Monetary Aggregates Still Matter

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Introduction

Reflecting strong aggregate demand, high nominal GDP growth in 2021-2022 was followed by high inflation

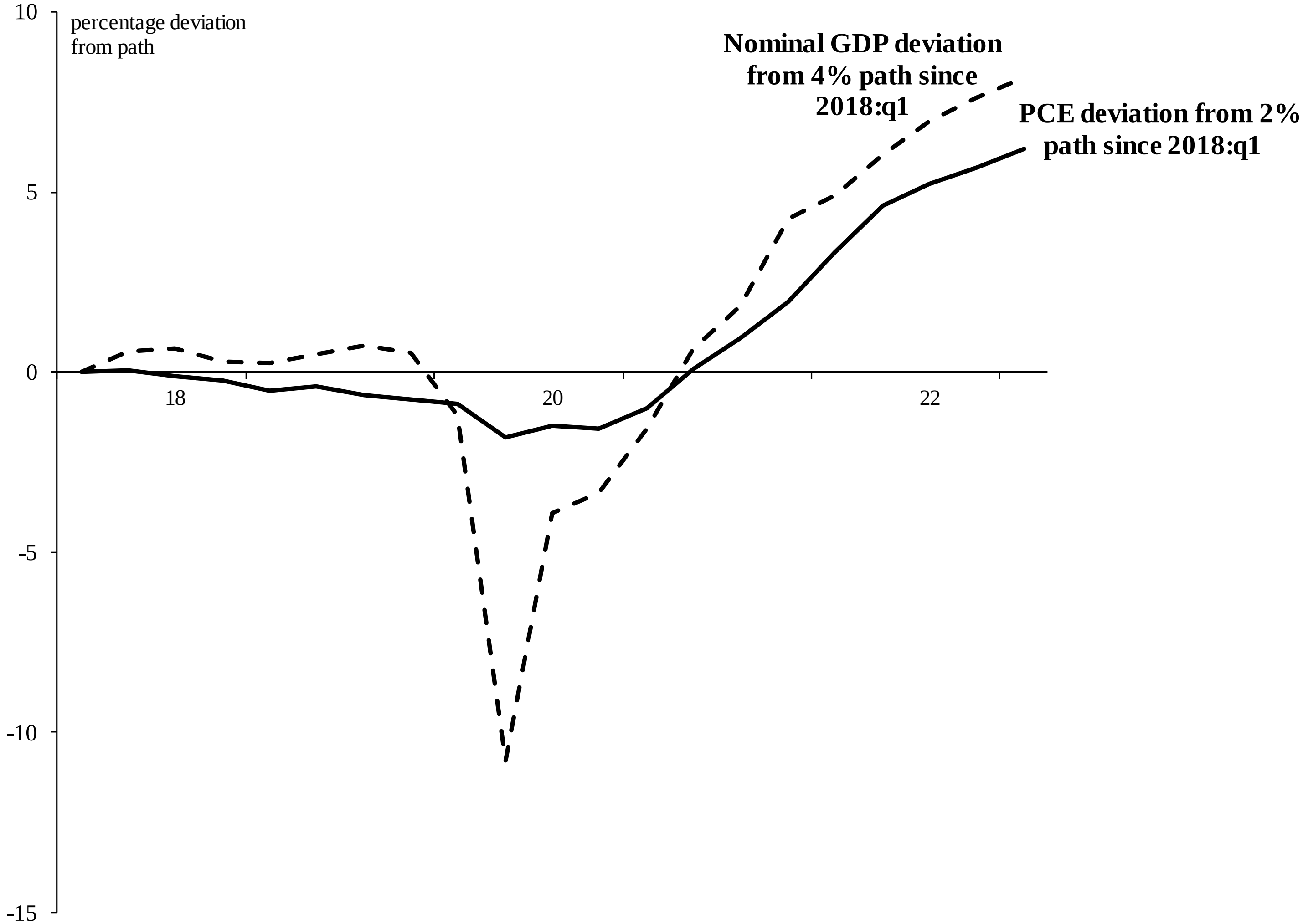

Figure 1: Above 4 % Nominal GDP Growth Linked to Above 2% Inflation
(Deviations from Hypothetical Target Paths Sources: BEA and authors' calculations)

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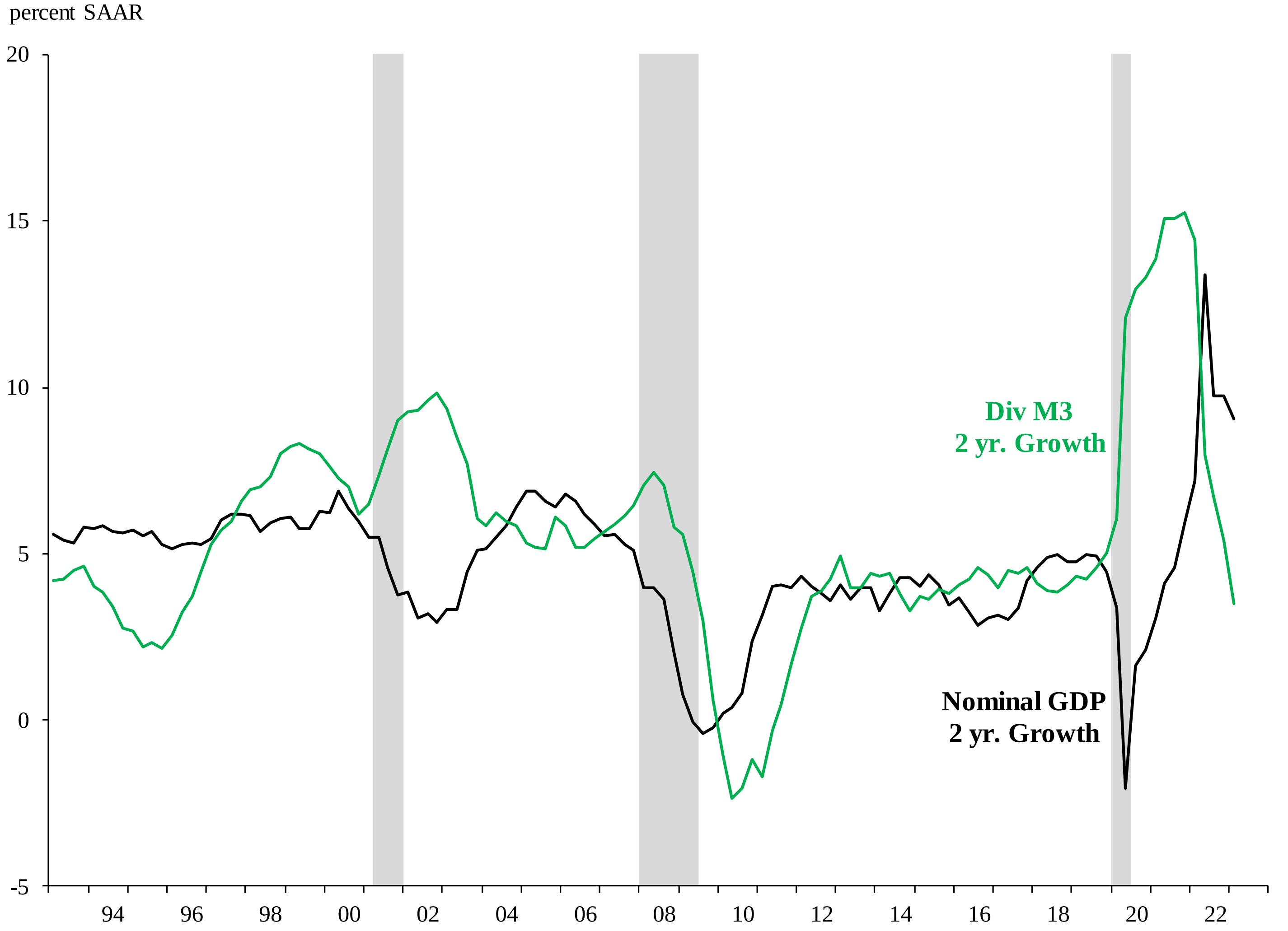

