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# A Sequential Policy-Rate Diagnostic: Monetary Absorption and the Inflation Floor Safeguard

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**Research Article**

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# A Sequential Policy-Rate Diagnostic: Monetary Absorption and the Inflation Floor Safeguard


## Abstract

What interest rate is implied when monetary, inflation, and employment signals diverge? This paper introduces the Monetary-Absorption Rule with a Common-Inflation Floor and Employment Safeguard (MAR-IFS), a sequential alternative to additive policy rules. Applying current-vintage data, all nine specifications signal normalization by 2021Q4. Same-input additive and Taylor benchmarks confirm this broad timing but trace different paths. When signals align, addition compounds them, producing 8.3% versus 6.7% under MAR-IFS. When signals conflict, addition allows offsetting, producing 3.5% versus 4.0%. The max operator blocks offsetting when signals conflict and blocks mechanical accumulation when they align, while revealing which signal binds.



**Keywords:** common inflation; inflation persistence; monetary policy rules; monetary absorption; dual mandate
**JEL Classification:** E31; E43; E47; E52; E58


## 1. Introduction

*How should a policy benchmark combine inflation, monetary conditions, and employment when these signals do not point in the same direction?* This question concerns not only which variables enter a policy rule but also how those variables are aggregated. Additive rules allow a weak signal to offset a stronger indication and may mechanically accumulate related pressures when several variables move together. Two rules using the same information and coefficients can therefore prescribe different policy paths solely because their aggregation structures differ.

Inflation measurement presents a related difficulty. Headline and core CPI and PCE inflation differ in coverage, construction, and exposure to volatile components. Each may combine broad inflationary movement with index-specific disturbances, motivating research on underlying and trend inflation measures (Bryan and Cecchetti, 1994; Reis and Watson, 2010; Mertens, 2016; Stock and Watson, 2016). This paper defines common inflation as the fixed equal-weighted average of headline CPI, core CPI, headline PCE, and core PCE inflation. Each receives a weight of 0.25. The measure is not interpreted as latent "true" inflation or as a replacement for an official index. It is a transparent composite designed to capture inflation that is broad across the principal US price measures.

Fixed equal weighting is a benchmark rather than a claim of statistical optimality. It avoids selecting one index as uniquely authoritative and prevents the policy prescription from depending on weights estimated from the same episode being evaluated. As a robustness check, the paper also considers time-varying inverse-variance weights estimated from the preceding 120 months. Although these estimated weights differ substantially from equal weights, they produce similar policy paths. The simpler fixed-weight measure is therefore retained as the principal specification.

A monetary-absorption component first establishes a baseline prescription from the interaction between accumulated monetary absorption and the recovery of velocity. Common inflation then imposes a policy floor when the monetary baseline is insufficiently restrictive. An asymmetric employment safeguard subsequently moderates the prescription when unemployment materially exceeds its natural-rate benchmark. The defining feature is the max

operator: rather than adding the monetary and inflation indications, MAR-IFS retains the stronger one. This prevents a weak monetary signal from offsetting an inflation indication calling for restraint and avoids mechanically accumulating overlapping monetary and inflation pressures.

MAR-IFS is compared with two alternatives. A same-input additive rule retains the same information, coefficients, safeguard, initial condition, rate bounds, and adjustment limit but replaces the max operator with addition. This comparison isolates the effect of aggregation architecture. A matched Taylor benchmark provides an external comparison with the literature on simple and robust monetary-policy rules (Taylor, 1993; Levin, Wieland, and Williams, 1999; Taylor and Williams, 2010). Because historical rule prescriptions can be sensitive to data revisions and measurements of economic slack, the analysis is interpreted as a current-vintage pseudo-historical exercise rather than a real-time evaluation (Orphanides, 2001).

The analysis spans 2006Q1 through 2026Q2. Three policy architectures are evaluated across current-quarter, four-quarter, and twelve-quarter inflation horizons, yielding nine specifications. All nine first exceed 3% in 2021Q4 and 4% in 2022Q1. The models therefore agree on the timing and direction of normalization, while differing primarily in the magnitude and subsequent path of adjustment. Under the current-quarter specification, MAR-IFS reaches 6.722% in 2022Q2. The same-input additive rule reaches 8.291% in 2022Q3, and Taylor reaches 7.316% in the same quarter. These differences show that aggregation is not a neutral implementation choice.

Taylor provides a closer descriptive approximation to the observed federal funds rate during the pre-2020 period. Its advantage is much smaller from 2020Q1 through 2026Q2, when the short-run RMSE is 2.186 percentage points for MAR-IFS and 2.178 for Taylor, compared with 2.476 for the same-input additive rule. In 2026Q2, the current-quarter MAR-IFS prescription is 3.954%, while the four-quarter and twelve-quarter prescriptions are 3.615% and 3.654%, respectively, compared with an observed rate of 3.633%. The framework thus provides a horizon-dependent diagnostic range rather than a uniquely estimated optimal rate.

The paper makes three contributions. It introduces a transparent common-inflation measure whose policy implications are robust to a recursively estimated alternative weighting scheme. It develops a sequential architecture in which monetary absorption, common inflation, and employment perform distinct functions. Finally, the paper identifies aggregation architecture as a distinct source of policy-rule robustness. Monetary and inflation indicators may contain overlapping information about nominal conditions. An additive rule can therefore amplify a common underlying signal by entering it through more than one component, whereas max aggregation retains the stronger indication without mechanically cumulating the two. MAR-IFS makes this distinction operational by identifying the binding component in each quarter. It provides an auditable monitoring framework through which policymakers, market participants, and researchers can distinguish whether a policy prescription is being constrained primarily by monetary conditions or by broad inflation.

This monitoring function complements the established practice of comparing prescriptions from multiple simple policy rules. The Federal Reserve's Monetary Policy Report, for example, presents prescriptions from Taylor, adjusted Taylor, balanced-approach, and first-difference rules. MAR-IFS adds a different dimension to such comparisons: rather than changing only coefficients or economic inputs, it shows how the aggregation of potentially

overlapping signals affects the prescribed rate and reveals which signal is binding at each date (Board of Governors of the Federal Reserve System, 2026).

## 2. Literature Review

This paper connects three bodies of research: the measurement of underlying inflation, the persistence of inflation, and the design of monetary-policy benchmarks. The first literature asks how broad inflationary pressure can be distinguished from temporary or sector-specific price movements. Bryan and Cecchetti (1994), Cecchetti (1997), and Dolmas (2005) reduce the influence of unusually large component-level price changes, while Quah and Vahey (1995) define core inflation through its long-run relationship with real activity. Rich and Steindel (2007) compare alternative measures of underlying inflation, Stock and Watson (2007) distinguish inflation components with different degrees of persistence and predictability, and Reis and Watson (2010) separate broad inflation from relative-price movements. Altissimo *et al*. (2006) show that aggregation across heterogeneous price-setting sectors can itself generate persistence in aggregate inflation.

These studies establish that no single price index provides a complete measure of economy-wide inflation. Headline and core CPI and PCE inflation differ in coverage, weights, and sensitivity to sector-specific disturbances. This paper therefore combines the four measures using fixed equal weights. The resulting series is not presented as latent true inflation or as a replacement for an official price index. It provides a transparent cross-index benchmark for identifying inflation that is broad across the principal US inflation measures. Unlike statistically estimated weighting procedures, fixed equal weighting does not allow the experience of the evaluation period to determine the importance assigned to each index. Recursively estimated inverse-variance weights are nevertheless examined as a robustness check.

The second literature shows that the policy significance of inflation depends not only on its current level but also on its duration. Measured persistence may be overstated when changes in mean or trend inflation are ignored (Levin and Piger, 2004; Marques, 2004; Fuhrer, 2010). It may also vary with policy regimes, expectations, and trend inflation rather than remaining fixed over time (Cogley and Sargent, 2005; Benati, 2008; Cogley and Sbordone, 2008; Lansing, 2009). More recent research attributes the post-pandemic inflation episode to changing interactions among supply disruptions, commodity prices, fiscal support, aggregate demand, wages, and labor-market adjustment (Ball *et al*., 2022, 2025; Bernanke and Blanchard 2024, 2025). De Michelis *et al*. (2024) additionally document increased inflation persistence across major advanced economies.

