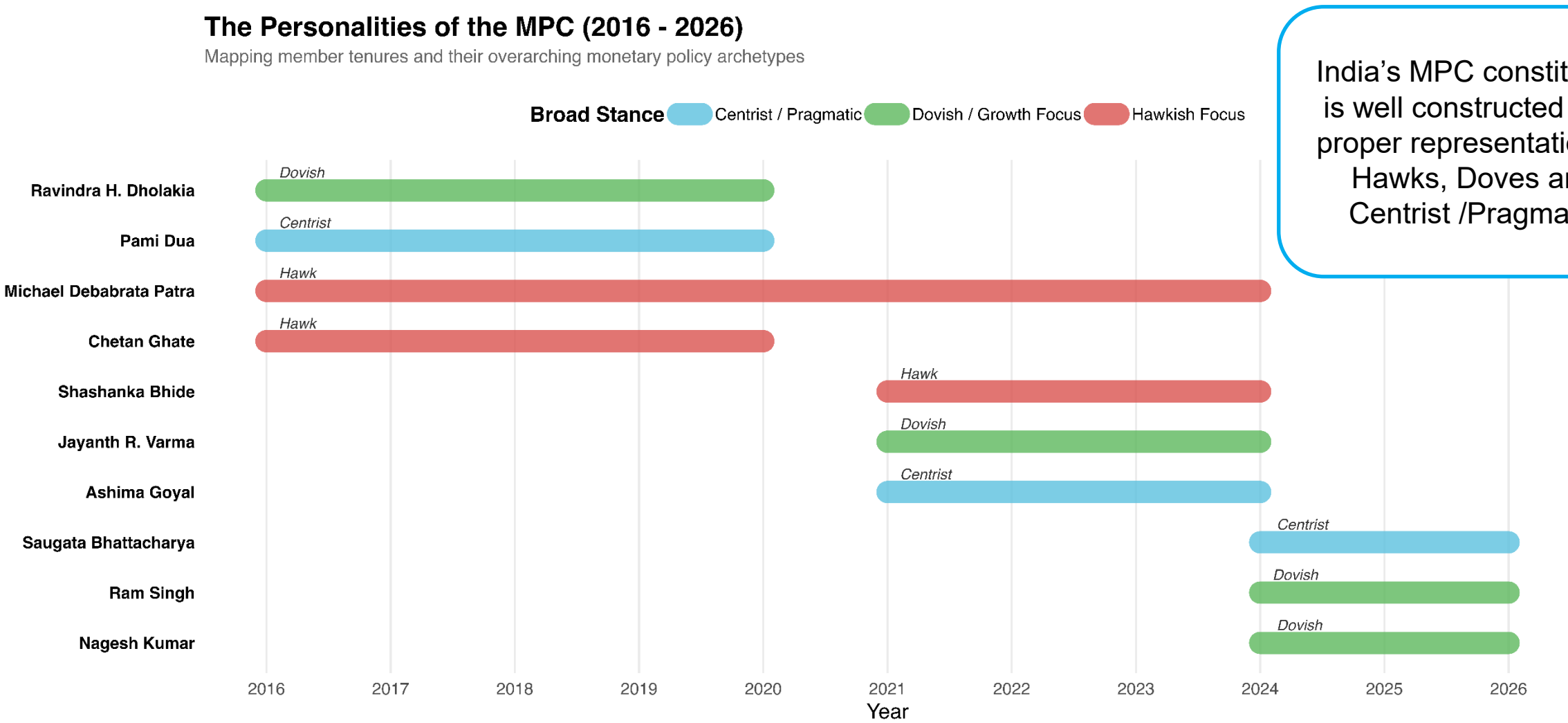
The biggest “distance” episodes are concentrated in a few periods:

- 2016–2018: relatively high distance
- 2019–2020: compression / greater alignment
- 2022–2024: distance rises again
- 2025–2026: distance has again started to decline

Sentiment of minutes show a balance between different lexicons across Governor regimes. Recent period has revealed more positive jargon…..



