

Using ensemble methods to more accurately predict inflation

ESCoE conference

Joel Suss and Chris Giles

Financial Times & London School of Economics

2026-05-20

The importance of underlying inflation

Alan Blinder, former Fed Vice Chair:

“what part of each monthly observation on inflation is **durable** and what part is **fleeting**”



Which measure is best?

Core PCE inflation (excl. food and energy) is “sort of a **rough swag** as to what’s going on”

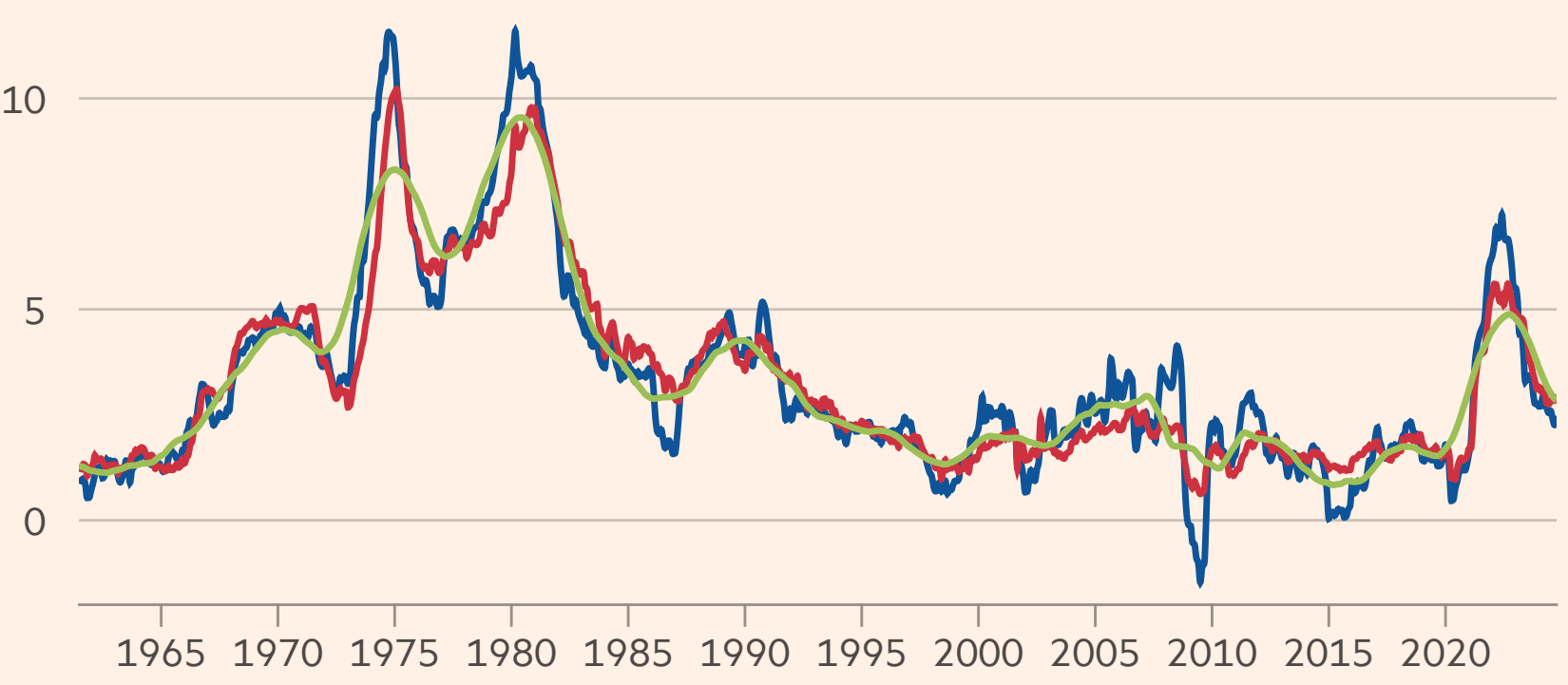
“The measures I prefer are ... **trimmed averages** where we take out all of the tail risks, all of the one-off items.”



Core is indeed noisy

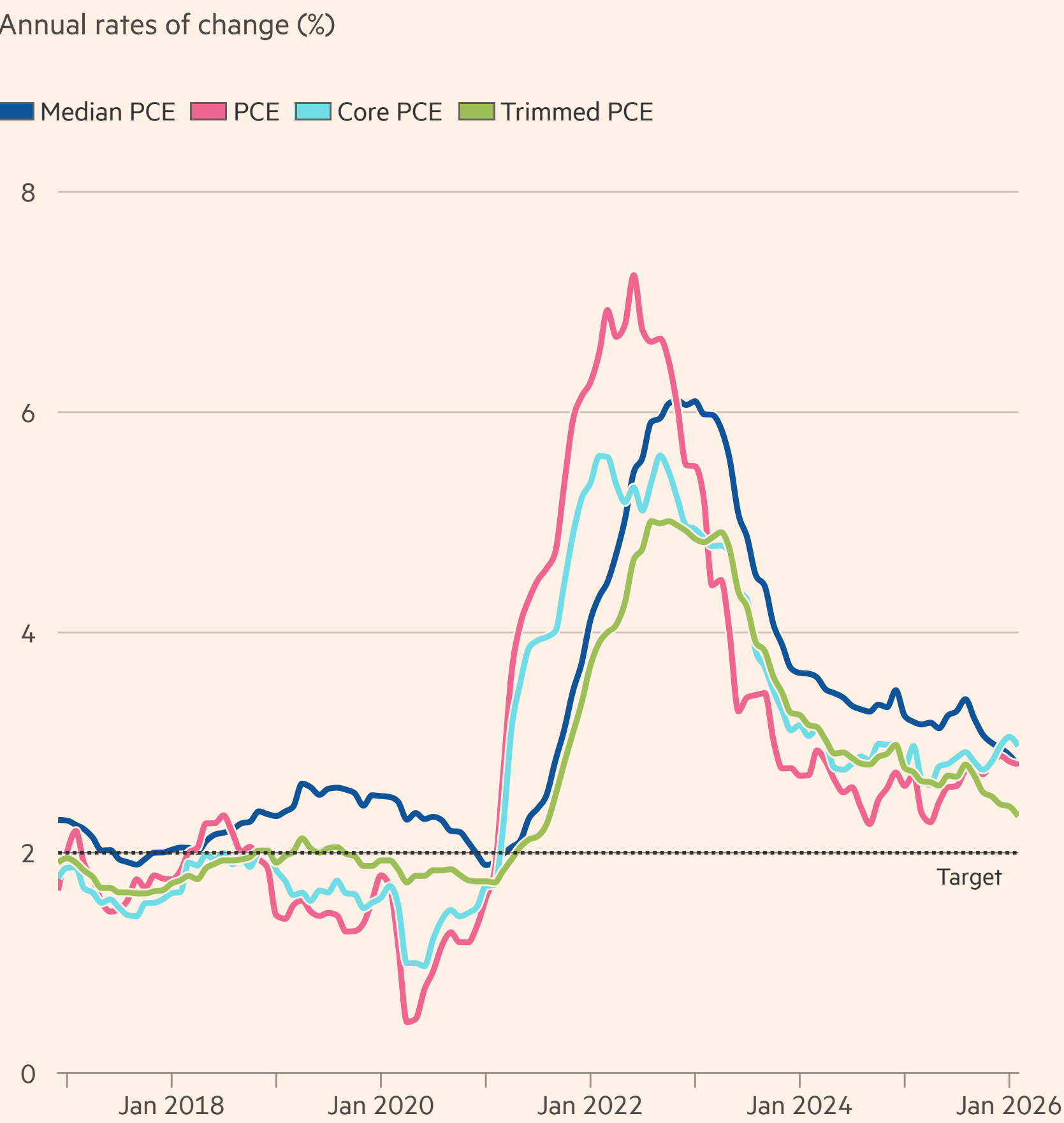
Headline and core PCE are both noisy when compared against trend inflation