Figure 2: Broad Divisia Money and Nominal GDP Growth

(Sources: Center for Financial Stability, Federal Reserve, and authors' calculations.)

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Instability in demand for simple-sum money aggregates made them unreliable, why inflation surprised many after rapid money growth.

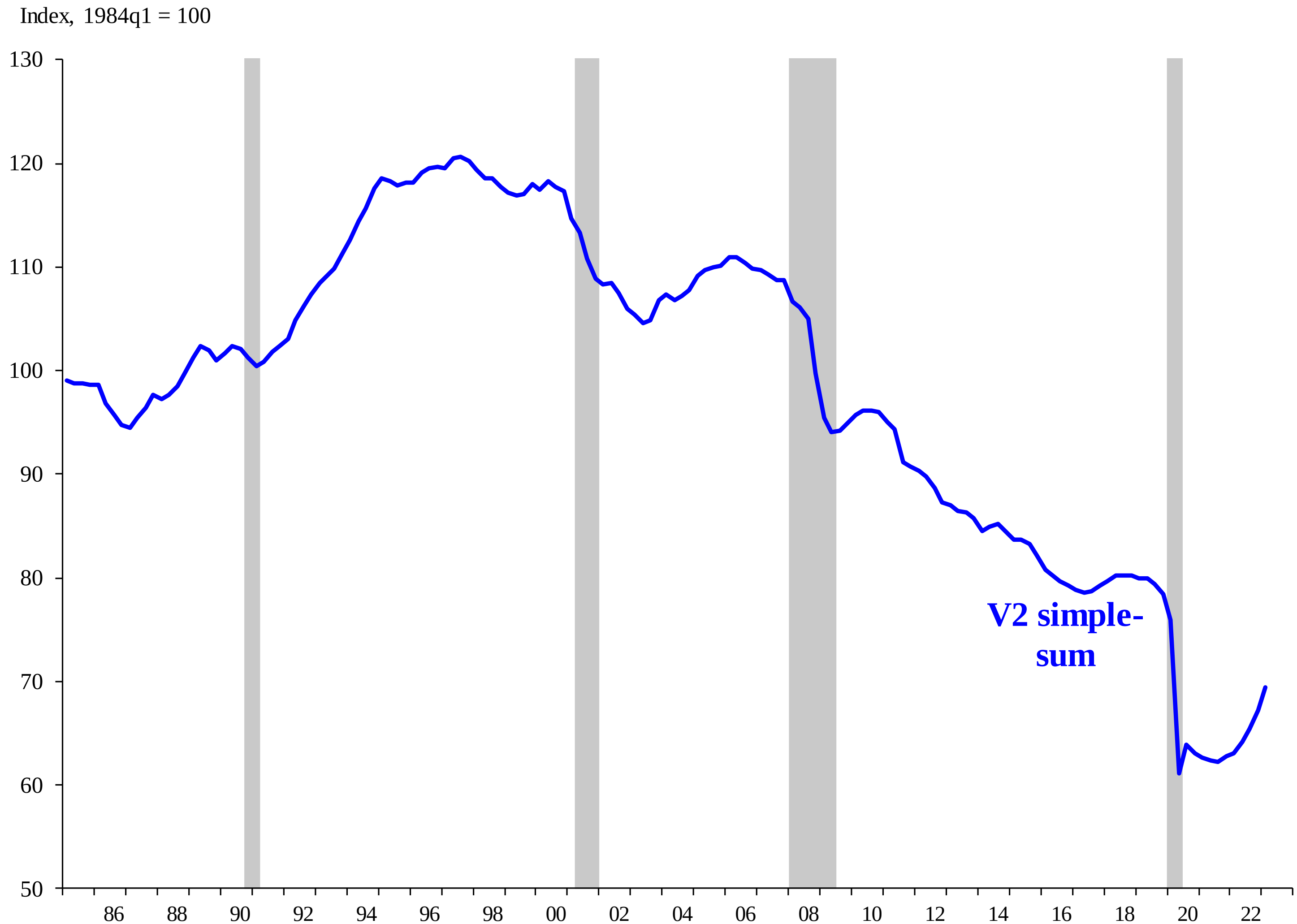

Figure 3: Since early 1990s, the Velocity of Simple-Sum M2 Very Unstable

(Sources: CFS, Federal Reserve, and authors' calculations. Shaded areas are NBER recessions.)