This literature motivates examining inflation over more than one observation window without interpreting persistence as a fixed structural parameter. MAR-IFS therefore evaluates current-quarter common inflation alongside trailing four-quarter and twelve-quarter averages. The current-quarter measure responds quickly to new inflation information, whereas the longer averages place greater weight on inflation sustained over time. The horizon comparison is descriptive and backward-looking. It does not estimate a long-memory parameter or claim to identify the structural source of inflation persistence.

The third literature concerns systematic monetary-policy benchmarks. Taylor (1993) expresses the policy rate as an additive response to inflation and real-activity gaps. Clarida *et al*. (1999, 2000) and Woodford (2003) develop forward-looking and inertial interpretations of interest-rate rules, while Orphanides (2001, 2003) demonstrates the importance of real-time

information and data revisions when evaluating historical prescriptions. Svensson (1997, 2003) emphasizes forecast targeting, whereas McCallum (1988, 2000) proposes a monetary-base rule organized around nominal-income growth. Friedman (1960) provides the broader monetary argument that the relationship among money, expenditure, and prices depends on the behavior of money demand and velocity.

Subsequent research has examined whether monetary aggregates retain information about the price level and inflation after accounting for changes in velocity and interest rates. Hallman, Porter, and Small (1991) develop a long-run monetary benchmark based on equilibrium velocity, while Reynard (2007) shows that the money–price relationship depends importantly on interest-rate-related movements in velocity. Nelson (2003) and Ireland (2004) reconsider the role of money in modern interest-rate-based monetary analysis. Together, these studies support using monetary information as a diagnostic cross-check without treating money growth as a mechanically sufficient policy indicator.

The experience of unconventional monetary policy further demonstrates that the observed short-term interest rate does not always summarize the full monetary environment. Policy can operate through expectations, term premia, portfolio rebalancing, credit conditions, and market functioning, particularly near the effective lower bound (Bernanke and Reinhart, 2004; Bernanke, Reinhart, and Sack, 2004; Borio and Disyatat, 2010; Gagnon *et al*., 2011; Krishnamurthy and Vissing-Jorgensen, 2011; Woodford, 2012). Yoshimori (2026) provides a historical reassessment of US monetary-policy transmission that similarly emphasizes the importance of mechanisms operating beyond contemporaneous movements in the short-term policy rate. These considerations motivate incorporating money and velocity into a diagnostic policy benchmark. MAR-IFS builds on these literatures by assigning distinct functions to monetary absorption, broad inflation, and employment conditions. The monetary-absorption component establishes a baseline from the interaction between low velocity and its subsequent recovery. The common-inflation measure imposes a policy floor when broad inflation calls for greater restraint, and the asymmetric employment safeguard moderates the resulting prescription when unemployment materially exceeds its natural-rate benchmark.

The contribution is not the claim that a Taylor rule cannot identify delayed normalization. Instead, the paper asks whether the method used to aggregate policy signals affects the magnitude and path of the resulting prescription. Existing research on robust monetary-policy rules has primarily examined whether rule prescriptions remain stable across alternative models, parameterizations, and measurements of economic slack (Levin *et al*., 1999; Orphanides and Williams, 2002; Taylor and Williams, 2010). MAR-IFS introduces a related but distinct source of robustness: the treatment of informational overlap among policy signals. Monetary absorption and inflation may both reflect a common nominal expansion. Adding the two components can consequently magnify overlapping information, while allowing a negative monetary component to offset positive inflation can weaken an otherwise clear policy signal. The same-input additive comparator isolates this aggregation effect by retaining the information set and implementation assumptions while replacing the max operator with addition.

## 3. Methodology

### 3.1 Framework

MAR-IFS sequences three policy signals. MAR supplies a baseline based on monetary overhang and velocity recovery; common inflation imposes a conditional floor when it implies a higher rate; and an asymmetric employment safeguard moderates the resulting

prescription when unemployment materially exceeds its natural-rate benchmark. Unlike an additive rule, the max operator prevents a weak monetary or inflation signal from offsetting a stronger one and makes the binding component observable. It also limits the mechanical accumulation of overlapping nominal information when monetary absorption and inflation move in the same direction. This is an architectural robustness property rather than an econometric correction: MAR-IFS does not estimate the correlation between the two signals or assume that they are statistically independent. MAR-IFS is a calibrated diagnostic benchmark, not a forecast, estimated optimal rule, or causal counterfactual.

**3.2 Monetary-Absorption Rule and Policy Safeguards**

The monetary component begins from the quantity identity $MV = PY$. An increase in money balances need not generate immediate inflation when velocity is declining. Its policy relevance may increase when velocity recovers and previously accumulated balances begin to support nominal expenditure. MAR therefore combines monetary absorption with velocity recovery rather than treating money growth alone as an immediate policy signal.

Monetary absorption is defined as

$$A_t = -100\left(\log V_t - \frac{1}{40}\sum_{j=1}^{40}\log V_{t-j}\right) \qquad (1)$$

where $V_t$ is M2 velocity. The reference value is average log velocity during the preceding 40 quarters, excluding the current quarter. A positive value of $A_t$ indicates that current velocity is below its trailing ten-year benchmark and that money balances are correspondingly high relative to nominal expenditure. The measure is interpreted as monetary absorption rather than as a structurally identified excess-money shock.

Velocity recovery is summarized by

$$p_t^V = [1 + \exp(-g_t^V/2)]^{-1} \qquad (2)$$

where $g_t^V$ is the four-quarter percentage change in M2 velocity. The logistic transformation produces a continuous weight between zero and one. The weight rises as velocity recovers, giving greater policy relevance to monetary absorption when accumulated balances are more likely to support expenditure.

The raw monetary-absorption prescription is

$$i_t^{MAR,raw} = r^* + \pi_t^e + \kappa_A A_t p_t^V \qquad (3)$$

where $r^*$ is the assumed neutral real rate, $\pi_t^e$ is the market-based inflation anchor, and $\kappa_A$ converts effective monetary absorption into an interest-rate equivalent. Monetary

absorption therefore raises the prescription only to the extent that it coincides with recovering velocity.

The raw prescription is partially adjusted:

$$i_t^{MAR} = 0.75 i_{t-1}^{MAR} + 0.25 i_t^{MAR,raw} \qquad (4)$$

Partial adjustment reduces sensitivity to temporary movements in money and velocity and introduces continuity between successive quarterly prescriptions. It does not represent forward guidance because the prescription is recalculated from observed conditions in every quarter.

The monetary benchmark may be insufficiently restrictive when monetary absorption is weak but broad inflation remains elevated. Let $\bar{\pi}_{t,h}$ denote fixed equal-weighted common inflation over horizon $h$, where the three horizons are the current quarter, the trailing four-quarter average, and the trailing twelve-quarter average. The common-inflation floor is

$$i_{t,h}^{\pi} = r^* + \pi_t^e + \lambda_\pi\left(\bar{\pi}_{t,h} - \pi^*\right),\ \lambda_\pi = 0.75 \qquad (5)$$

where $\pi^* = 2\%$. The current-quarter specification responds most rapidly to changing inflation, while the four- and twelve-quarter averages progressively reduce sensitivity to temporary movements. These alternative horizons summarize the duration of observed inflation rather than forecasts of future inflation.