Annual rates of change (%)
Trend inflation is measured as 36-month centred moving average of headline PCE



But trimmed mean not always preferable

Trimmed PCE is currently the lowest measure of underlying inflation, but it was also the slowest to register the inflation rise in 2021



No measure dominates

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ECONOMIC POLICY REVIEW

A Comparison of Measures of Core Inflation

December 2007 Volume 13, Number 3

JEL classification: C53, E31, E52

Authors: [Robert Rich](#) and Charles Steindel

The ability of central banks to differentiate between permanent and transitory price movements is critical for the conduct of monetary policy. The importance of gauging the persistence of price changes in a timely manner has led to the development of measures of underlying, or "core," inflation that are designed to remove transitory price changes from aggregate inflation data. Given the usefulness of this information to policymakers, there is a surprising lack of consensus on a preferred measure of U.S. core inflation. This article examines several proposed measures of core inflation—the popular ex food and energy series, an ex energy series, a weighted median series, and an exponentially smoothed series—to identify a "best" measure. The authors evaluate the measures' performance according to criteria such as ease of design and accuracy in tracking trend inflation, as well as explanatory content for within-sample and out-of-sample movements in aggregate CPI and PCE inflation. The study reveals that the candidate series perform very differently across aggregate inflation measures, criteria, and sample periods. The authors therefore find no compelling evidence to focus on one particular measure of core inflation, including the series that excludes food and energy prices. They attribute their results to the design of the individual measures and the measures' inability to account for variability in the nature and sources of transitory price movements.

HTML executive summary

[PDF full article](#)

PDF 20 pages / 418 kb

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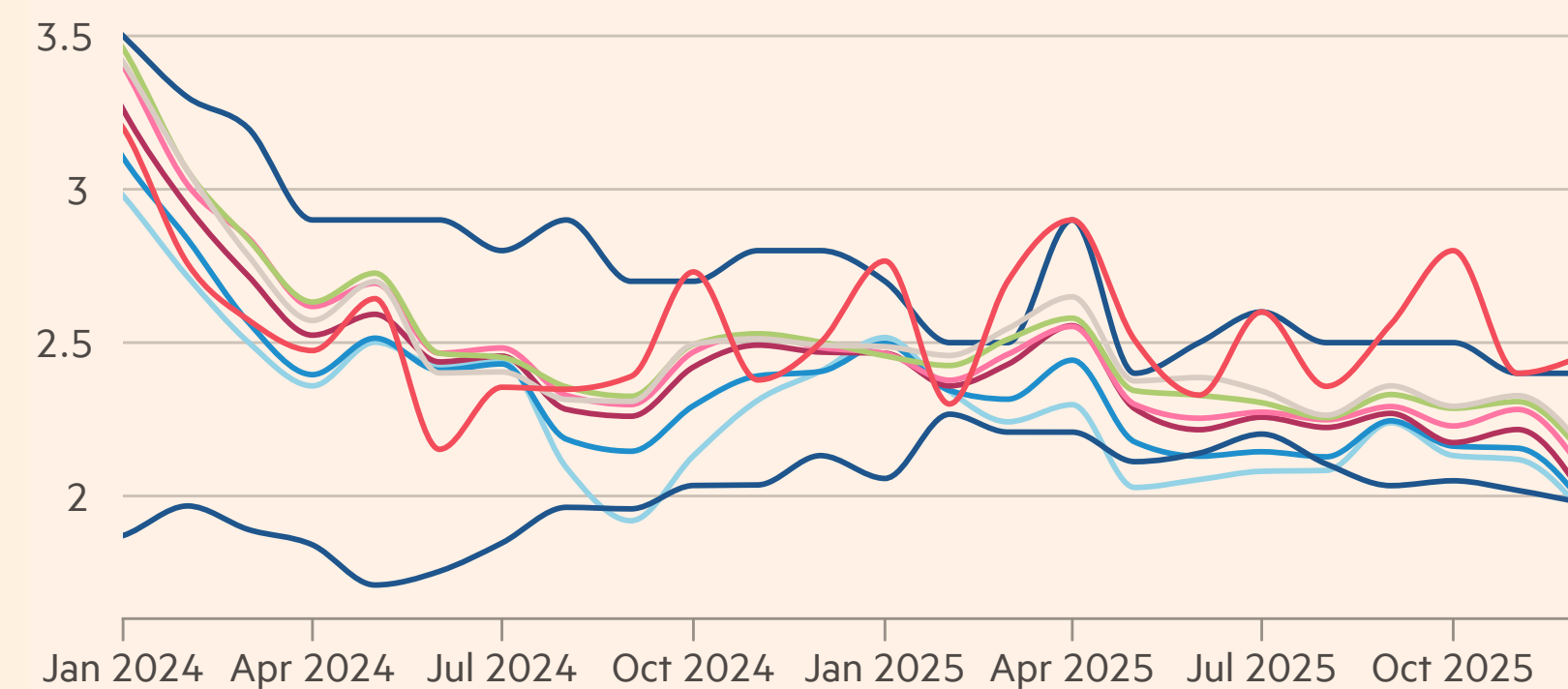
‘Spaghetti soup’

Given **no measure dominates**, need to look at many measures (as rate-setters do).