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Divisia M better than simple-sum M's. We improve short- & long-run models of demand for Div M3, which is reasonably stable.

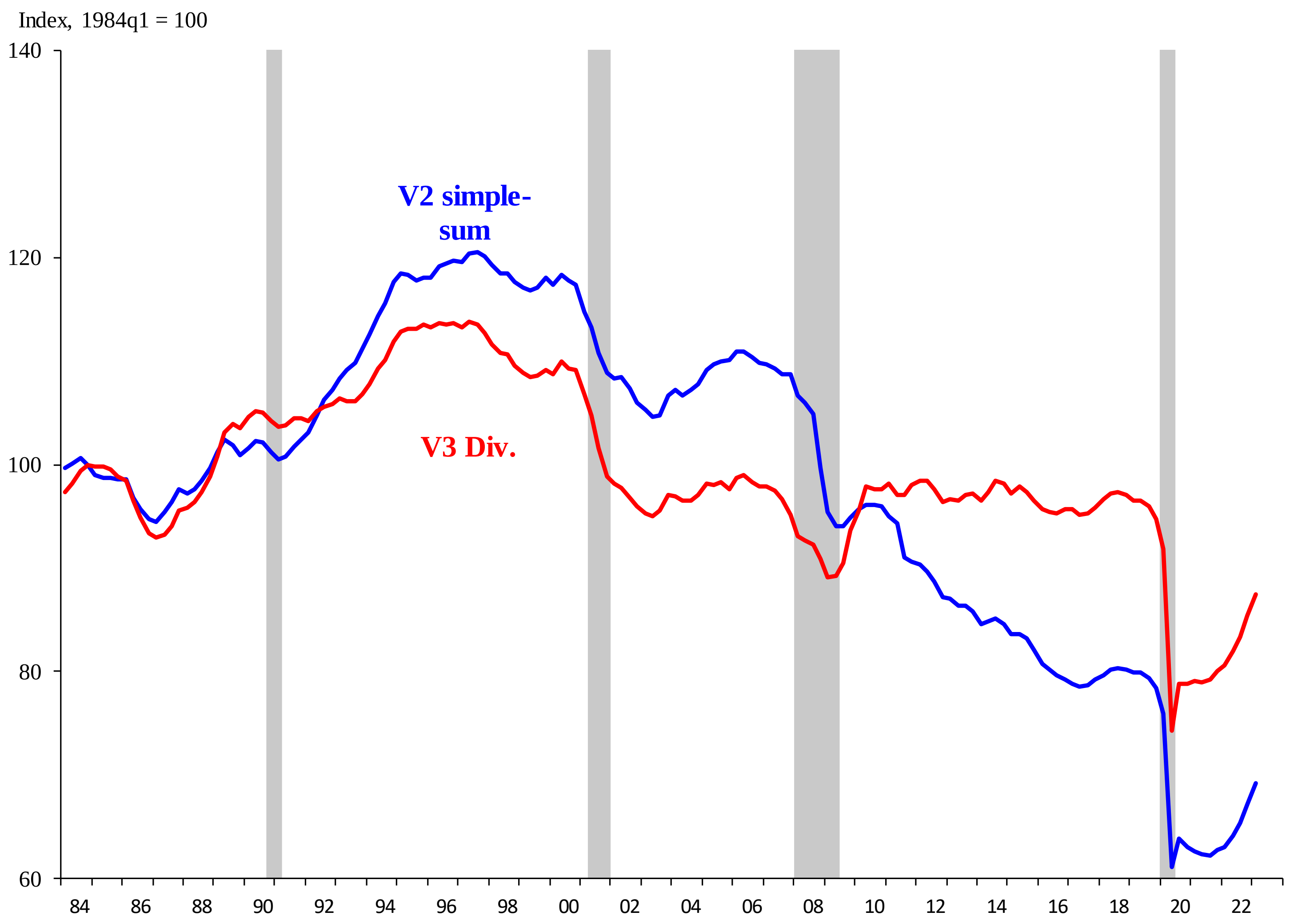

Figure 4: Since the mid-1980s, the Velocity of Broader Divisia Money (M3) Is More Stable than that of Simple-Sum M2

(Sources: CFS, Federal Reserve, and authors' calculations. Shaded areas are NBER recessions.)

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Velocity (V3 = GDP/M3) fell in GFC as uncertainty raised M^D, then recovered; V3 fell in pandemic, now recovering.