MAR-IFS first retains the stronger pre-employment indication:

$$i_{t,h}^{MAR\text{-}IFS,pre} = \max\left\{i^{ELB}, i_t^{MAR}, i_{t,h}^{\pi}\right\} \qquad (6)$$

An asymmetric employment safeguard is then applied:

$$i_{t,h}^{MAR\text{-}IFS} = i^{ELB} + \left(i_{t,h}^{MAR\text{-}IFS,pre} - i^{ELB}\right)\exp[-\psi \max\{0, u_t - u_t^* - c_u\}] \qquad (7)$$

where $i^{ELB} = 0.125\%$, $u_t$ is the unemployment rate, $u_t^*$ is the CBO natural-rate estimate, and $c_u = 0.50$ percentage point. The safeguard is inactive when unemployment is no more than 0.50 percentage point above its natural-rate benchmark. When unemployment exceeds that threshold, it moves the prescription continuously toward the effective lower bound.

The safeguard is deliberately asymmetric. Unemployment below its natural-rate estimate does not independently require a higher rate; any associated inflationary pressure must appear through common inflation, expected inflation, or monetary absorption. The max operator similarly has two functions. It prevents a weak component from offsetting a stronger policy indication and avoids mechanically adding monetary and inflation pressures when both are positive. It also identifies whether monetary absorption or common inflation is binding in each quarter.

The final prescription is bounded between 0.125% and 15%, and its quarterly change is limited to 1.50 percentage points. Rate bounds and adjustment constraints also recognize that the operation of simple policy rules can change near the effective lower bound and under unusually large prescribed adjustments (Reifschneider and Williams, 2000). In MAR-IFS, these constraints are implementation devices rather than estimates of an optimal policy frontier. A same-input additive comparator is constructed using the same monetary component, common-inflation measure, inflation horizon, employment safeguard, initial condition, bounds, and quarterly adjustment limit. It differs only by adding the inflation-gap response to the monetary prescription instead of selecting the stronger indication. The complete recursive implementation is reported in Appendix A.

### 3.3 Data, Common Inflation, and Comparison Rules

Common inflation is constructed from twelve-month headline CPI, core CPI, headline PCE, and core PCE inflation. Because all four series are expressed as twelve-month percentage changes, they are combined directly without prior standardization. Letting $\pi_m^k$ denote monthly inflation according to measure $k$, monthly common inflation is defined as

$$\bar{\pi}_m = \frac{1}{4}(\pi_m^{CPI} + \pi_m^{CoreCPI} + \pi_m^{PCE} + \pi_m^{CorePCE}) \qquad (8)$$

Each measure therefore receives a fixed weight of 25%. Equal weighting provides a transparent and reproducible measure of broad inflation movement across the principal aggregate price indexes. It does not depend on estimated weights and does not allow any individual series to dominate the policy signal. The resulting measure is interpreted as a broad cross-index inflation benchmark rather than as an estimate of an unobservable true inflation rate or a replacement for an official CPI or PCE measure.

The monthly common-inflation series is converted to quarterly frequency by averaging the three-monthly observations within each calendar quarter. The short-horizon signal is the resulting current-quarter value. The medium-horizon signal is its trailing four-quarter average, and the long-horizon signal is its trailing twelve-quarter average. All three measures are backward-looking and use only observations dated at or before the relevant policy quarter. The horizon comparison therefore evaluates how the prescription changes when the policy signal places greater weight on recent inflation or on inflation sustained over a longer period.

The remaining variables are obtained from FRED: the effective federal funds rate, unemployment rate, CBO natural rate of unemployment, M2 velocity, and the 10-year breakeven inflation rate. Monthly observations are converted to quarterly averages, while quarterly variables retain their reported frequency. Four-quarter velocity growth is calculated relative to the corresponding quarter of the previous year. The 10-year breakeven rate

provides the nominal inflation anchor, but it is not interpreted as a pure short-run forecast because it incorporates inflation-risk and liquidity premia.

For comparison with a conventional additive policy rule, the matched Taylor benchmark is

$$i_{t,h}^{T,raw} = r^* + \pi_t^e + \lambda_\pi\left(\bar{\pi}_{t,h} - \pi^*\right) + \lambda_u[-2(u_t - u_t^*)],\ \lambda_u = 0.50 \qquad (9)$$

This benchmark combines the inflation and real-activity gaps additively. It differs from the same-input comparator described in Appendix A, which retains the MAR component and changes only the aggregation operator. Together, the two comparisons distinguish differences arising from the max operator from those arising from the broader monetary-absorption architecture.

The Taylor benchmark uses the same common-inflation measure, inflation horizon, inflation-response coefficient, neutral-rate assumption, rate bounds, initial condition, and maximum quarterly adjustment as the corresponding MAR-IFS specification. Its activity term uses the Okun-law approximation $-2(u_t - u_t^*)$. Sensitivity exercises set the inflation-response coefficient to 0.50, 0.75, and 1.00 while holding the remaining assumptions constant.

The policy experiment begins in 2006Q1, when all required monetary, labor-market, inflation, and financial variables become jointly available. Because 2026Q3 is incomplete, the quarterly analysis ends in 2026Q2 and contains 82 observations. The first observation initializes the recursive policy paths, and historical-fit statistics are calculated over the remaining 81 quarters. The use of revised data makes this a pseudo-historical exercise rather than a strict real-time evaluation.

**3.4 Empirical Design**

The empirical analysis evaluates three policy architectures—MAR-IFS, the same-input additive rule, and the matched Taylor benchmark—across current-quarter, trailing four-quarter, and trailing twelve-quarter common-inflation horizons. These combinations yield nine specifications in total.

Comparisons across the three MAR-IFS horizons show how the policy prescription changes as common inflation is averaged over progressively longer periods. The current-quarter specification emphasizes recent inflation, while the four- and twelve-quarter averages progressively reduce sensitivity to temporary movements. The monetary-absorption component and all other implementation assumptions are held constant, so differences among these paths arise from the inflation horizon.

The matched Taylor benchmarks are constructed from Equation (9). Each uses the same common-inflation measure, inflation horizon, inflation-response coefficient, neutral-rate assumption, inflation objective, employment safeguard, initial condition, rate bounds, and maximum quarterly adjustment as the corresponding MAR-IFS specification. The Taylor benchmark contains no monetary-absorption component and combines its inflation and activity terms additively. It provides a conventional external comparison for evaluating whether MAR-IFS produces materially different normalization timing and policy magnitudes. The common asymmetric employment safeguard is applied after calculation of the Taylor prescription.

The same-input additive rule provides a narrower test of the aggregation architecture. It retains the MAR component, common-inflation measure, inflation horizon, coefficients, employment safeguard, initial condition, rate bounds, and quarterly adjustment limit used by MAR-IFS. It differs only by adding the inflation-gap response to the monetary prescription instead of selecting the stronger indication. Differences between the two paths therefore isolate the consequences of max rather than additive aggregation. When one component is weak, the comparison shows the extent to which addition permits offsetting. When both components are positive, it shows the extent to which addition accumulates potentially overlapping indications of nominal pressure.

Historical proximity to the observed quarterly federal funds rate is summarized using mean absolute error and root mean squared error. The first observation initializes the recursive paths and is excluded from these calculations. The full-sample statistics are therefore calculated over the 81 evaluated quarters from 2006Q2 through 2026Q2. These measures describe historical proximity and do not evaluate policy welfare, establish forecasting performance, or identify an optimal policy rule. A specification that closely tracks the observed federal funds rate may also reproduce historical policy delays or errors.

The principal evaluation concerns the timing and magnitude of the normalization signal, the identity of the binding MAR-IFS component, sensitivity to the inflation horizon, and differences between sequential and additive aggregation. Robustness is examined by varying the inflation-response coefficient, decomposing descriptive fit across subsamples, replacing fixed equal weights with recursively estimated inverse-variance weights, and varying the monetary-response and partial-adjustment parameters. Partial adjustment is consistent with the broader literature on interest-rate smoothing, in which gradual policy adjustment may reflect uncertainty, expectations management, and concern about disruptive instrument movements (Sack and Wieland, 2000). The coefficient used here is calibrated rather than estimated. These exercises assess whether the principal findings depend on the baseline inflation measure, parameter calibration, or evaluation period. The inverse-variance specification follows the general principle that relatively less variable signals receive greater combination weights (Bates and Granger, 1969). It is used here as a robustness benchmark rather than as an estimated optimal measure of inflation.