But that often presents a **messy picture**, can fixate on the indicator that is telling you the **story** you already believe

The ECB watches multiple measures of underlying inflation

Annual rate of change (%)



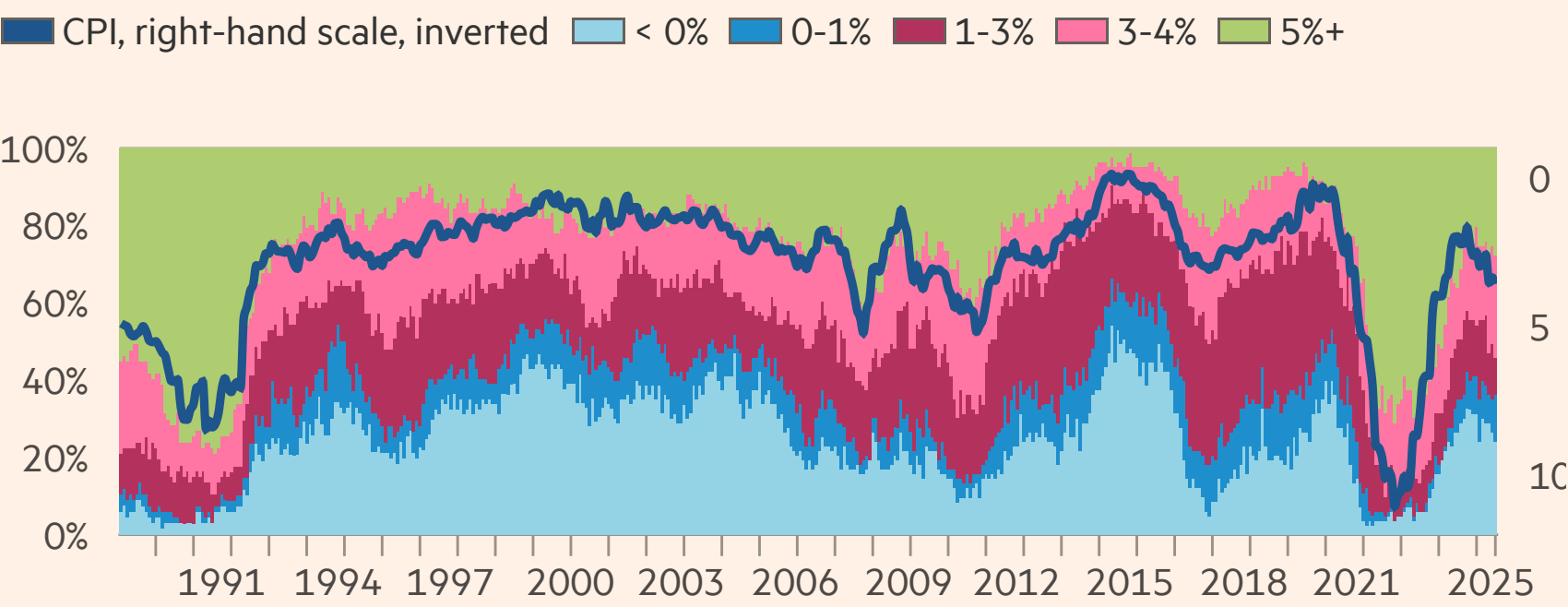
FINANCIAL TIMES

Source: ECB

Other measures are on different scales

Breadth of UK inflation

Per cent of UK CPI items with annual price increase



FINANCIAL TIMES

Source: FT calculations, ONS • Items are taken from CPI 85-item basket
FT graphic: Joel Suss

This paper: ‘FT core’

- Use insights from machine learning – **ensembling** – to estimate underlying inflation across US, Eurozone, UK, Japan
- demonstrate ensemble performs best at: 1) **tracking trend** inflation, and 2) **forecasting medium-term** inflation

Typology of measures

Type	Example
Exclusionary	‘Standard core’, trimmed mean
Alternate weighting	Volatility- or persistence-weighted
Diffusion	Proportion of items increasing in price
Model-based	ECB’s Persistent and Common Component of Inflation
Meta-learner	FT core

FT core is live



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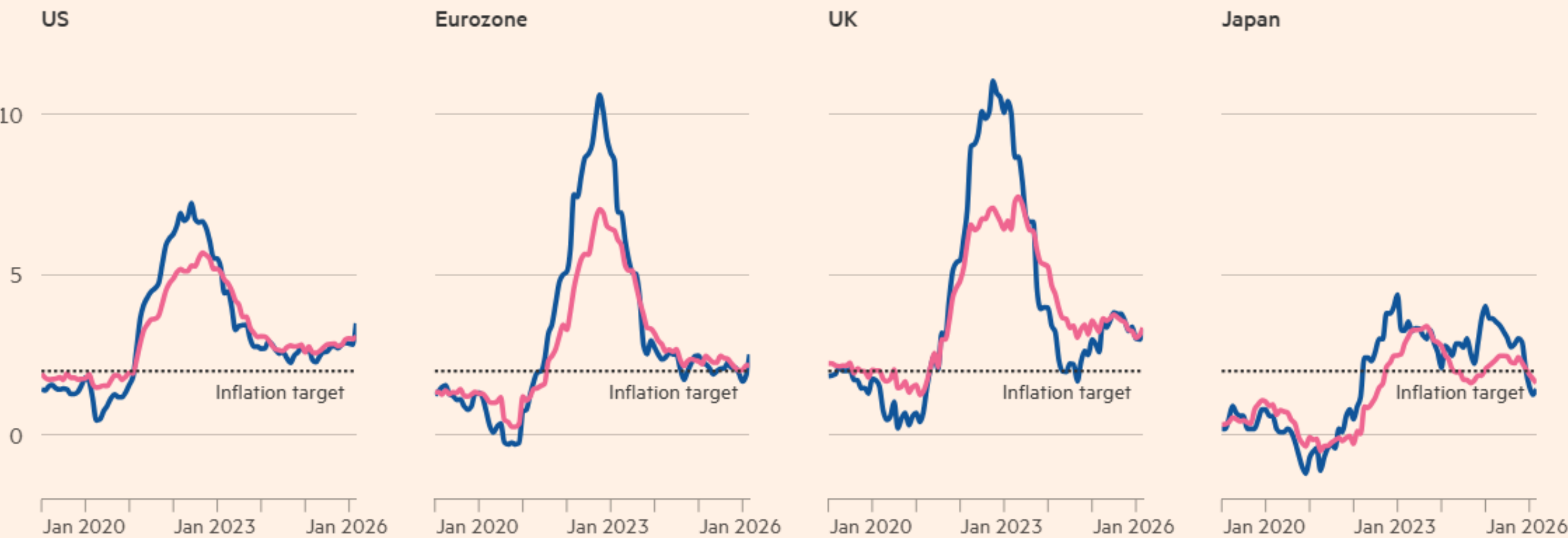
Alternative data

The FT's measure of core inflation alongside headline inflation

Change in inflation (%)

One year Six months Three months One month

Headline FT core



Source: FT calculations, BEA, ECB, ONS, Statistics Japan • [Download data](#)
Headline inflation is PCE for US, HICP for Eurozone, and CPI for UK and Japan
FT core inflation is calculated using an ensemble model (methodology [here](#))
All calculations based on seasonally adjusted indices
Rates are annualised for one, three and six months
FT graphic: Joel Suss

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DATA

The market still believes the Bank of England will hike rates three times this year