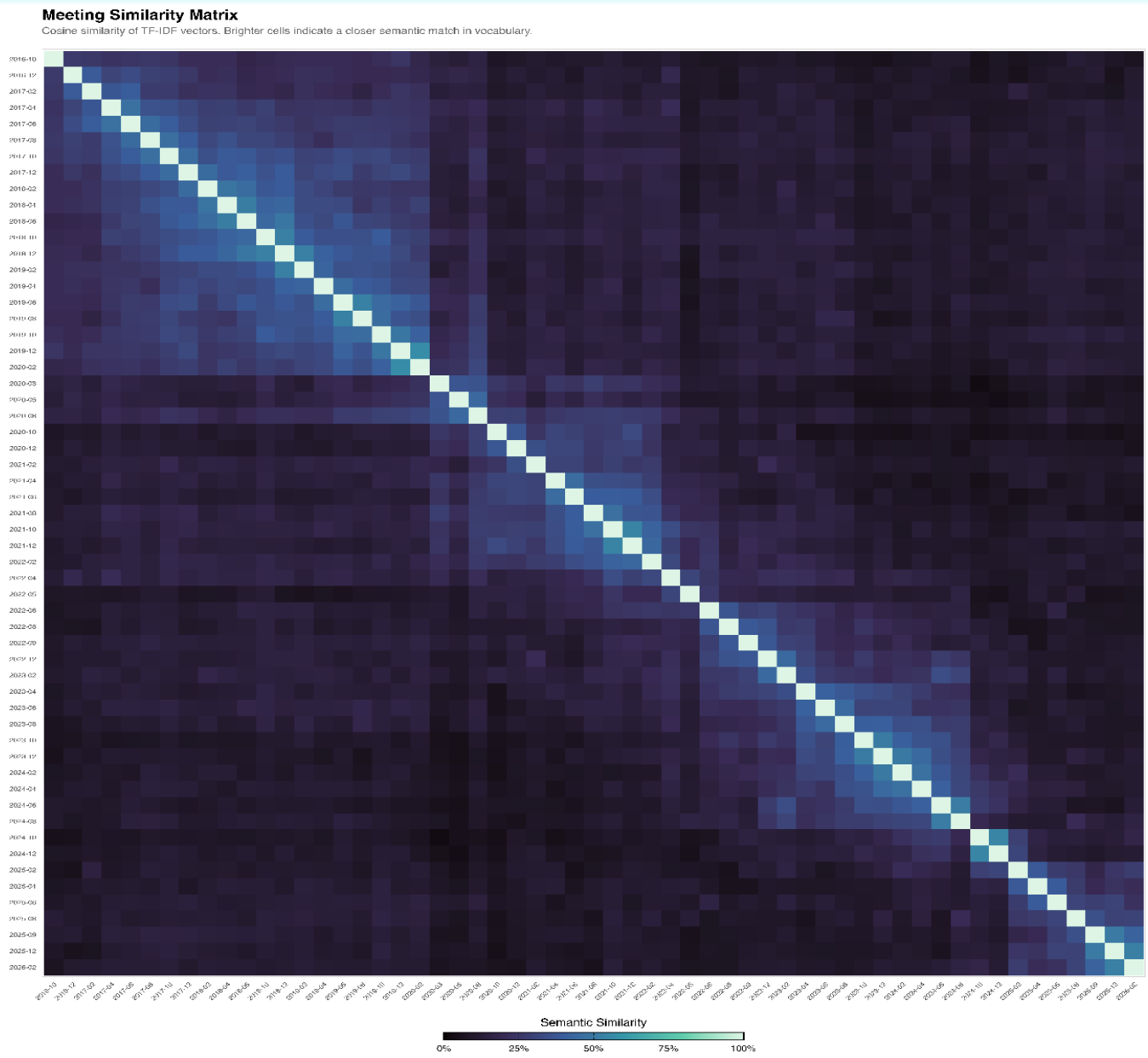
Personality Types of MPC Members(ex Governor)



India's MPC constitution is well constructed with proper representation of Hawks, Doves and Centrist /Pragmatic

Source: RBI MPC Member Archetypes

An uncertain/dynamic world are resulting in less similarities among subsequent MPC minutes