## 4. Results

### 4.1 Historical Policy Signals

Figure 1 reports the short-run policy prescriptions from 2020Q1 through 2026Q2. Common inflation is measured as the fixed equal-weighted average of headline CPI, core CPI, headline PCE, and core PCE inflation. MAR-IFS is compared with the same-input additive rule, the matched Taylor benchmark, and the observed federal funds rate.

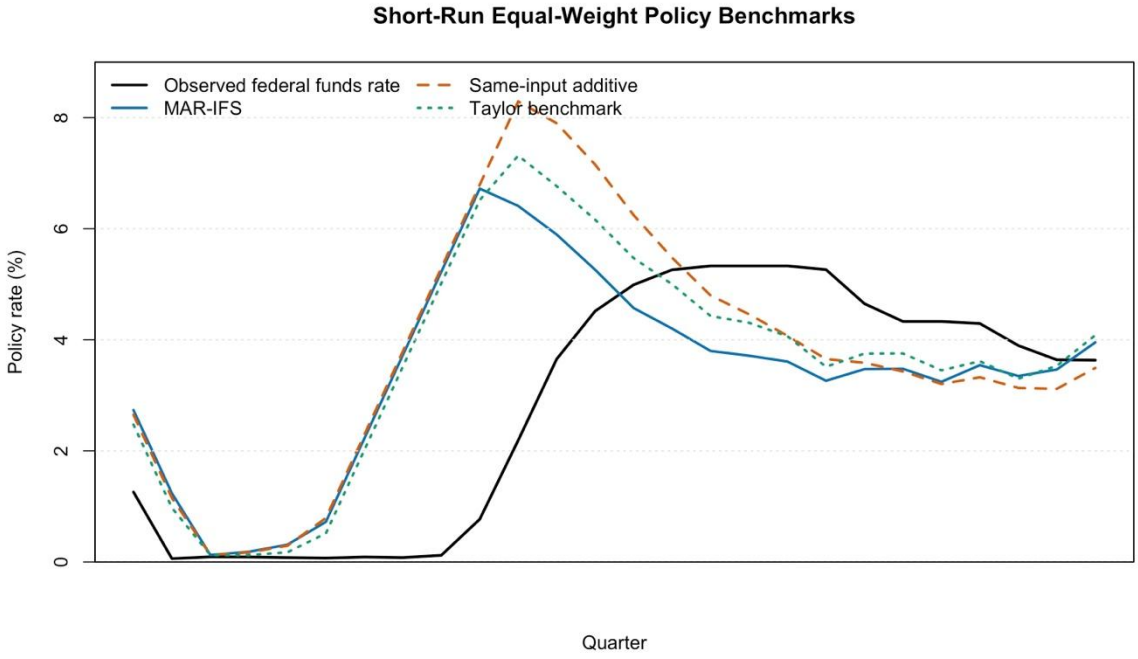



**Figure 1. Short-Run Equal-Weight Policy Benchmarks**

***Notes:*** *The black line reports the quarterly average federal funds rate. All three policy benchmarks use the same equal-weighted common-inflation measure, inflation-response coefficient, initial condition, rate bounds, employment safeguard, and maximum quarterly adjustment. MAR-IFS and the same-input additive rule also use the same monetary-absorption component.*

The employment safeguard moves the prescriptions toward the effective lower bound during the initial COVID-19 contraction. As unemployment returns toward its natural-rate benchmark, common inflation becomes increasingly important in determining the policy prescription. Natural-rate estimates are uncertain and subject to revision, which makes policy prescriptions based on point estimates of labor-market slack potentially fragile (Orphanides and Williams, 2002). The 0.50-percentage-point threshold therefore functions as a safeguard against small estimated gaps rather than as a claim that the natural rate is measured precisely. All three policy architectures indicate a substantial withdrawal of accommodation by late 2021. The short-run MAR-IFS prescription reaches 3.722% in 2021Q4, compared with an observed quarterly federal funds rate of 0.080%, and exceeds 4% in 2022Q1. The same-input additive and Taylor benchmarks reach the same thresholds. The late-2021 normalization result therefore does not depend on the MAR-IFS aggregation structure alone.

MAR-IFS reaches a maximum of 6.722% in 2022Q2. The same-input additive rule reaches 8.291% in 2022Q3, while the Taylor benchmark reaches 7.316% in the same quarter. The higher additive peak results from accumulating the monetary and inflation terms when both indicate tighter policy. MAR-IFS instead selects the stronger indication. Across the 81 evaluated quarters from 2006Q2 through 2026Q2, following initialization in 2006Q1, MAR is the binding component in 55 quarters, while the common-inflation floor binds in 26 quarters. Neither component therefore permanently dominates the prescription; the binding component changes over time.

### 4.2 Inflation-Horizon Comparison

Figure 2 compares MAR-IFS prescriptions using current-quarter, trailing four-quarter, and trailing twelve-quarter common inflation.

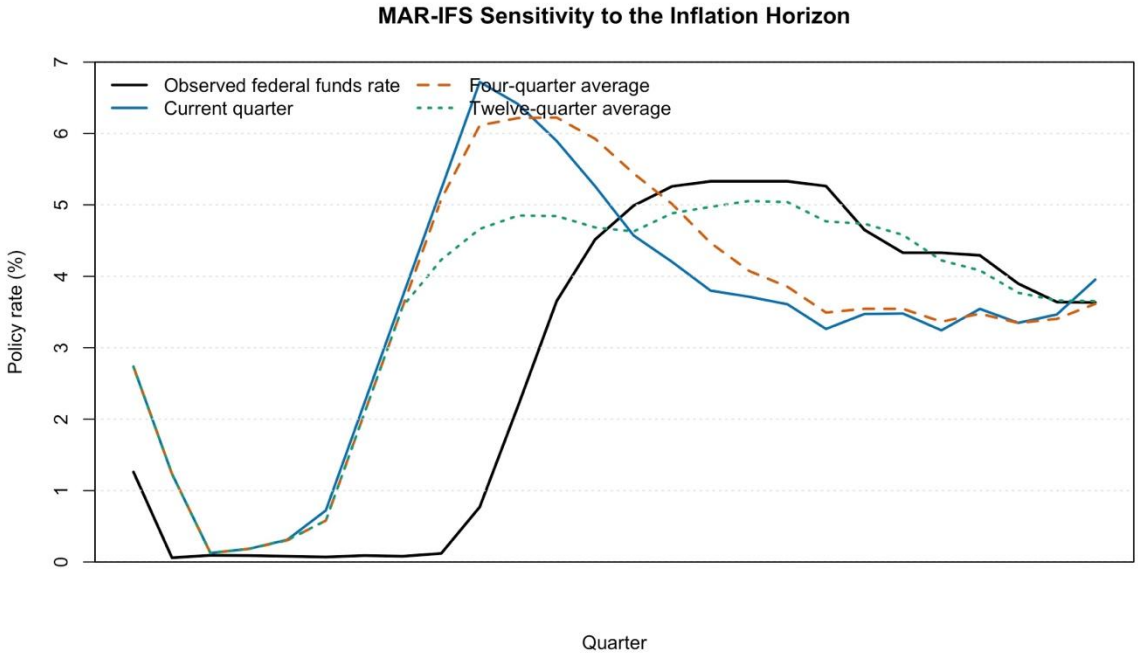



**Figure 2. MAR-IFS Sensitivity to the Inflation Horizon**

***Notes:*** *All three specifications use fixed equal-weighted common inflation. They differ only in the averaging horizon applied to common inflation.*

All three specifications first exceed 3% in 2021Q4 and 4% in 2022Q1. The inflation horizon therefore does not alter the initial normalization signal. It affects the magnitude and timing of the subsequent peak. The current-quarter specification responds most rapidly and reaches 6.722% in 2022Q2. The four-quarter specification reaches 6.222% in 2022Q4. The twelve-quarter specification follows a smoother path and reaches a lower maximum of 5.055% in 2024Q1. The current-quarter specification has an MAE of 1.143 and an RMSE of 1.635. The corresponding values decline to 1.100 and 1.581 under the four-quarter specification and to 0.929 and 1.381 under the twelve-quarter specification. The longer averaging horizon therefore produces a smoother policy path that is closer to the historical federal funds rate. These descriptive errors do not establish that the longer-horizon prescription is optimal.