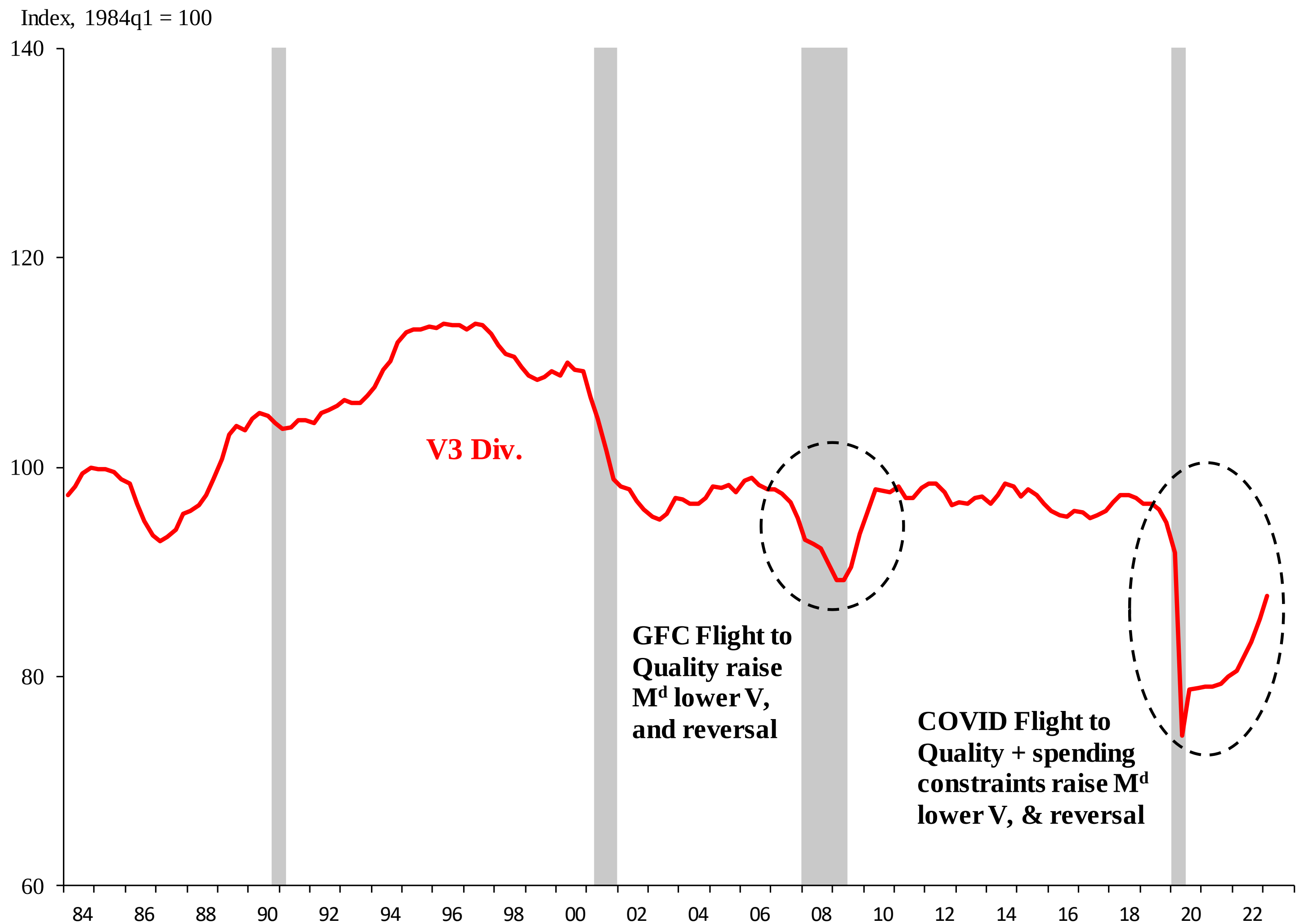

Figure 5: Since the mid-1980s, the Velocity of Broader Divisia Money (M3) Has Trended Near Its Post-Deposit Deregulation Level of Late 1984

(Sources: CFS, Federal Reserve, and authors' calculations. Shaded areas are NBER recessions.)

Overview of Divisia Monetary Aggregates (indexes)

- Divisia treats the price of monetary services as the differential between the interest rates on a risk-free asset not providing monetary services and on a monetary asset providing services. One pays for M services by giving up this interest differential.
- As with any price, Divisia assumes that the marginal utilities of services provided are proportional to their user cost prices.
- The growth rate of a Divisia index = weighted avg of growth rates of components with weights = avg expenditure shares, where expenditure on each component = user cost x holdings. Simple sum M growth rates apply deposit shares as weights.
- Thus, growth in higher interest bearing M components gets less weight in calculating the growth rate of Divisia indexes, than in calculating the growth rate of simple-sum M's.

Model Divisia M3 Velocity, Then COVID Scenarios for Velocity and Implications for Nominal GDP

Velocity of Div M affected by new assets and financial engineering that alters the relative liquidity of illiquid assets vs. liquid Divisia M assets.

Broad Div M demand affected by changing liquidity of nonmoney stock assets associated with regulation and falling mutual fund transfer costs.

Div M demand rises (V falls) if mutual fund costs rise or if new laws make stocks more risky (CFMA derivative rules).

Also V fell during COVID restrictions that prevented spending, eased by vaccinations. Track COVID effects by Oxford Government Restrictions index x (1 – population share fully vaccinated).

Long-run velocity depends on mutual fund costs, derivative regulation, and medium-run pandemic effects. Short run changes reflect V moving toward its equilibrium long-run with some controls for flights to quality.