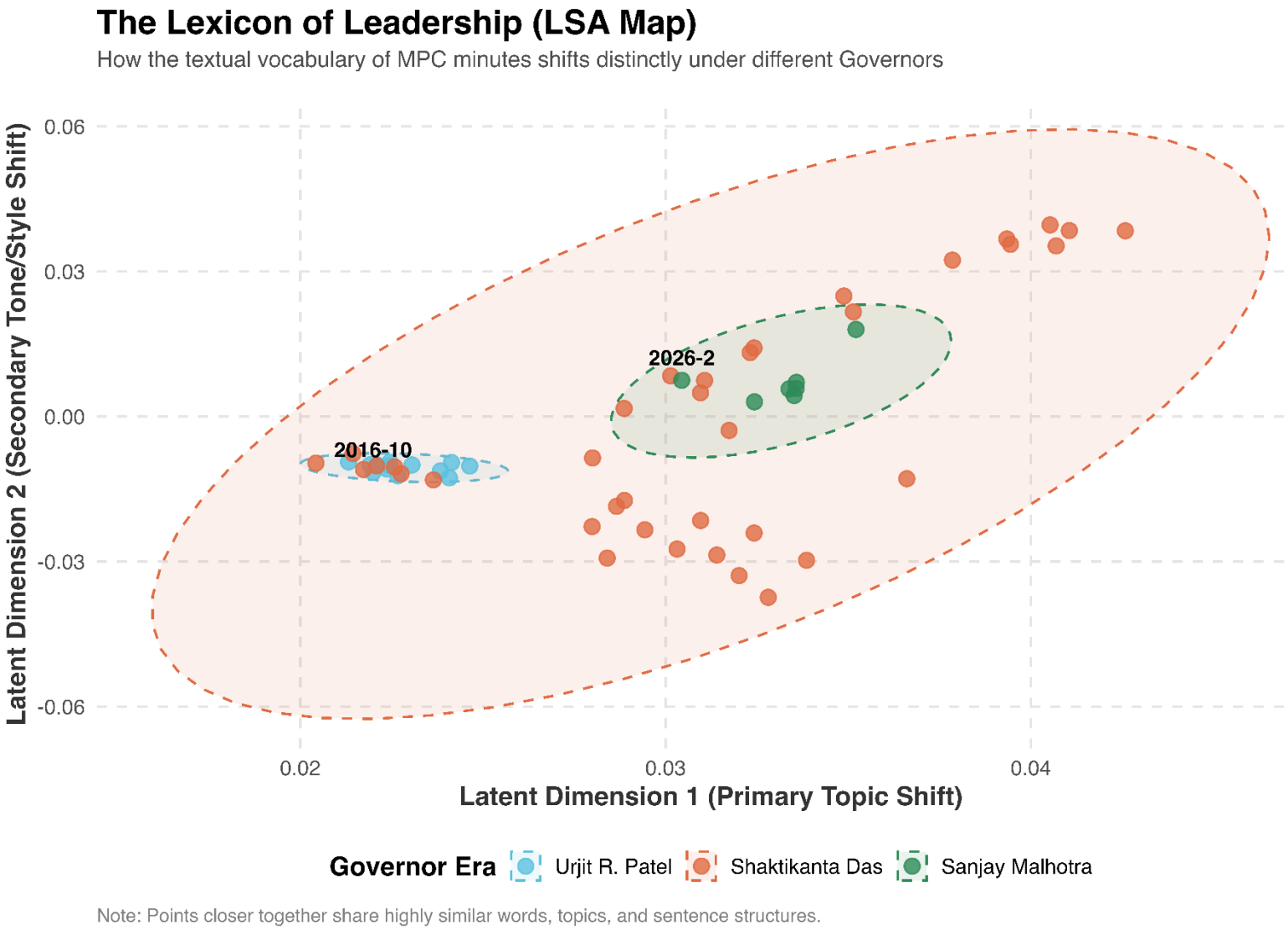
To analyse the relationship between one MPC minutes with another we have used cosine similarity

Both axes show the month and year of the MPC meeting, so the white diagonal represents perfect cosine similarity between the minutes of the same meeting.

Lighter the colour >>> More similarity
Darker the colour >>> More dissimilarity

The contraction of lighter shaded area (in big square shape) indicate the dynamic nature of current macro-economic situation and the changing language of MPC members in successive minutes

How Far a Governor's Era go?