### 4.3 Monetary Absorption and Velocity Recovery

Figure 3 separates the two variables that determine the monetary contribution to MAR: monetary absorption $A_t$ and the velocity-recovery weight $p_t^V$. The distinction is important because a large monetary overhang does not by itself produce a proportionately large policy response. Its contribution depends on whether velocity is recovering.

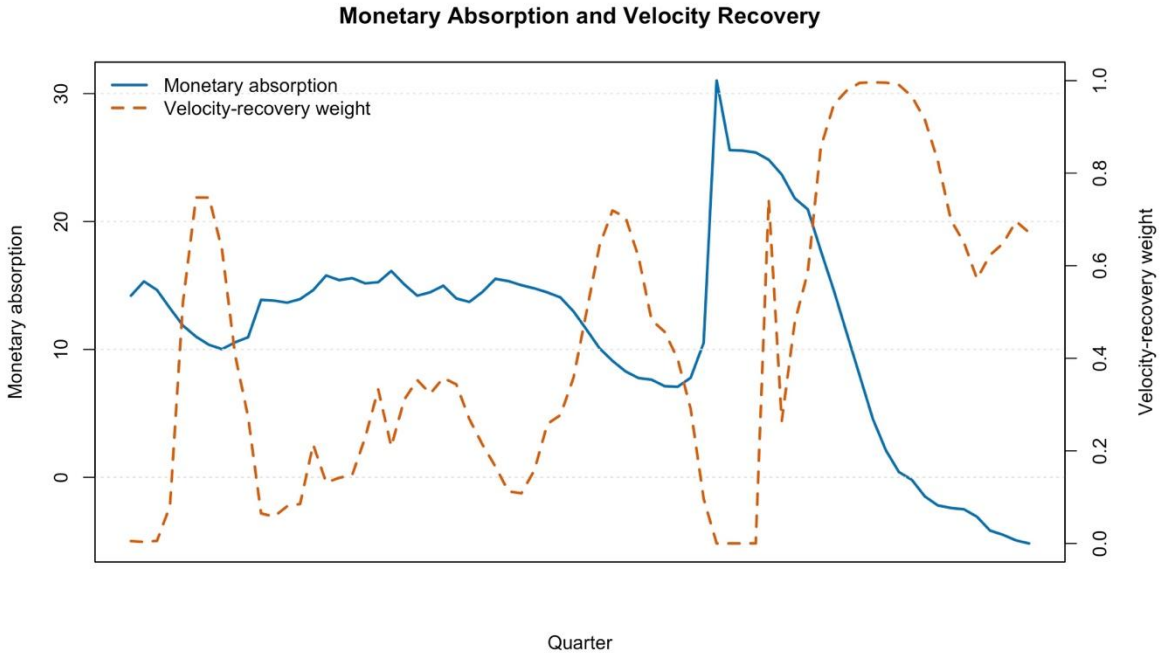



**Figure 3. Monetary Absorption and Velocity Recovery**

***Notes:*** *The solid line reports monetary absorption $A_t$, measured relative to the preceding 40-quarter average of log M2 velocity. The dashed line reports the velocity-recovery weight $p_t^V$, constructed from the four-quarter growth rate of M2 velocity. Monetary absorption is shown on the left axis and the recovery weight, bounded between zero and one, on the right axis. The plotted series cover 2006Q1 through 2026Q2.*

Monetary absorption increased sharply during the initial pandemic contraction, reaching 31.018 in 2020Q2 as M2 velocity fell to an exceptional low. The velocity-recovery weight, however, was effectively zero because four-quarter velocity growth was $-22.665\%$. Consequently, weighted monetary absorption, $A_t p_t^V$, was approximately zero. The monetary expansion therefore did not immediately translate into a large MAR tightening signal.
The interaction changed as velocity began to recover. In 2021Q2, monetary absorption remained elevated at 24.829, while the recovery weight increased to 0.744. Their product reached 18.467, its maximum during the policy simulation. The weight subsequently fell to 0.479 in 2021Q4 as velocity growth weakened, but monetary absorption remained high at 21.816. Weighted monetary absorption was therefore still 10.440. In 2022Q2, the recovery weight rose to 0.856 and weighted monetary absorption increased to 15.164. This interaction contributed to the higher monetary prescription during the normalization period.

The recovery weight approached one during 2023 as velocity growth strengthened. At the same time, however, monetary absorption declined rapidly as velocity moved back toward its trailing benchmark. Weighted monetary absorption consequently fell from 7.867 in 2023Q1 to 0.412 in 2023Q4. Monetary absorption became negative in 2024Q1 and reached $-5.174$ by 2026Q2. Although the recovery weight remained positive at 0.672, their product was $-3.476$. The monetary component therefore provided little support for a higher policy prescription at the end of the sample.

This pattern explains why the binding component of MAR-IFS changes over time. During the normalization period, elevated monetary absorption combined with recovering velocity and materially increased the MAR benchmark. By 2026Q2, the monetary contribution had

weakened, and the current-quarter common-inflation floor, rather than MAR, determined the final prescription. The figure therefore supports the model's distinction between accumulated monetary absorption and the subsequent velocity conditions under which that absorption becomes relevant for policy.

### 4.4 Comparison with Additive Policy Rules

Table 1 presents the MAR-IFS, same-input additive, and Taylor results across the three inflation horizons. Every entry is calculated using the same fixed equal-weighted common-inflation measure.

**[Table 1 about here]**

Taylor produces lower full-sample MAE and RMSE at every inflation horizon. Under the current-quarter specification, its RMSE is 1.417, compared with 1.635 for MAR-IFS. Under the twelve-quarter specification, the corresponding values are 1.081 and 1.381. MAR-IFS therefore does not outperform Taylor as a full-sample historical tracking model. The comparison is closer during the recent inflation episode. From 2020Q1 through 2026Q2, the current-quarter RMSE is 2.186 for MAR-IFS and 2.178 for Taylor, a difference of only 0.008 percentage point. The same-input additive rule has a higher RMSE of 2.476 over the same period.

The same-input additive comparison isolates the effect of aggregation because it retains the MAR component and changes only the max operator to addition. Under the current-quarter specification, the mean absolute difference between the MAR-IFS and additive paths is 0.288 percentage point, while the maximum same-quarter difference is 2.003 percentage points. For scale, the latter is equivalent to approximately eight conventional 25-basis-point policy increments. This comparison does not imply that eight additional policy actions would have occurred; it indicates that aggregation architecture alone can generate an economically substantial difference in the prescribed degree of restraint. The additive rule produces a higher prescription when the monetary and inflation signals are simultaneously positive. At the end of the sample, however, it produces a lower prescription because the weakened monetary component partially offsets the positive inflation indication.

The historical sample provides two empirical illustrations of these opposing aggregation effects. The first occurs during the 2022 tightening phase, when both the MAR benchmark and the common-inflation floor indicated restraint. Under the current-quarter specification, MAR-IFS selected the stronger of the two indications and reached its peak prescription of 6.722% in 2022Q2, while the same-input additive rule accumulated both positive indications and reached its own peak of 8.291% in 2022Q3. Because these peaks occurred in different quarters, their levels should not be interpreted as a same-quarter policy gap. The relevant same-quarter comparison is the maximum difference of 2.003 percentage points reported above. This episode illustrates the compounding effect of additive aggregation: when the monetary and inflation components move in the same direction and contain potentially overlapping information about nominal pressure, addition can produce a substantially higher prescription than max aggregation.