DATA

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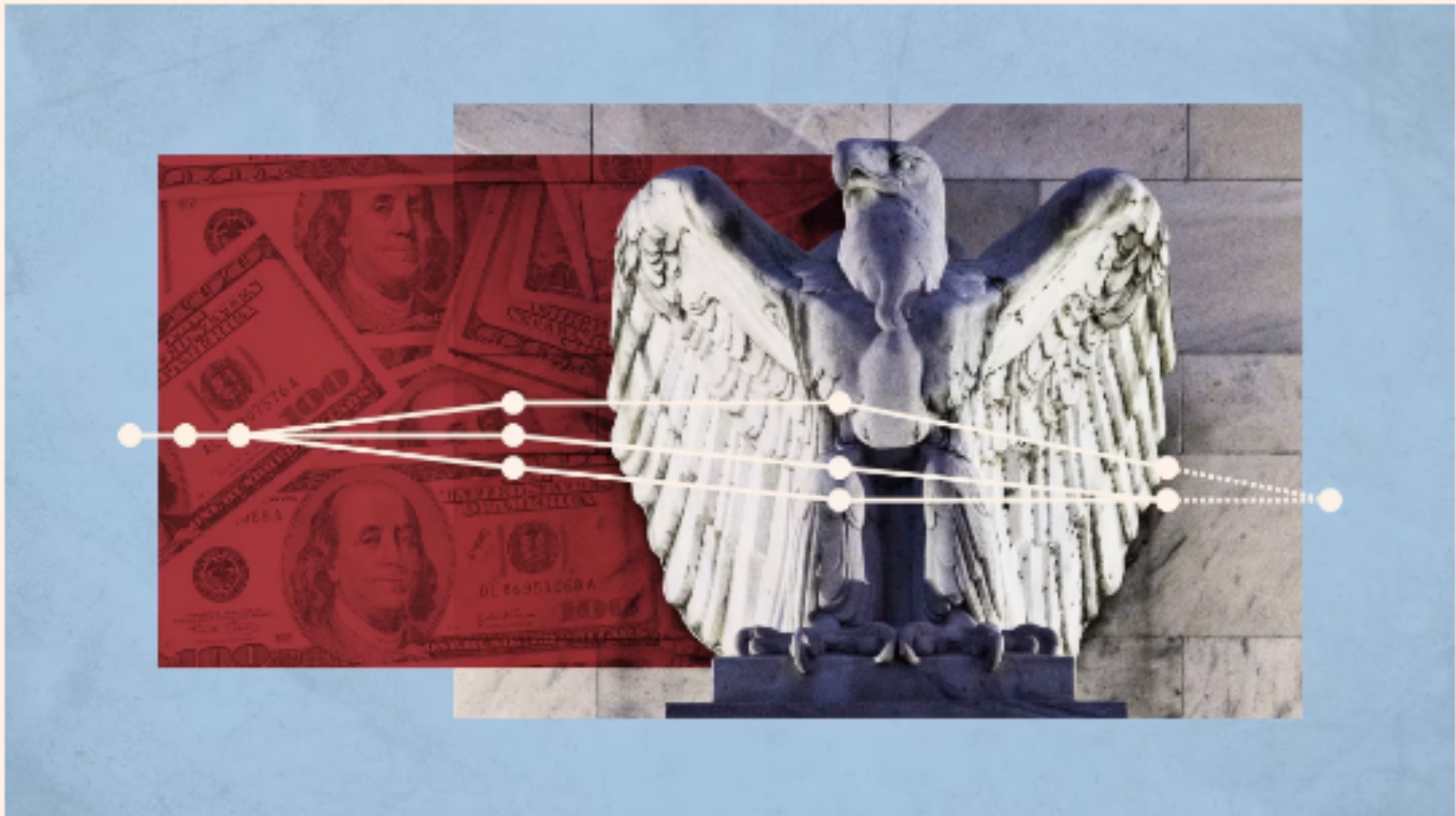
The Fed will likely hold rates through the year according to market pricing



EDITORS' PICKS

Introducing the FT 'geopolitical mood' index

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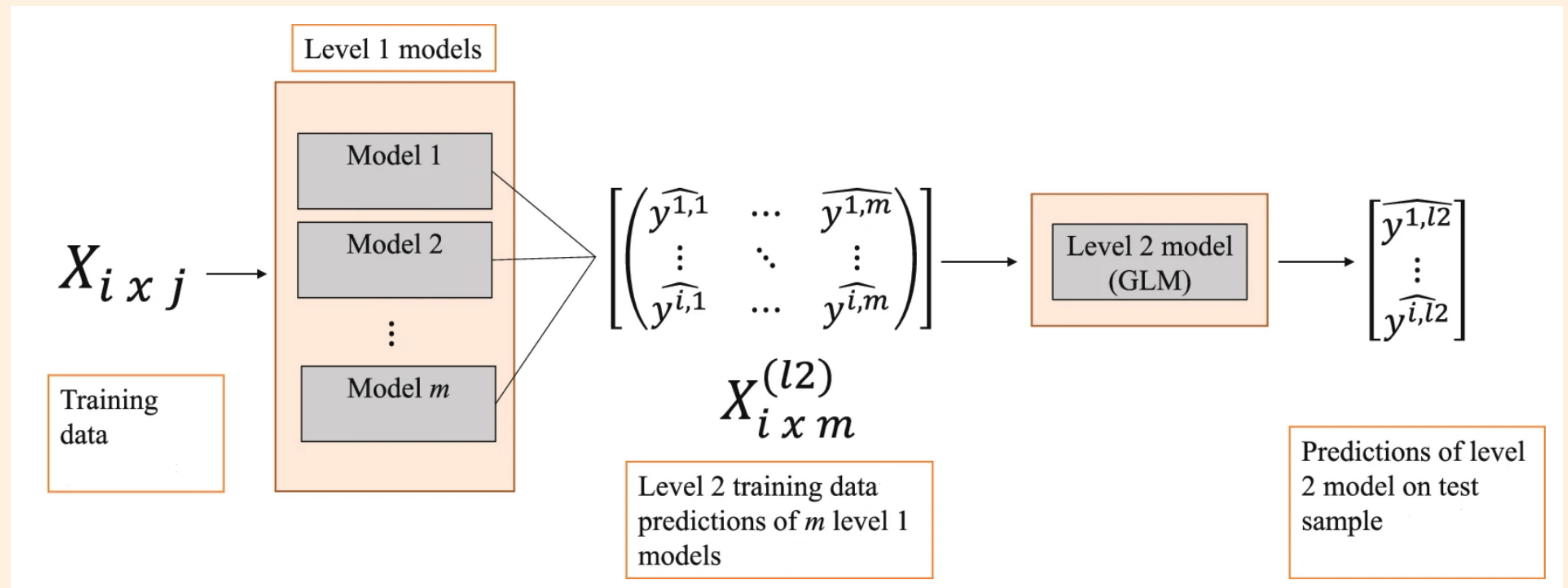
Solid GDP data supports Bank of Japan's June rate rise

First-quarter growth was stronger than expected

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Constructing stacked ensemble