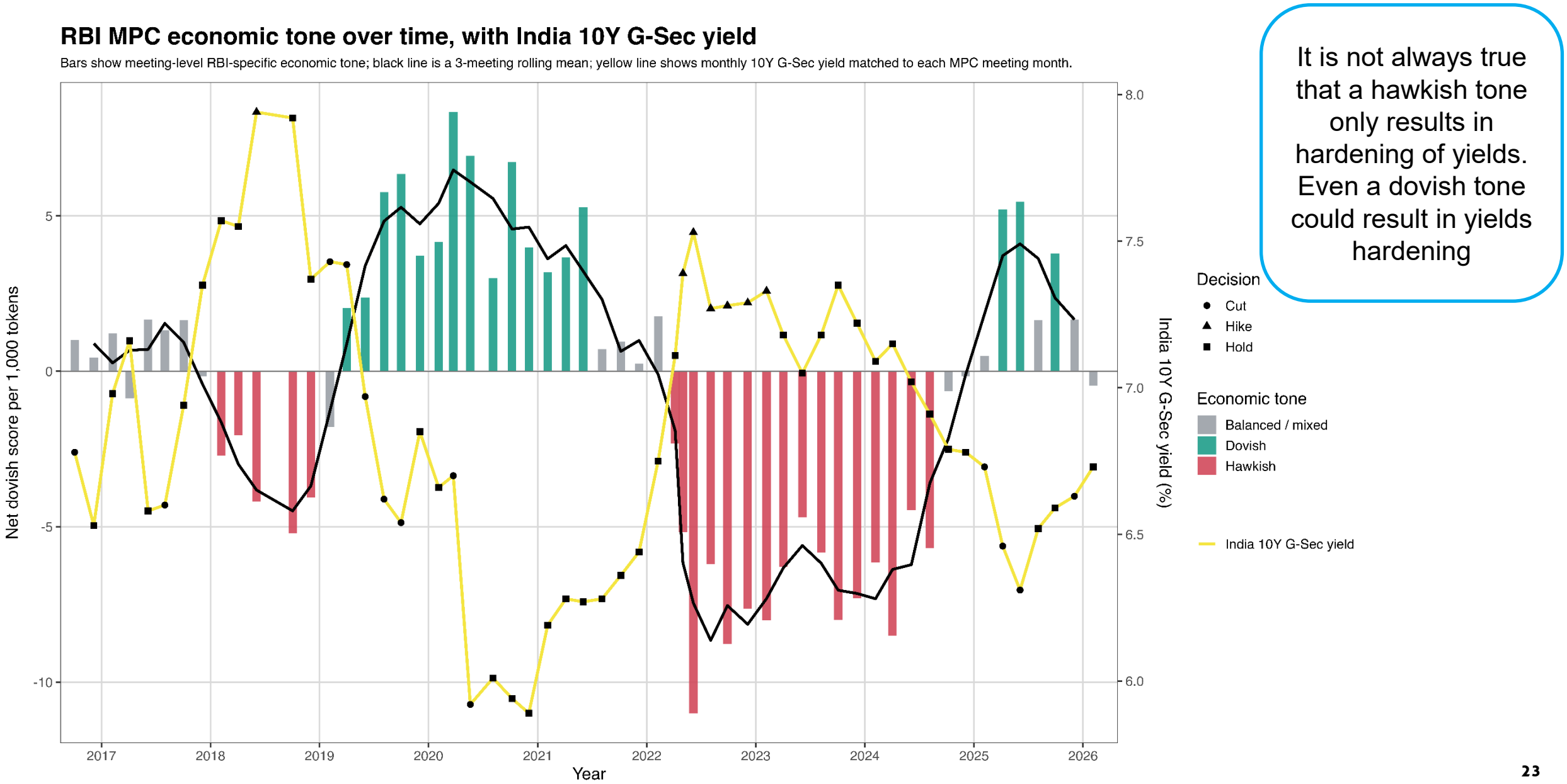
A Change in Leader = A Change in Language

There is a distinct separation between Urjit Patel's era (blue) and Shaktikanta Das's era (orange). **This proves that the MPC didn't just change its policy under Das; it completely changed how it talked about the economy.** Patel's minutes were tightly clustered, suggesting a very consistent, rigid, and disciplined vocabulary focused primarily on building the new inflation-targeting framework

The "Das" Expansion: Shaktikanta Das's ellipse and footprint is massive. This visually captures the sheer variety of crises he had to manage over a 6-year period. His MPC had to invent entirely new vocabularies for the COVID-19 pandemic (unprecedented growth support) and then pivot abruptly to fighting the 2022 global inflation shock

The Malhotra Era Begins: Sanjay Malhotra's early meetings (green) are clustered tightly at the top edge of Das's later tenure. This shows Governor Malhotra is establishing his own distinct narrative but hasn't yet had to fully navigate the wild extremes

Impact of tone on 10-year G-sec yield reveals idiosyncratic movements



It is not always true that a hawkish tone only results in hardening of yields. Even a dovish tone could result in yields hardening

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