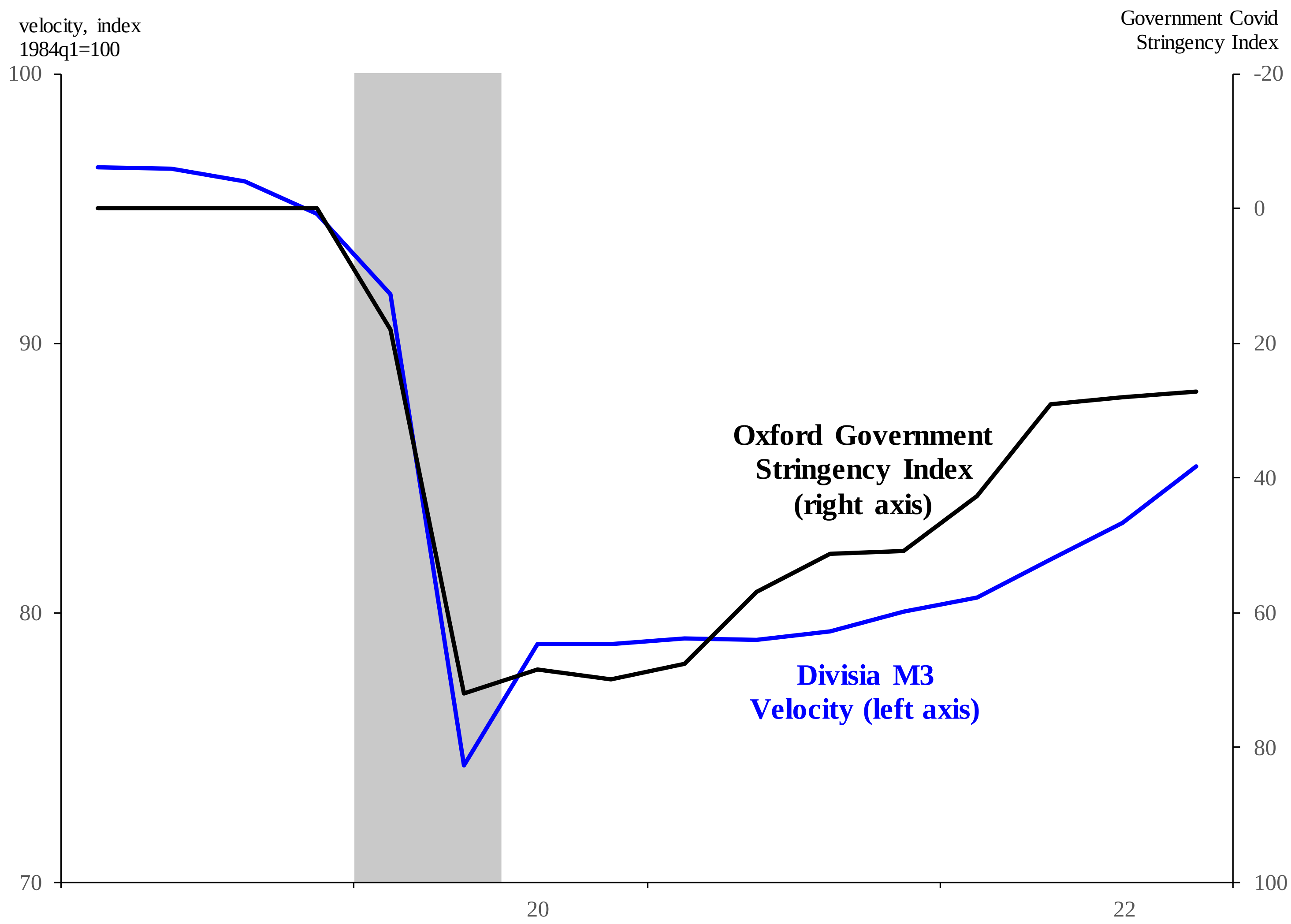

Figure 6: Velocity Affected by Government Restrictions in the COVID-19 Pandemic

(Sources: BEA, Federal Reserve, CFS, Oxford's Blavatnik Center, and authors' calculations)

Key Money Demand Results

Long-run model works well. Sensible, stable, and significant coefficients. Estimated equilibrium velocity (V) leads actual V by about 4-5 quarters.

Short-run models perform well. Short-run control coefficients are sensible and significant. Reasonable model fits and clean residuals. Div M3 model performs best of Divisia models.

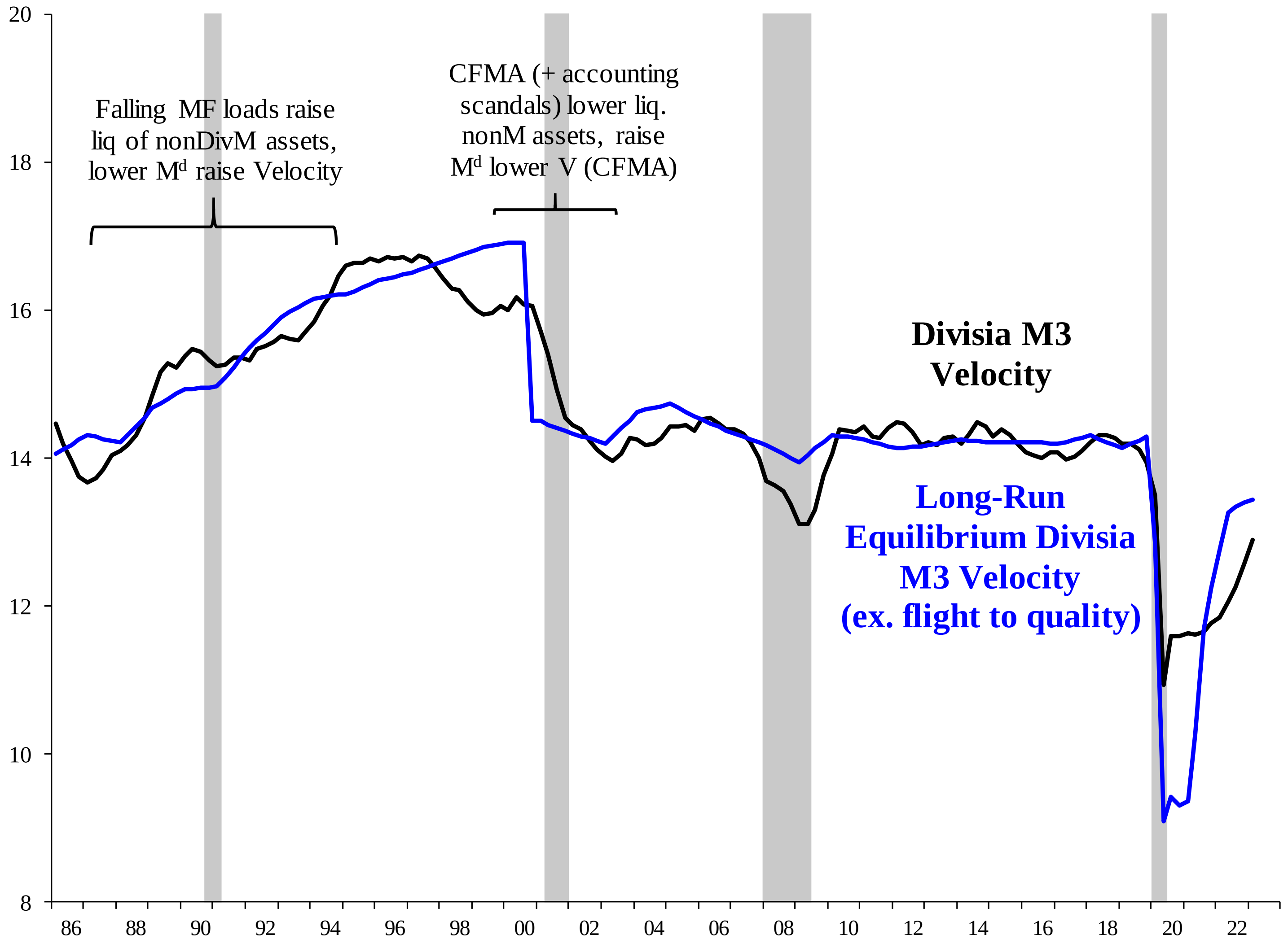

Figure 7: Covid-Adjusted Equilibrium Tracks Trends in Actual M3 Divisia Velocity

(Sources: BEA, CFS, and Authors' calculations. Shaded areas denote NBER recessions.)