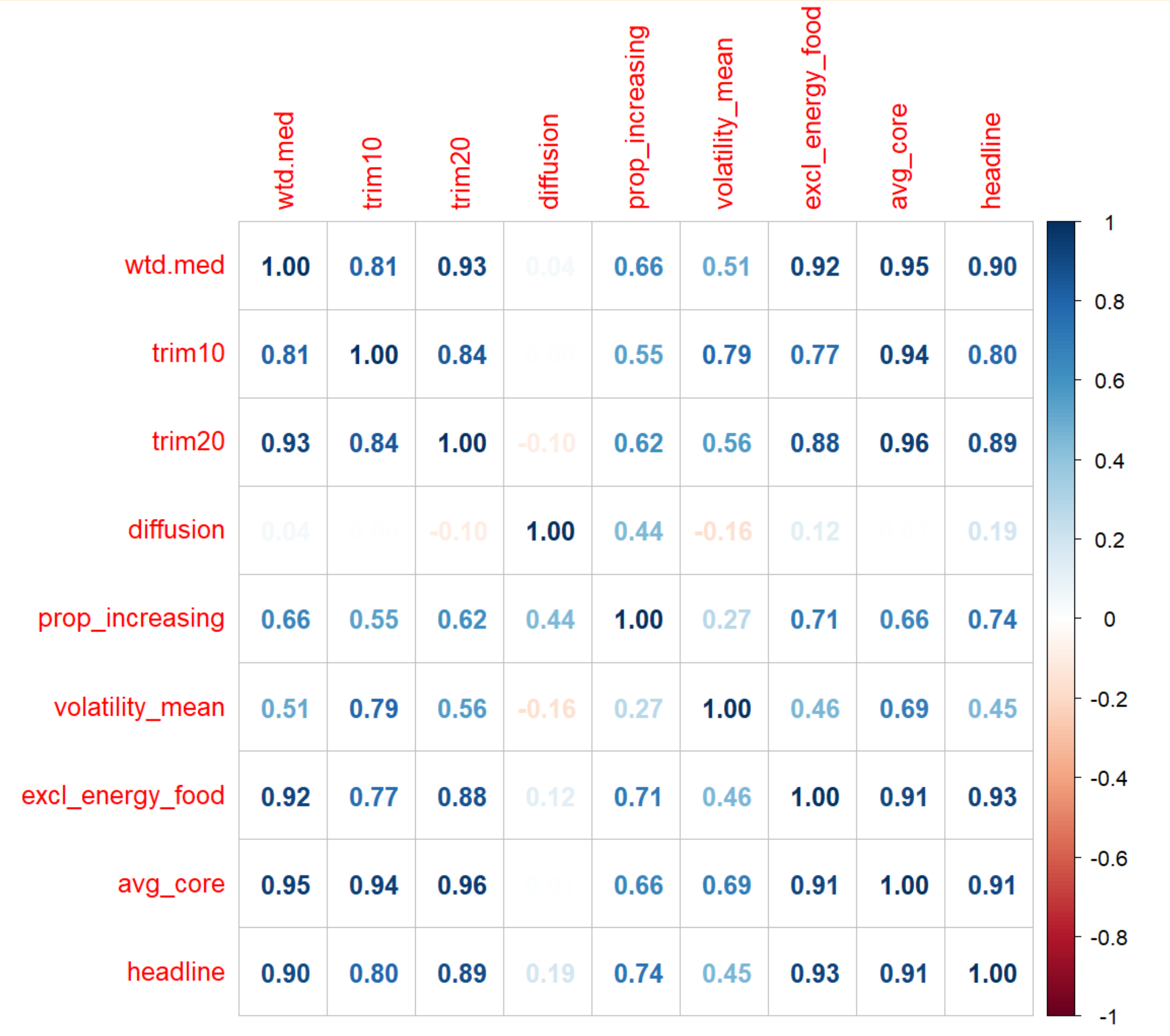
- no single measure of core inflation is perfect, each provides **some signal**
- stacked ensemble integrates those signals in a **statistically optimal** way



Level 1 ‘models’

1. Standard core (excl. energy & food)
2. Weighted median
3. Trimmed mean (10%)
4. Trimmed mean (20%)
5. Proportion of prices increasing in price
6. Diffusion index (% prices up minus % prices going down)
7. Volatility index (trailing 12-month standard deviation)

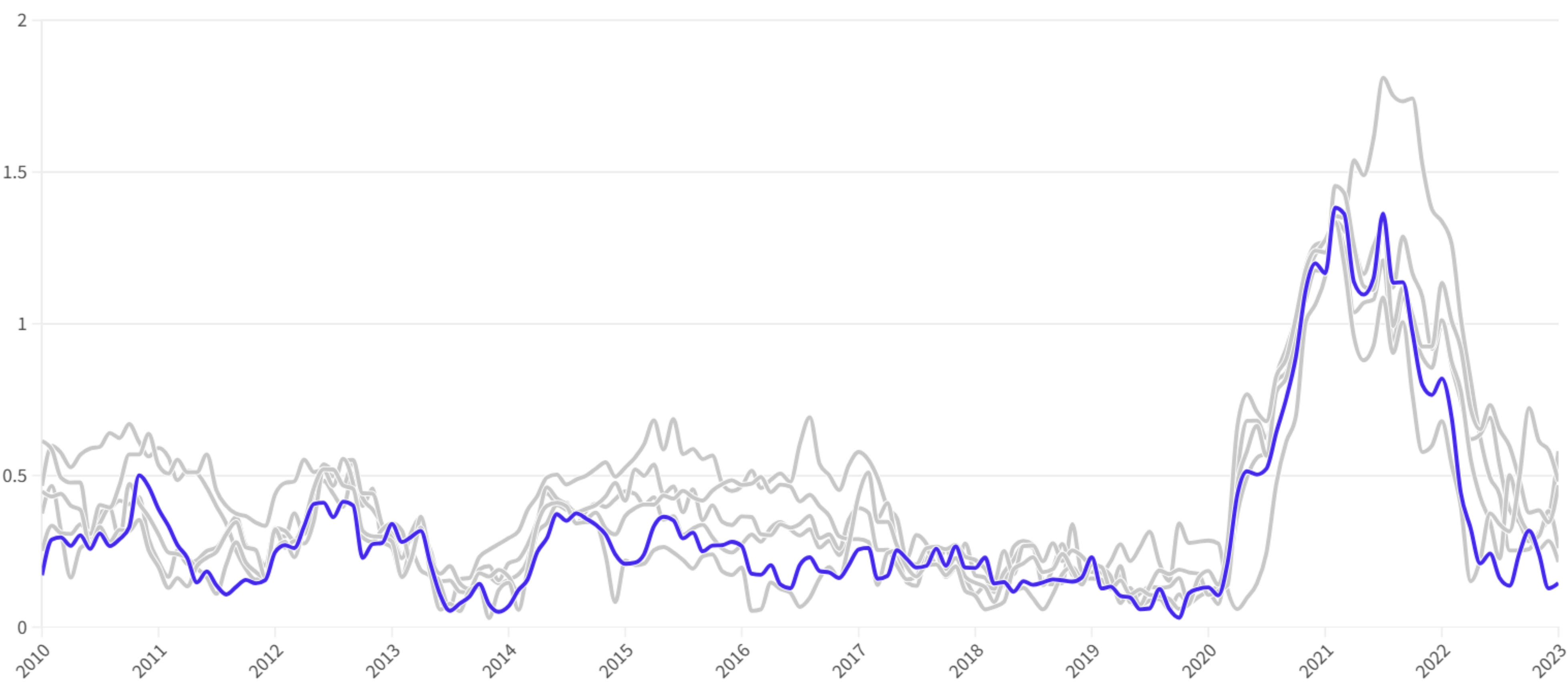
Diversity



Tracking inflation trend

The ensemble core measure generally tracks the inflation trend better than alternatives