The second illustration occurs in 2026Q2, when the two signals diverge. Monetary absorption had fallen to −5.174, and its interaction with the velocity-recovery weight produced weighted monetary absorption of −3.476. The monetary component therefore provided little support for additional restraint, while current-quarter common inflation remained elevated at 3.442%.

MAR-IFS retained the stronger inflation indication and prescribed 3.954%. By contrast, the same-input additive rule allowed the weakened monetary component to offset part of the positive inflation indication and prescribed 3.494%, 0.460 percentage point below MAR-IFS. This episode illustrates the offsetting effect of additive aggregation: a weak or negative component can dilute a stronger policy indication even when broad inflation remains above the 2% objective.

Taken together, the two episodes demonstrate that aggregation architecture can affect prescriptions in either direction. When the signals move together, addition can compound potentially overlapping information and produce a higher prescription; when they diverge, it can allow a weak component to offset a stronger one. MAR-IFS is therefore neither mechanically more hawkish nor mechanically more dovish than its additive counterpart. Its max architecture retains the stronger pre-employment indication and makes the source of that prescription observable.

The Taylor comparison shows that the late-2021 normalization signal can also be obtained from a conventional additive inflation-and-activity rule. The contribution of MAR-IFS is therefore not the unique identification of normalization or superior historical fit. Its narrower contribution is to make aggregation architecture explicit: it prevents a weak signal from offsetting a stronger indication, limits the mechanical accumulation of potentially overlapping pressures, and identifies the binding policy component in each quarter. The two historical episodes demonstrate these properties using observed data without introducing arbitrarily calibrated hypothetical scenarios.

### 4.5 Current Policy Benchmark

In 2026Q2, current-quarter equal-weighted common inflation is 3.442%, compared with the 2% objective. The unemployment rate is 4.267%, below the CBO natural-rate estimate of 4.396%, so the employment safeguard is inactive. The MAR benchmark is 2.412%, while the current-quarter common-inflation floor is 3.954%. The inflation floor therefore binds, producing a short-run MAR-IFS prescription of 3.954%. The four-quarter MAR-IFS prescription is 3.615%, and the twelve-quarter prescription is 3.654%. The observed quarterly federal funds rate is 3.633%. The medium- and long-horizon prescriptions are therefore close to the observed rate, while the current-quarter specification is 0.320 percentage point higher.

The Taylor prescriptions are 4.083%, 3.744%, and 3.783% under the current-quarter, four-quarter, and twelve-quarter specifications. The corresponding same-input additive prescriptions are 3.494%, 3.155%, and 3.194%. Despite their different structures, the three policy architectures place the current policy rate within a range of approximately 3.2% to 4.1%. The current results support continued restraint but do not indicate a large additional increase. The exact prescription depends on the inflation horizon and aggregation structure, but the medium- and long-horizon MAR-IFS values are essentially aligned with the observed federal funds rate.

### 4.6 Calibration Robustness

The normalization result is also robust to changes in the inflation-response coefficient. Table 2 varies the coefficient between 0.50, 0.75, and 1.00 for the short-run MAR-IFS and Taylor specifications. All remaining inputs and implementation choices are unchanged.

**[Table 2 about here]**

Both rules prescribe rates above 3% in 2021Q4 under every calibration. The timing of normalization is therefore stable. The maximum and current prescriptions are more sensitive to the coefficient. Under MAR-IFS, the maximum rate increases from 5.578% at a coefficient of 0.50 to 7.573% at a coefficient of 1.00. The 2026Q2 prescription increases from 3.593% to 4.314%. Taylor displays the same directional response, with its maximum increasing from 6.385% to 8.084%. Taylor retains a lower full-sample RMSE under all three calibrations. Neither model's baseline coefficient should therefore be interpreted as an estimated optimum. The stable result is the indication of normalization by late 2021; the magnitude of the subsequent prescription remains calibration-dependent.

**5. Discussion**

MAR-IFS, the same-input additive rule, and the matched Taylor benchmark—nine specifications in total, spanning three policy architectures and three inflation horizons—all move above 3% in 2021Q4 and above 4% in 2022Q1. This shared timing is unsurprising: all nine specifications respond to the same broad rise in inflation under the same initial condition, employment safeguard, rate bounds, and adjustment limit. The models diverge only after normalization begins. Under the current-quarter specification, MAR-IFS peaks at 6.722% (2022Q2), Taylor at 7.316% (2022Q3), and the same-input additive rule at 8.291% (2022Q3); the additive rule cumulates simultaneous monetary and inflation pressure, while MAR-IFS retains only the stronger one.

The maximum 2.003-percentage-point difference between MAR-IFS and the same-input additive rule is economically substantial. For scale, it is approximately equivalent to eight conventional 25-basis-point policy increments. This comparison does not imply that the FOMC would have implemented eight additional rate increases, because the reported difference concerns alternative rule prescriptions rather than an estimated policy path. It nevertheless demonstrates that aggregation architecture can generate a difference large enough to alter the qualitative interpretation of the appropriate degree of restraint. When correlated monetary and inflation signals are mechanically added, the resulting prescription may appear to contain a stronger independent policy signal than either component alone supports.

This distinction also helps explain why Taylor provides a closer descriptive fit over the earlier part of the sample without materially changing the assessment of the recent inflation episode. Table 3 decomposes descriptive fit across the pre-2020, low-inflation, and recent subsamples. Taylor produces the lowest RMSE over both the pre-2020 period and the 2015-2019 low-inflation period. Its advantage narrows substantially after 2020. From 2020Q1 through 2026Q2, the RMSE is 2.178 percentage points for Taylor and 2.186 for MAR-IFS, a difference of less than 0.01 percentage point. The same-input additive rule records a higher RMSE of 2.476 percentage points over the same period. Taylor's superior earlier-period fit therefore does not translate into a materially different evaluation of the timing or overall direction of normalization during the recent inflation episode.

**[Table 3 about here]**

The fixed equal-weighted common-inflation measure is a transparent construction choice rather than an estimated optimum. Its sensitivity to alternative weighting therefore merits direct examination. Table 4 replaces the fixed weights with inverse-variance weights estimated recursively from the preceding 120 months, thereby avoiding look-ahead bias. By the end of the sample, the estimated weights are 0.145 for headline CPI, 0.289 for core CPI,

0.214 for headline PCE, and 0.352 for core PCE. The procedure consequently places greater weight on the less volatile core measures.

**[Table 4 about here]**

Despite the substantially unequal estimated weights, the resulting policy paths remain close to the fixed-weight benchmark. Under the current-quarter specification, the mean absolute path difference is 0.041 percentage point and the maximum difference is 0.390 percentage point. These differences decline to 0.030 and 0.300 under the four-quarter specification and to 0.021 and 0.188 under the twelve-quarter specification. The dynamic current-quarter prescription is 3.690% in 2021Q4 and 3.887% in 2026Q2, compared with fixed-weight prescriptions of 3.722% and 3.954% reported in Table 1. The corresponding differences are smaller under the four- and twelve-quarter specifications. Reweighting does not change the late-2021 normalization signal or the broader ordering of the results. Given the limited quantitative change and the additional complexity of recursively estimated weights, fixed equal weighting remains a defensible principal specification.

The conclusions are also insensitive to the calibration of the monetary-absorption component. Varying the absorption coefficient from 0.12 to 0.24 and the MAR partial-adjustment coefficient from 0.50 to 0.90, one at a time, leaves the 2021Q4, peak, and 2026Q2 prescriptions unchanged. Full-sample RMSE varies between 1.575 and 1.696, while recent-period RMSE remains between 2.172 and 2.190. This stability indicates that the common-inflation floor, rather than a narrowly selected monetary calibration, determines the prescription at the dates most central to the paper's conclusions.