Velocity Sensitive to COVID Effects: COVID Recovery Scenarios

- Uncertain how much velocity will recover from COVID in the end. Assess three paths: high, medium and low recovery.

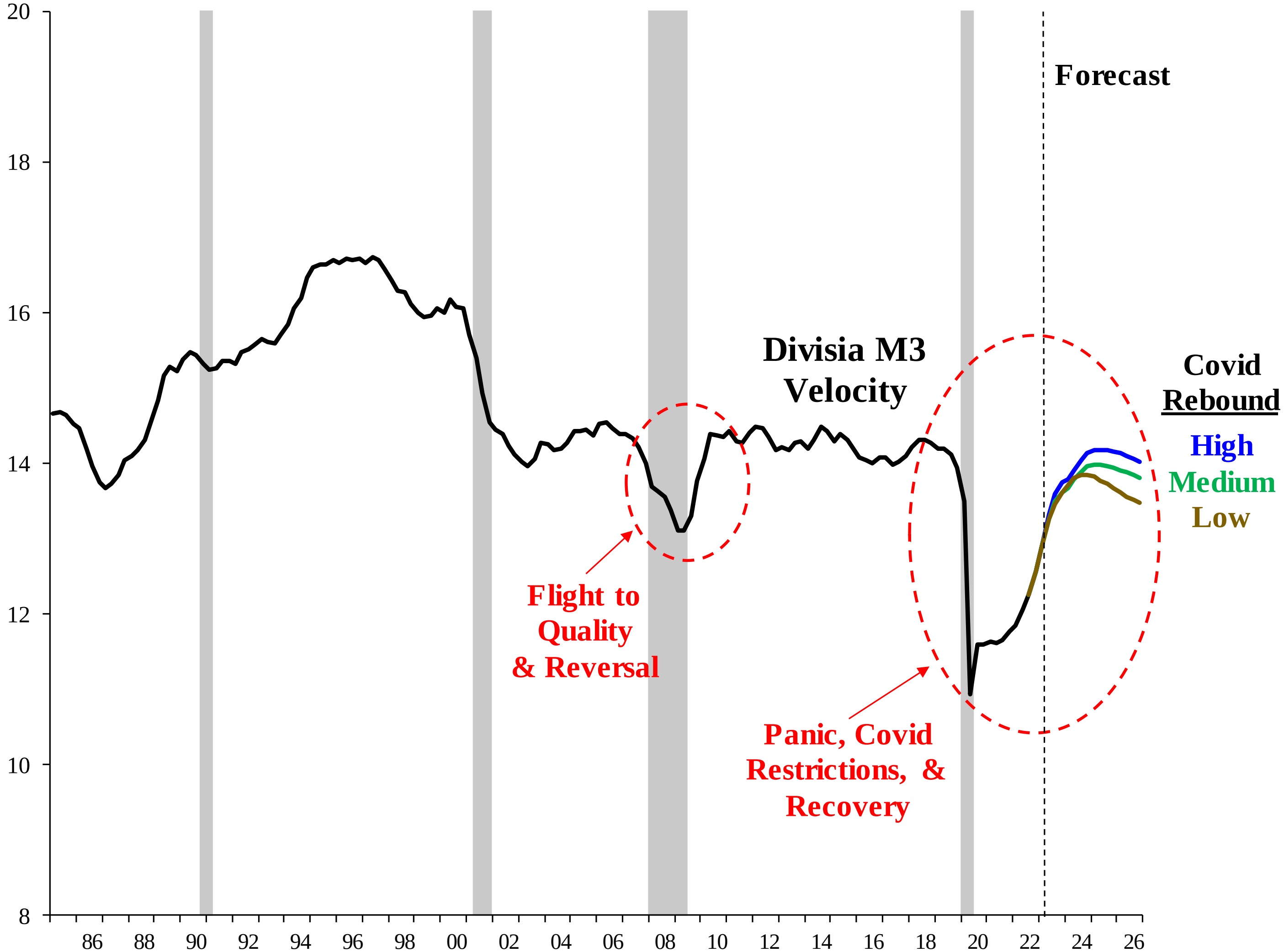

Figure 8: The Recovery of Divisia M3 Velocity Under Three COVID Scenarios

(Sources: CFS, BEA, Federal Reserve, and authors' calculations)

Using Divisia Velocity to Forecast Nominal Income Growth

- Uncertain how much velocity will recover from COVID in the end. Assess three paths: high, medium and low recovery.
- With the paths of velocity, given the growth rates of Div M3, we can then forecast the path of nominal GDP:

  Nom GDP = $V3^{forecast} \times M3^{path}$

- 3 M growth paths: reflecting 3 scenarios for when Fed policy stance returns to neutral (4% Div M3 growth => 4% NGDP).
- All scenarios assume -4% annualized growth ’23q1-’23q3
  - Modest: M flat in 2023q4, 4% 2024 & after (return to neutral 2024)
  - Slow: M flat 2023q4, 2% in ‘24, 4% in 2025 (return to neutral 2025)
  - Partial retrenchment: M flat in 2024 (sudden return to neutral 2025)
- Slow & modest paths => 3% - 5% nom GDP growth ‘24/’25
- Partial retrenchment => negative nom GDP growth late 2024
- All nominal GDP paths suggest a protracted return to the pre-Covid path.
- This reflects the interaction of money growth and the lagged recovery of velocity from the pandemic.
- This manifests the long and variable lagged effects of money, stressed by Friedman.