Root mean squared error (absolute percentage point difference versus trend)



The ensemble is built on data prior to 2010. Grey lines are for trimmed mean (10% and 20%), weighted median, all items excluding energy and food, and headline inflation. Errors are calculated relative to centred 36-month moving average and data is pooled across all four economies

Forecasting medium-term inflation

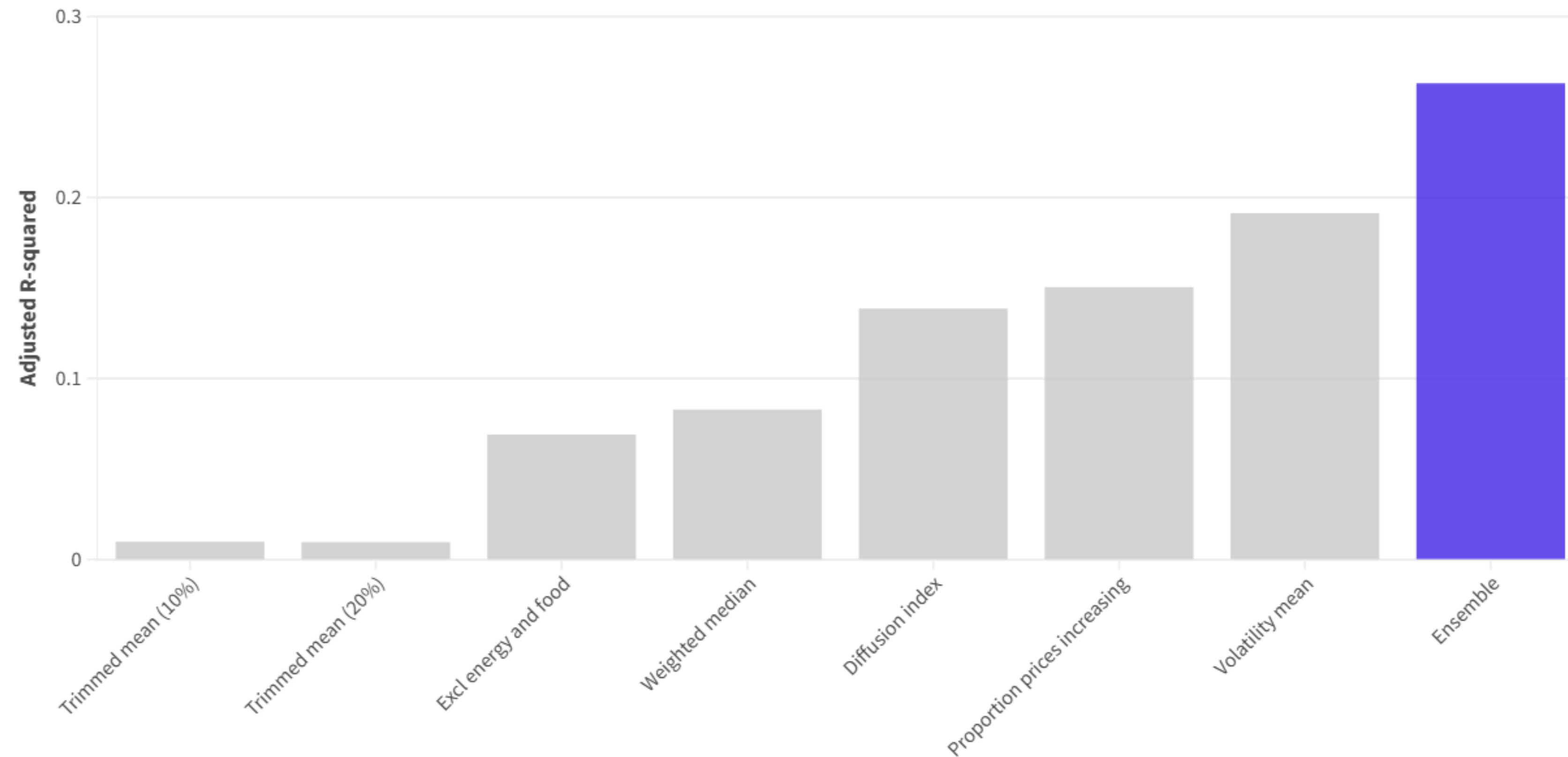
Standard forecasting regression: forecasting the future 1-year change in headline PCE (or CPI/HICP) from the current core measure reading

$$\pi_{t+h} - \pi_t = x_t - \pi_t$$

where π is headline inflation, x is each measure of core inflation, and h is the horizon at which we are predicting and taken as 12 months.

Adjusted R^2

The ensemble, which combines standalone measures of core inflation, produces the best forecast of medium-term inflation



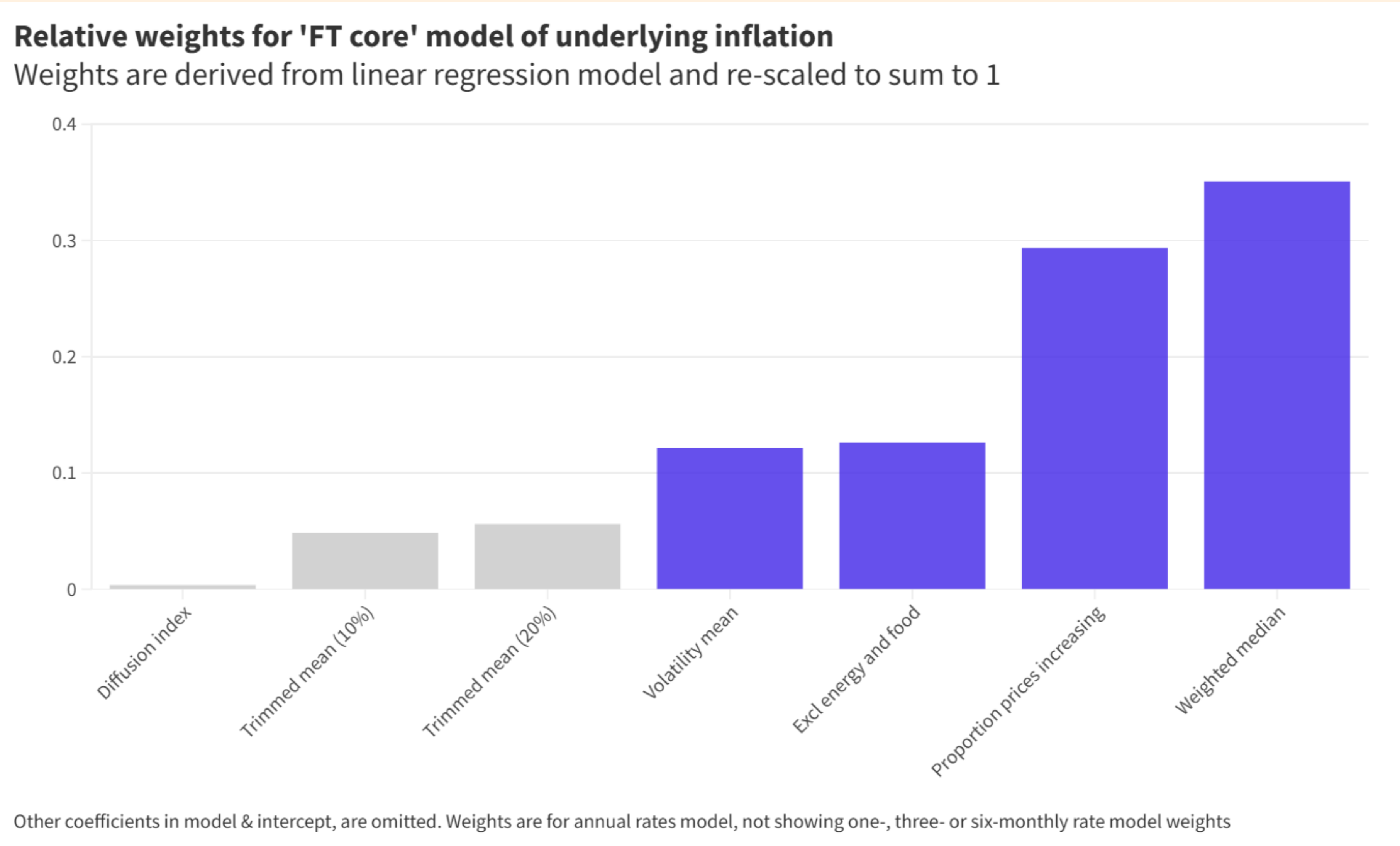
Source: BLS, BEA, ONS, ECB, Statistics Japan •

