



Payden & Rygel

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## How We Think About Interest Rates

April 2024

The Payden Economics Team



# Every Morning, Bond Investors Wake Up And Think "Where's The 10-Year?"

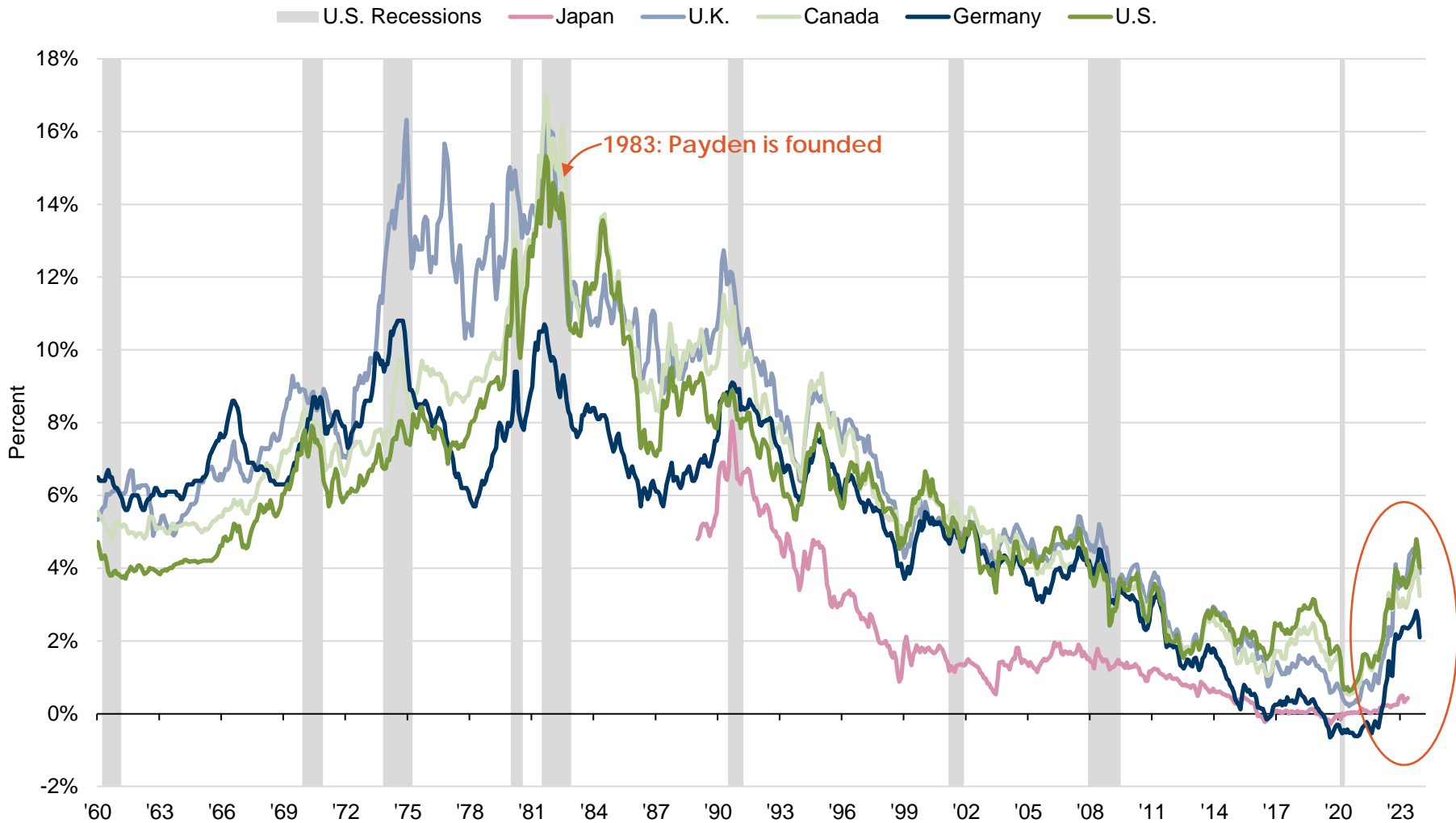


*"Where's the 10-year?"*



# The Global March Of Interest Rates Lower Has Taken A Pause...

## Longer-Term Global Government Bond Yields



Source: OECD