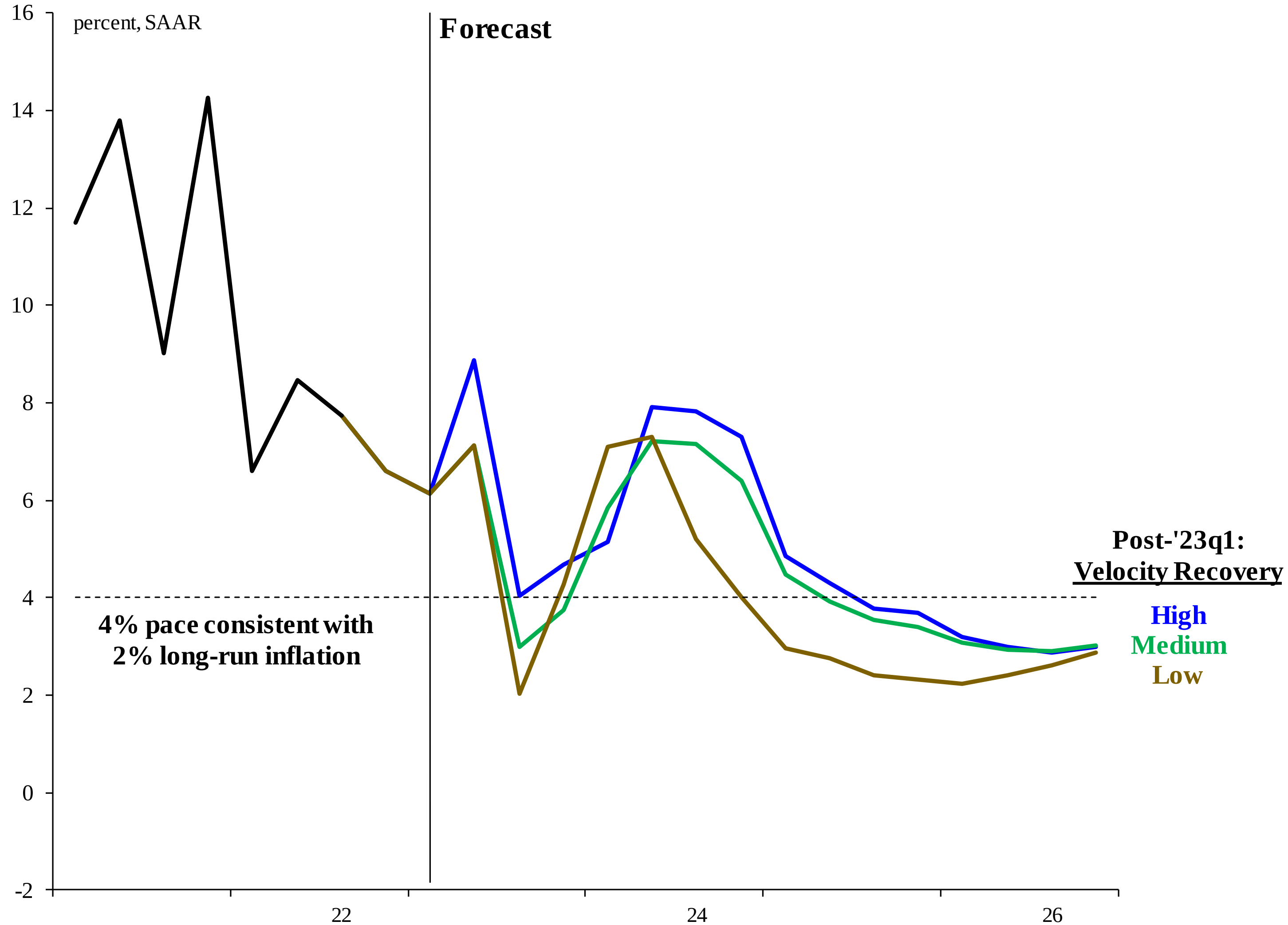

Figure 9: Nominal GDP Growth: Modest Divisia M3 Growth and Three Velocity Scenarios

(Sources: CFS, BEA, Federal Reserve, and authors' calculations)