In 2026Q2, the current-quarter MAR-IFS prescription is 3.954%, above the four-quarter and twelve-quarter prescriptions of 3.615% and 3.654%. The latter two are close to the observed federal funds rate of 3.633%. The unemployment rate is below its natural-rate benchmark, so the employment safeguard does not account for this difference. Instead, it arises from the averaging window applied to common inflation, which is 3.442% on a current-quarter basis in 2026Q2. The three prescriptions are therefore better interpreted as a diagnostic range of approximately 3.6%–4.0%, with the current-quarter specification providing a more responsive indication and the longer horizons providing smoother assessments of sustained inflation pressure.

The inflation-response sensitivity reported in Table 2 reinforces this interpretation. Raising the inflation-response coefficient from 0.50 to 1.00 leaves the late-2021 normalization signal essentially unchanged but increases the short-run MAR-IFS peak from 5.578% to 7.573% and the 2026Q2 prescription from 3.593% to 4.314%. The timing and direction of the signal are therefore comparatively robust, while its magnitude remains calibration-dependent.

Taken together, these checks support a deliberately narrow interpretation. MAR-IFS is neither a reaction-function forecast of Federal Reserve behavior nor a causal counterfactual. The historical prescriptions should not be interpreted as estimates of what inflation or employment would have been had the Federal Reserve followed MAR-IFS. Policy changes can alter expectations and private behavior, so the historical relationships used to construct a benchmark need not remain invariant under an alternative policy regime (Lucas, 1972). The exercise compares prescriptions under observed data; it does not simulate the general-equilibrium consequences of implementing those prescriptions. Its parameters are calibrated rather than estimated, and the pseudo-historical exercise applies current-vintage data to

earlier quarters rather than reconstructing real-time information sets. A lower RMSE indicates closer historical tracking, not economic optimality, and the comparison with Taylor confirms that MAR-IFS does not improve full-sample descriptive fit. Its contribution lies elsewhere. It identifies which pre-employment signal is binding in each quarter, prevents a weak indication from offsetting a stronger one, and avoids mechanically adding monetary and inflation pressures that may reflect overlapping nominal conditions. The same-input additive comparison shows that this architectural distinction remains economically meaningful even when the information set, coefficients, safeguard, and implementation assumptions are held constant.

The practical value of this decomposition is that it allows a policy analyst to report not only the rate prescribed by a benchmark but also the economic signal responsible for that prescription. A central-bank staff member, market participant, or policy-rule monitor can therefore distinguish a monetary-absorption signal from an inflation-floor signal and identify episodes in which an additive formulation may be amplifying overlapping information. MAR-IFS is thus best interpreted as a monitoring and attribution tool rather than as a replacement for judgment or a complete structural model of monetary policy.

## 6. Conclusion

*What policy rate is indicated when inflation, monetary conditions, and employment provide conflicting signals?* MAR-IFS addresses this question through a sequential policy architecture. Monetary absorption establishes a baseline prescription from the velocity-adjusted monetary environment, while a fixed equal-weighted measure of headline CPI, core CPI, headline PCE, and core PCE inflation imposes a policy floor when inflation calls for greater restraint. An asymmetric employment safeguard subsequently moderates the prescription when unemployment materially exceeds its natural-rate benchmark. The max operator preserves the stronger pre-employment indication and identifies whether monetary absorption or common inflation is binding in each quarter. Over the 81 evaluated quarters from 2006Q2 through 2026Q2, following initialization in 2006Q1, monetary absorption is the binding component in 55 quarters and the common-inflation floor in 26 quarters. The two components therefore alternate in dominance over time rather than one permanently governing the prescription.

Using current-vintage data in a pseudo-historical exercise, MAR-IFS indicates that effective-lower-bound accommodation had become inconsistent with observed conditions by late 2021. The current-quarter, four-quarter, and twelve-quarter specifications all first exceed 3% in 2021Q4 and 4% in 2022Q1. The inflation horizon does not alter the timing of the initial normalization signal, but it materially affects the magnitude and timing of the subsequent peak. The current-quarter specification reaches 6.722% in 2022Q2, the four-quarter specification reaches 6.222% in 2022Q4, and the twelve-quarter specification reaches 5.055% in 2024Q1.

The comparisons with additive alternatives clarify both the contribution and the limits of MAR-IFS. The Taylor benchmark produces the lowest full-sample descriptive errors at every inflation horizon, showing that MAR-IFS does not provide a superior historical approximation to the observed federal funds rate. During the period from 2020Q1 through 2026Q2, however, the short-run RMSEs of MAR-IFS and Taylor are nearly identical, at 2.186 and 2.178 percentage points, respectively. The late-2021 normalization signal is therefore not unique to MAR-IFS, but neither is it an artifact of its monetary-absorption component.

The same-input additive comparison provides a more direct assessment of the aggregation architecture. Holding the information set, coefficients, employment safeguard, initial condition, rate bounds, and quarterly adjustment limit constant, the additive rule reaches 8.291% in 2022Q3, compared with the MAR-IFS peak of 6.722% in 2022Q2; the mean absolute difference between the two paths is 0.288 percentage point and the maximum difference is 2.003 percentage points. When monetary and inflation signals are simultaneously positive, addition mechanically accumulates both pressures, whereas MAR-IFS selects the stronger indication. In 2026Q2, the ordering reverses: the additive rule prescribes 3.494%, compared with 3.954% under MAR-IFS, because its weaker monetary component partly offsets the positive inflation indication. Sequential and additive aggregation therefore produce economically different prescriptions when policy signals overlap or diverge.

In 2026Q2, the four-quarter and twelve-quarter MAR-IFS prescriptions are 3.615% and 3.654%, compared with an observed quarterly federal funds rate of 3.633%. The current-quarter prescription is higher, at 3.954%, reflecting its greater sensitivity to recent inflation. These results support continued restraint but do not indicate a large additional increase. Sensitivity analysis over an inflation-response coefficient ranging from 0.50 to 1.00 confirms that the timing of the late-2021 normalization signal is stable across calibrations, even though the magnitude of the subsequent prescription is not. The precise level therefore remains dependent on the inflation horizon, the inflation-response coefficient, and the aggregation architecture.

MAR-IFS provides a transparent monitoring and attribution framework for periods in which monetary conditions, broad inflation, and employment do not convey identical policy signals. Its max architecture identifies whether monetary absorption or common inflation is constraining the prescription, prevents a weak signal from offsetting a stronger indication, and limits the mechanical accumulation of overlapping nominal information. These properties make the framework useful for policymakers, market participants, and researchers who compare rule-based prescriptions but also need to understand the economic source of those prescriptions. The post-pandemic exercise demonstrates that aggregation is not merely a technical implementation choice: under otherwise identical information and calibrations, it can materially alter both the level and interpretation of the prescribed policy rate.

**Appendix A. Recursive Implementation**

The policy simulations follow a common quarterly sequence. Monetary absorption and velocity recovery first determine the raw MAR prescription in Equation (3). Partial adjustment then produces the MAR benchmark in Equation (4). The common-inflation floor is calculated separately for each inflation horizon using Equation (5). MAR-IFS selects the largest of the effective lower bound, the MAR benchmark, and the common-inflation floor before applying the employment safeguard.

The baseline calibration sets

$$r^* = 0.50,\ \pi^* = 2.00,\ \kappa_A = 0.18,\ \lambda_\pi = 0.75,\ \lambda_u = 0.50,$$
$$\psi = 2.00,\ c_u = 0.50,\ \rho_{MAR} = 0.75.$$

The effective lower bound is 0.125%, the upper bound is 15%, and the maximum quarterly change is 1.50 percentage points. The coefficient $\rho_{MAR}$ is the weight assigned to the previous quarter's MAR benchmark in Equation (4).