## The Three Components Of Longer-Term Interest Rates

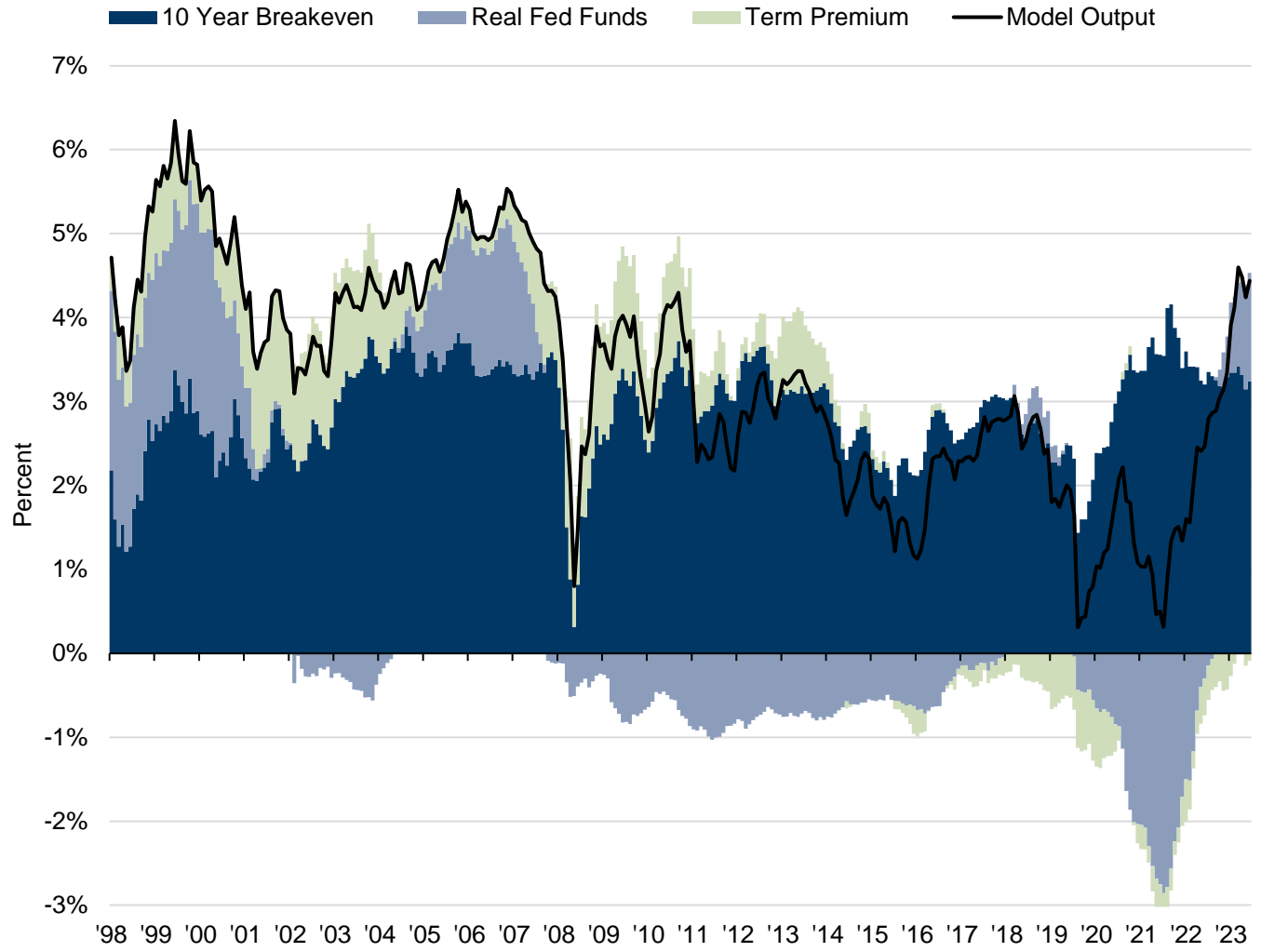
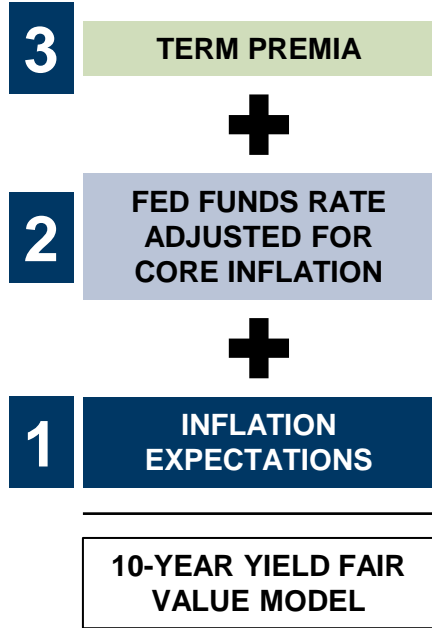
“...it is useful to decompose longer-term yields into three components: one reflecting *expected inflation* over the term of the security; another capturing the *expected path of short-term real*, or inflation-adjusted, interest rates; and a residual component known as *the term premium.*”