Ensemble = fitted values of linear model weighing all standalone measures of core inflation

12-month forecasts of headline inflation for pooled data including US, Eurozone & UK inflation data

Adjusted R-squared is the proportion of variation explained by the model

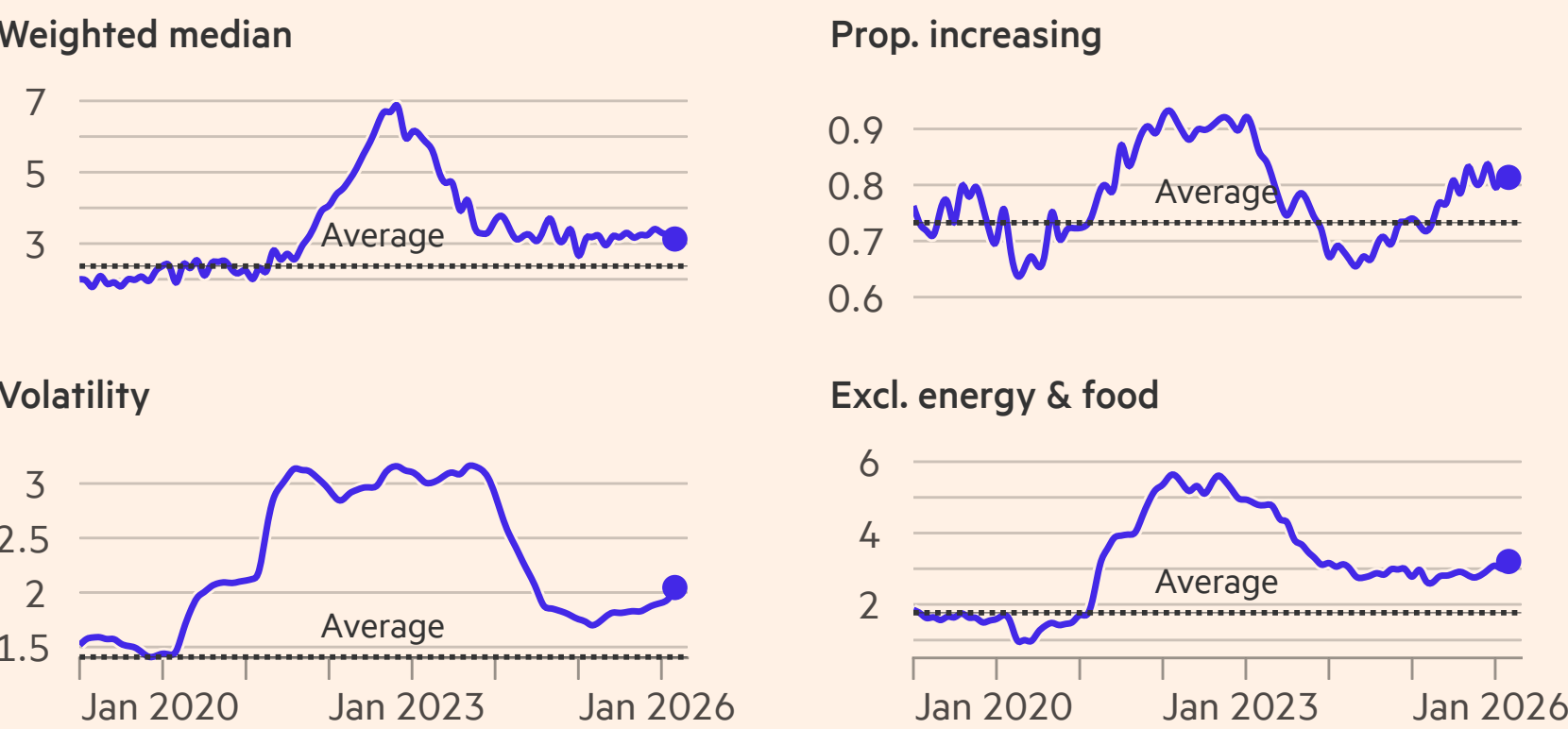
Drivers of the ensemble



Drivers in the US

FT core underlying drivers for US PCE inflation

Annual measures (%)
Average is from 2001-2019

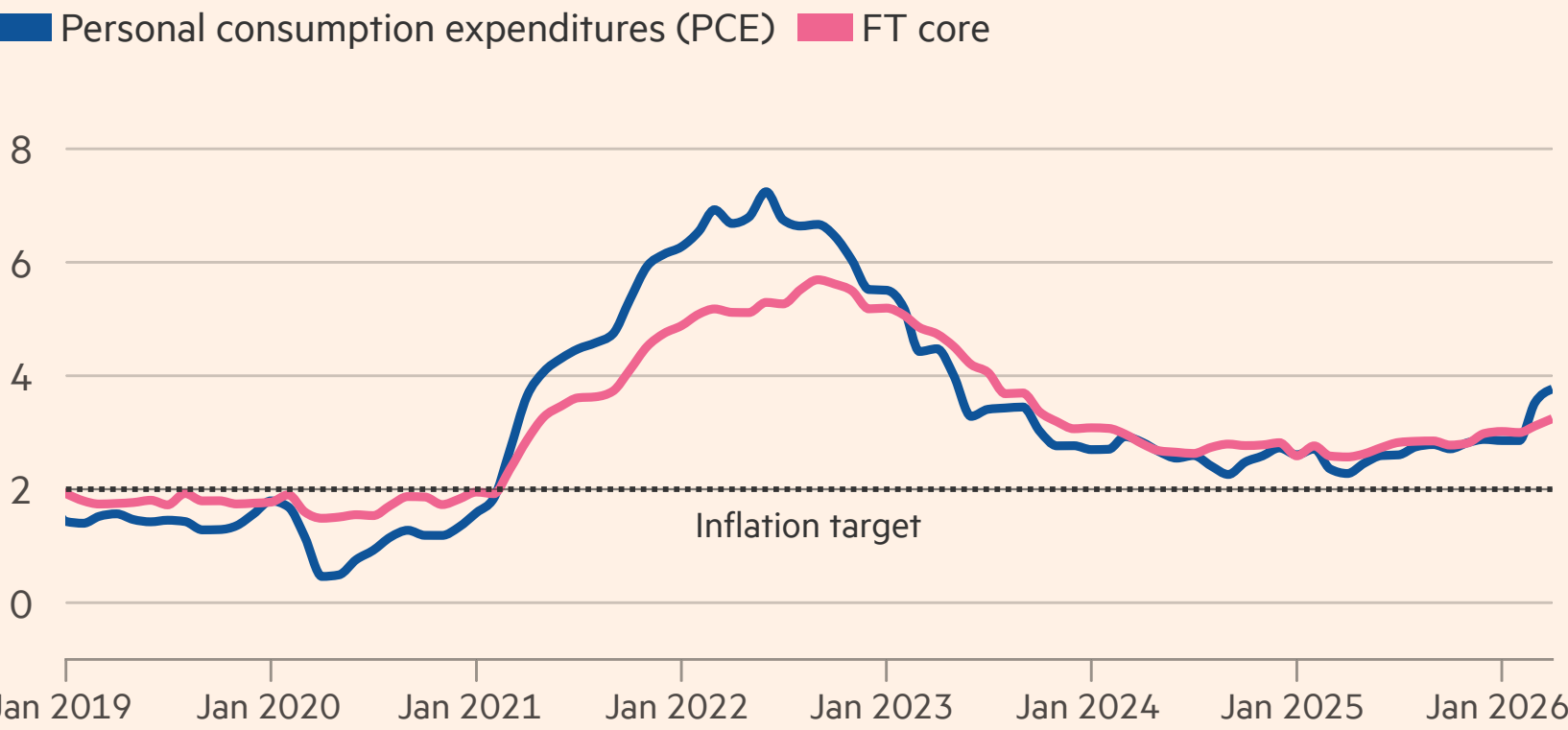


FT core in the US

US headline PCE alongside the FT's measure of core inflation

Annual rate of change (%)

One year	Six months	Three months	One month
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Source: FT calculations, BEA • [Download data](#)
FT core inflation is calculated using an ensemble model (methodology [here](#))
Rates are annualised for one, three and six months