After application of the employment safeguard, the MAR-IFS prescription is subject to the rate bounds and quarterly adjustment limit:

$$i_{t,h}^{final} = \min\{15,\ \max[0.125, i_{t-1,h}^{final} - 1.50, \min\{i_{t,h}^{MAR\text{-}IFS}, i_{t-1,h}^{final} + 1.50\}\ ]\} \qquad \text{(A1)}$$

Equation (A1) restricts the final prescription to the interval from 0.125% to 15% and limits its change to 1.50 percentage points in either direction per quarter. The employment safeguard is applied before these restrictions.

The same-input additive comparator replaces the max aggregation in Equation (6) with

$$i_{t,h}^{ADD,pre} = \max\{i^{ELB}, i_t^{MAR} + \lambda_\pi(\bar{\pi}_{t,h} - \pi^*)\} \qquad \text{(A2)}$$

The same asymmetric employment safeguard is then applied:

$$i_{t,h}^{ADD} = i^{ELB} + (i_{t,h}^{ADD,pre} - i^{ELB}) \exp[-\psi \max\{0, u_t - u_t^* - c_u\}] \qquad \text{(A3)}$$

The rate bounds and quarterly adjustment limit in Equation (A1) are subsequently applied to $i_{t,h}^{ADD}$. The additive comparator therefore uses the same monetary component, common-inflation measure, coefficients, employment safeguard, and implementation assumptions as MAR-IFS. Differences between the two paths arise from adding the inflation-gap response to the MAR benchmark rather than selecting the stronger of the monetary and inflation indications.

For the Taylor benchmark, Equation (9) is first used to calculate the additive inflation-and-activity prescription. The same asymmetric employment safeguard is then applied to that prescription, followed by the rate bounds and quarterly adjustment limit in Equation (A1). The Taylor benchmark consequently shares the inflation measure, inflation horizon, neutral-rate assumption, inflation-response coefficient, employment safeguard, initial condition, and implementation constraints used by MAR-IFS, but it contains no monetary-absorption component.

The simulation begins in 2006Q1. The initial MAR benchmark and the initial final prescription for each rule are set equal to the observed quarterly federal funds rate in that quarter. Subsequent prescriptions are calculated recursively. Historical-fit statistics exclude the initialized observation and are calculated over the 81 quarters from 2006Q2 through 2026Q2.

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**Table 1. Equal-Weight Policy-Rule Results**

| Inflation signal | Rule | 2021Q4 | First 3% | First 4% | Maximum | Maximum quarter | MAE | RMSE | 2026Q2 |
|---|---|---|---|---|---|---|---|---|---|
| Current quarter | MAR-IFS | 3.722 | 2021Q4 | 2022Q1 | 6.722 | 2022Q2 | 1.143 | 1.635 | 3.954 |
| Current quarter | Same-input additive | 3.791 | 2021Q4 | 2022Q1 | 8.291 | 2022Q3 | 1.106 | 1.675 | 3.494 |
| Current quarter | Taylor | 3.514 | 2021Q4 | 2022Q1 | 7.316 | 2022Q3 | 0.876 | 1.417 | 4.083 |
| Four-quarter average | MAR-IFS | 3.580 | 2021Q4 | 2022Q1 | 6.222 | 2022Q4 | 1.100 | 1.581 | 3.615 |
| Four-quarter average | Same-input additive | 3.595 | 2021Q4 | 2022Q1 | 8.226 | 2022Q4 | 1.089 | 1.651 | 3.155 |
| Four-quarter average | Taylor | 3.318 | 2021Q4 | 2022Q1 | 7.122 | 2022Q3 | 0.852 | 1.374 | 3.744 |
| Twelve-quarter average | MAR-IFS | 3.580 | 2021Q4 | 2022Q1 | 5.055 | 2024Q1 | 0.929 | 1.381 | 3.654 |
| Twelve-quarter average | Same-input additive | 3.568 | 2021Q4 | 2022Q1 | 6.358 | 2023Q1 | 0.923 | 1.381 | 3.194 |
| Twelve-quarter average | Taylor | 3.292 | 2021Q4 | 2022Q1 | 5.681 | 2023Q3 | 0.688 | 1.081 | 3.783 |

***Notes**: Rates and error measures are expressed in percentage points. All specifications use the fixed equal-weighted measure of common inflation. MAE and RMSE measure descriptive proximity to the observed quarterly federal funds rate and do not measure policy welfare or optimality. They are calculated over the 81 quarters from 2006Q2 through 2026Q2, excluding the initialized observation in 2006Q1.*

**Table 2. Short-Run Inflation-Response Sensitivity**

| Inflation-response coefficient | Rule | 2021Q4 | Maximum | Maximum quarter | MAE | RMSE | 2026Q2 |
|---|---|---|---|---|---|---|---|
| 0.5 | MAR-IFS | 3.651 | 5.578 | 2022Q2 | 1.107 | 1.551 | 3.593 |
| 0.5 | Taylor | 3.444 | 6.385 | 2022Q2 | 0.894 | 1.366 | 3.722 |
| 0.75 | MAR-IFS | 3.722 | 6.722 | 2022Q2 | 1.143 | 1.635 | 3.954 |
| 0.75 | Taylor | 3.514 | 7.316 | 2022Q3 | 0.876 | 1.417 | 4.083 |
| 1 | MAR-IFS | 3.792 | 7.573 | 2022Q3 | 1.162 | 1.697 | 4.314 |
| 1 | Taylor | 3.584 | 8.084 | 2022Q3 | 0.871 | 1.486 | 4.444 |

***Notes:*** *The sensitivity analysis changes only the inflation-response coefficient. All models use current-quarter fixed equal-weighted common inflation.*

**Table 3. Subsample Fit of Short-Run Policy Rules**

| Rule | Pre-2020 RMSE (2006Q2-2019Q4) | Low-inflation RMSE (2015Q1-2019Q4) | Recent-period MAE (2020Q1-2026Q2) | Recent-period RMSE (2020Q1-2026Q2) |
|---|---|---|---|---|
| MAR-IFS | 1.315 | 1.932 | 1.575 | 2.186 |
| Same-input additive | 1.135 | 1.655 | 1.725 | 2.476 |
| Taylor | 0.865 | 1.15 | 1.48 | 2.178 |

***Notes:*** *All specifications use current-quarter fixed equal-weighted common inflation and the baseline inflation-response coefficient of 0.75. MAE and RMSE are expressed in percentage points and measure descriptive proximity to the observed quarterly federal funds rate. The pre-2020 subsample covers 2006Q2–2019Q4 and excludes the initialized observation in 2006Q1. The low-inflation subsample covers 2015Q1–2019Q4, and the recent period covers 2020Q1–2026Q2.*

**Table 4. Robustness to Time-Varying Inflation Weights**

| Inflation horizon | Fixed MAE | Dynamic MAE | Fixed RMSE | Dynamic RMSE | Mean absolute path difference | Maximum absolute path difference | Dynamic rate in 2021Q4 | Dynamic rate in 2026Q2 |
|---|---|---|---|---|---|---|---|---|
| Current quarter | 1.143 | 1.118 | 1.635 | 1.600 | 0.041 | 0.390 | 3.690 | 3.887 |
| Four-quarter average | 1.100 | 1.080 | 1.581 | 1.547 | 0.030 | 0.300 | 3.580 | 3.606 |
| Twelve-quarter average | 0.929 | 0.938 | 1.381 | 1.383 | 0.021 | 0.188 | 3.580 | 3.678 |

***Notes:*** *The fixed specification assigns a weight of 25% to each of headline CPI, core CPI, headline PCE, and core PCE inflation. The dynamic specification uses inverse-variance weights estimated recursively from the preceding 120 months. Mean and maximum absolute path differences report the absolute differences between the corresponding fixed- and dynamic-weight MAR-IFS paths. MAE, RMSE, policy rates, and path differences are expressed in percentage points. Fit statistics are calculated over the 81 quarters from 2006Q2 through 2026Q2, excluding the initialized observation in 2006Q1.*