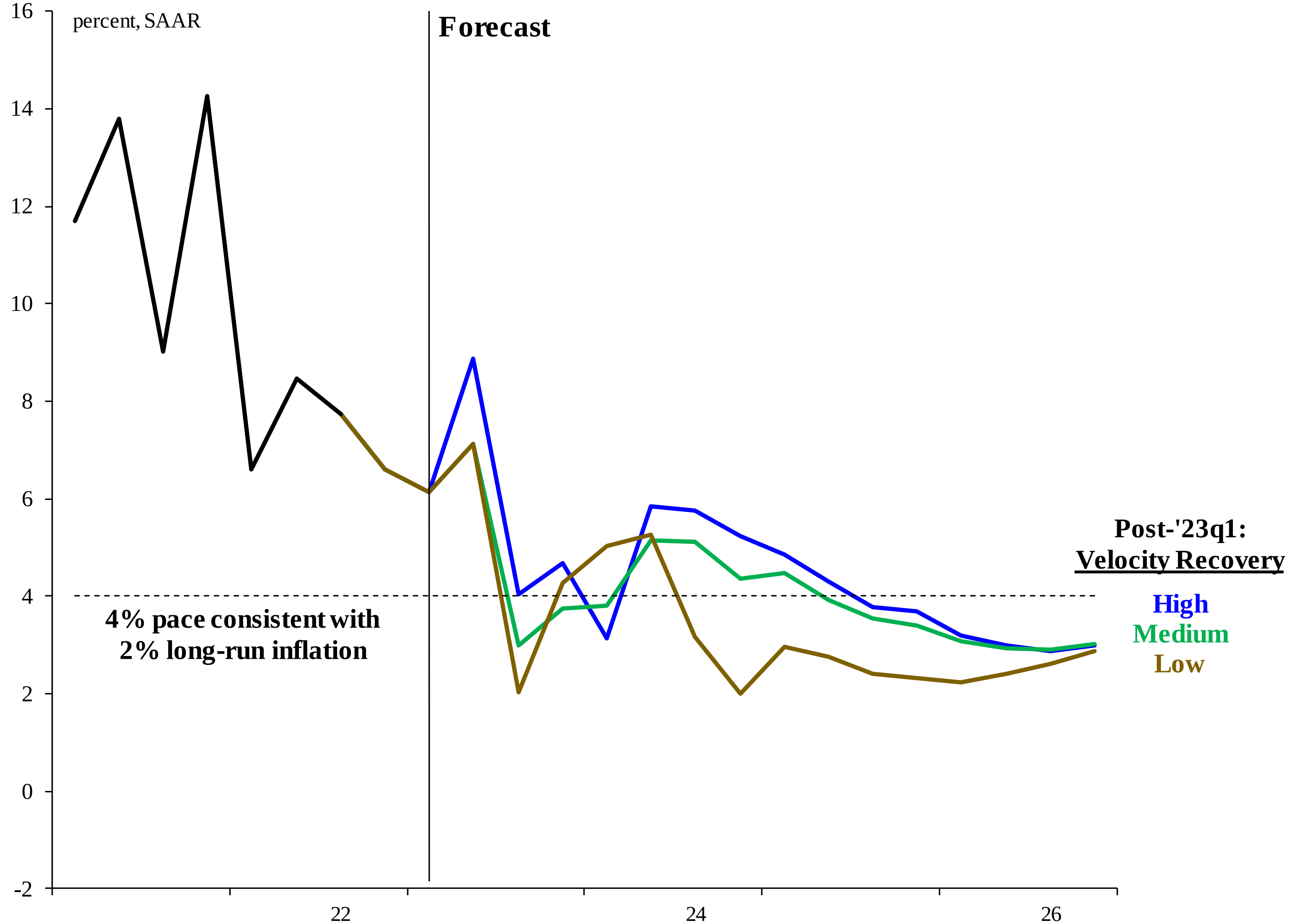

Figure 10: Nominal GDP Growth: Slow Divisia M3 Growth and Three Velocity Scenarios

(Sources: CFS, BEA, Federal Reserve, and authors' calculations)

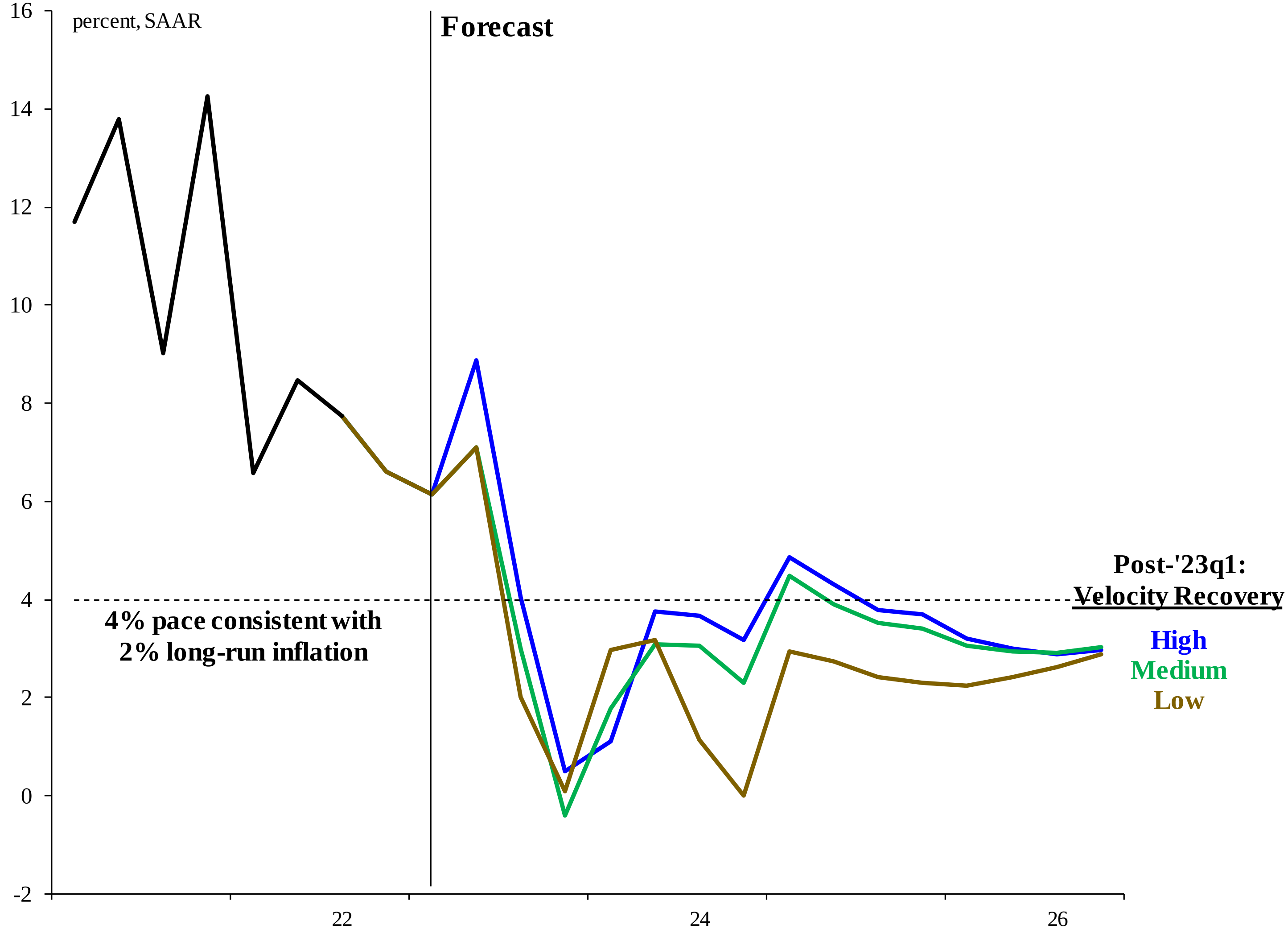

Figure 11: Nominal GDP Growth: Weak Divisia M3 Growth and Three Velocity Scenarios

(Sources: CFS, BEA, Federal Reserve, and authors' calculations)

Concluding Comments

- The recent post-COVID inflation was largely fueled by expansionary fiscal and monetary policies.
- The simple quantity theory explanation of “too much money chasing too few goods” was discredited in the 1980s and 1990s because of instability in money demand (velocity).
- This paper develops a Divisia M demand for money (velocity) function which is stable in the s-run and l-run.
- The evolution of Divisia M3 growth and its velocity can, with adjustments for COVID, help track the recent path of nom GDP.
- Lagged adjustment of Divisia velocity to uncertainty shocks of the pandemic helps explain the slow response of nominal GDP and inflation to the fiscal and monetary policy expansions of 2020-22.
- Suggests impact of recent Fed tightening will be drawn out.
- Our research suggests that there is information in properly measured monetary aggregates that should be considered.