FT graphic: Joel Suss

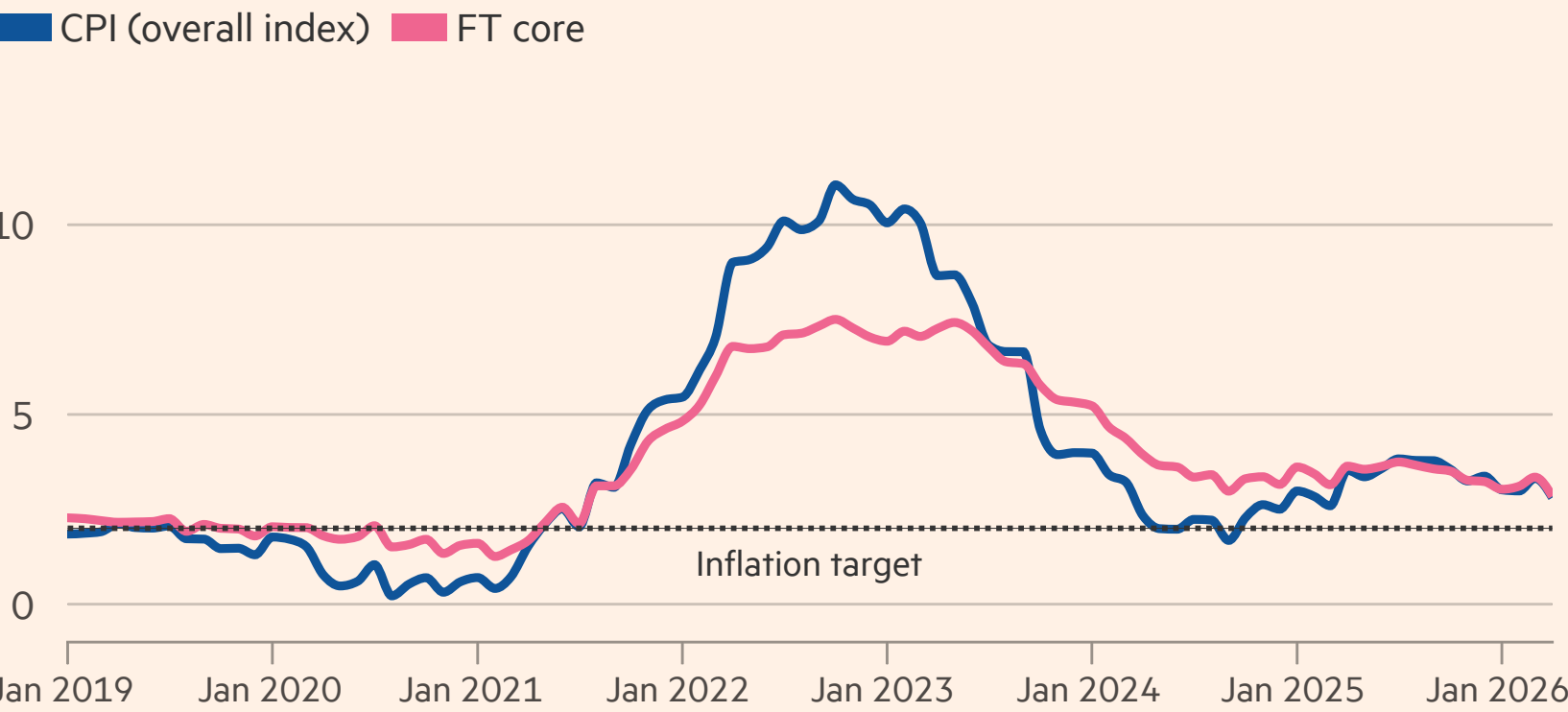
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FT core in UK

UK headline CPI alongside the FT's measure of core inflation

Annual rate of change (%)

One year	Six months	Three months	One month
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Source: FT calculations, ONS • [Download data](#)
FT core inflation is calculated using an ensemble model (methodology [here](#))
Rates are annualised for one, three and six months
FT graphic: Joel Suss

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Discussion

- transparent, comprehensible and **decomposable** core inflation index
- the methodology is **generalisable** and modular (can add or subtract standalone measures)
- Weighting of measures: structural breaks requiring **re-estimation**, non-linearities,

Thank-you for your **attention!**