- Ben Bernanke, former Chairman of the Federal Reserve



# What Are The Building Blocks Of Longer-Term Rates?

## Decomposition of the 10-Year Yield Fair Value Model

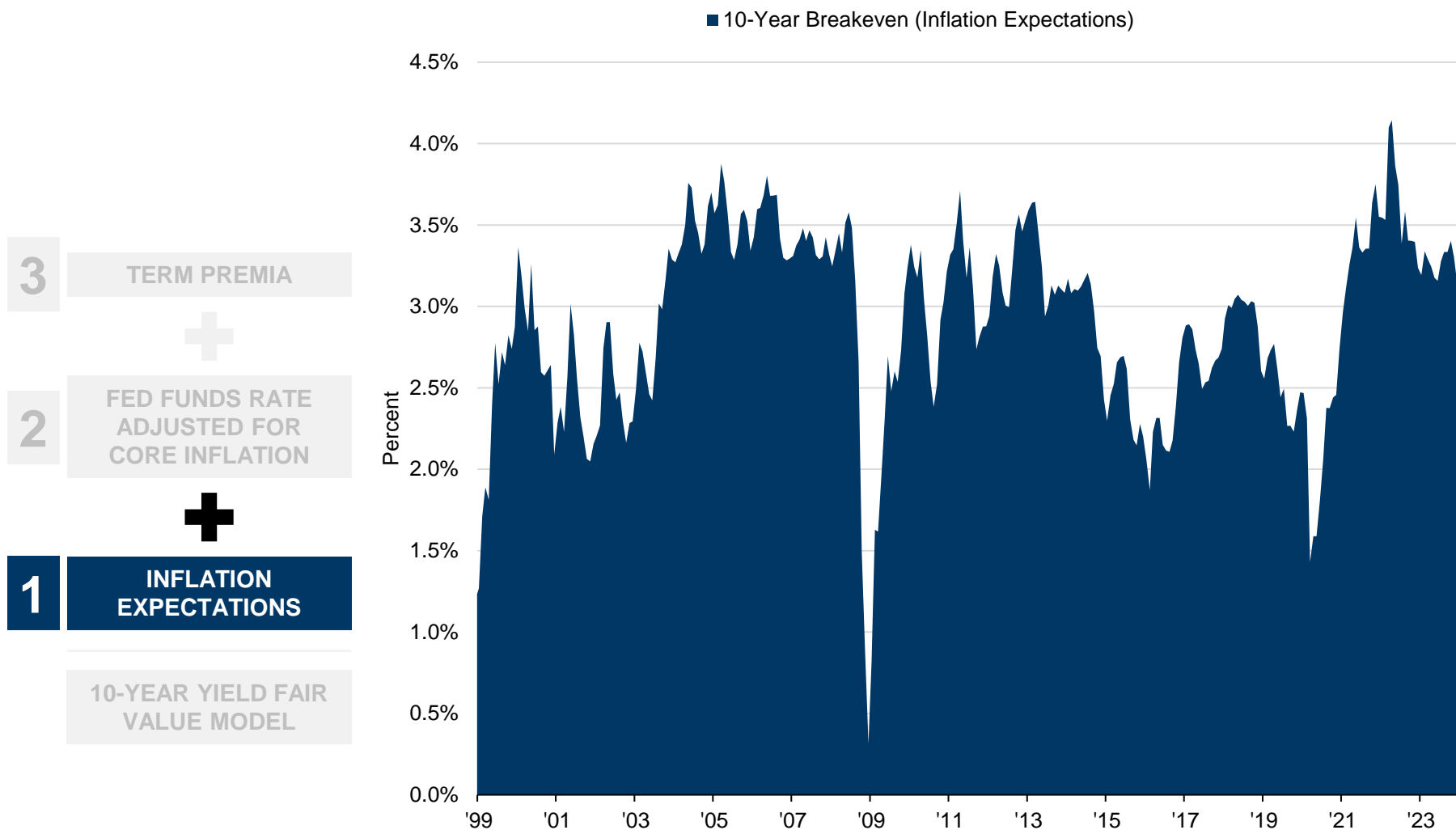


Source: Federal Reserve, Bureau of Economic Analysis, Bloomberg, Payden Calculations



# Building Block 1: Expected Inflation

## Decomposition of the 10-Year Yield – Expected Inflation

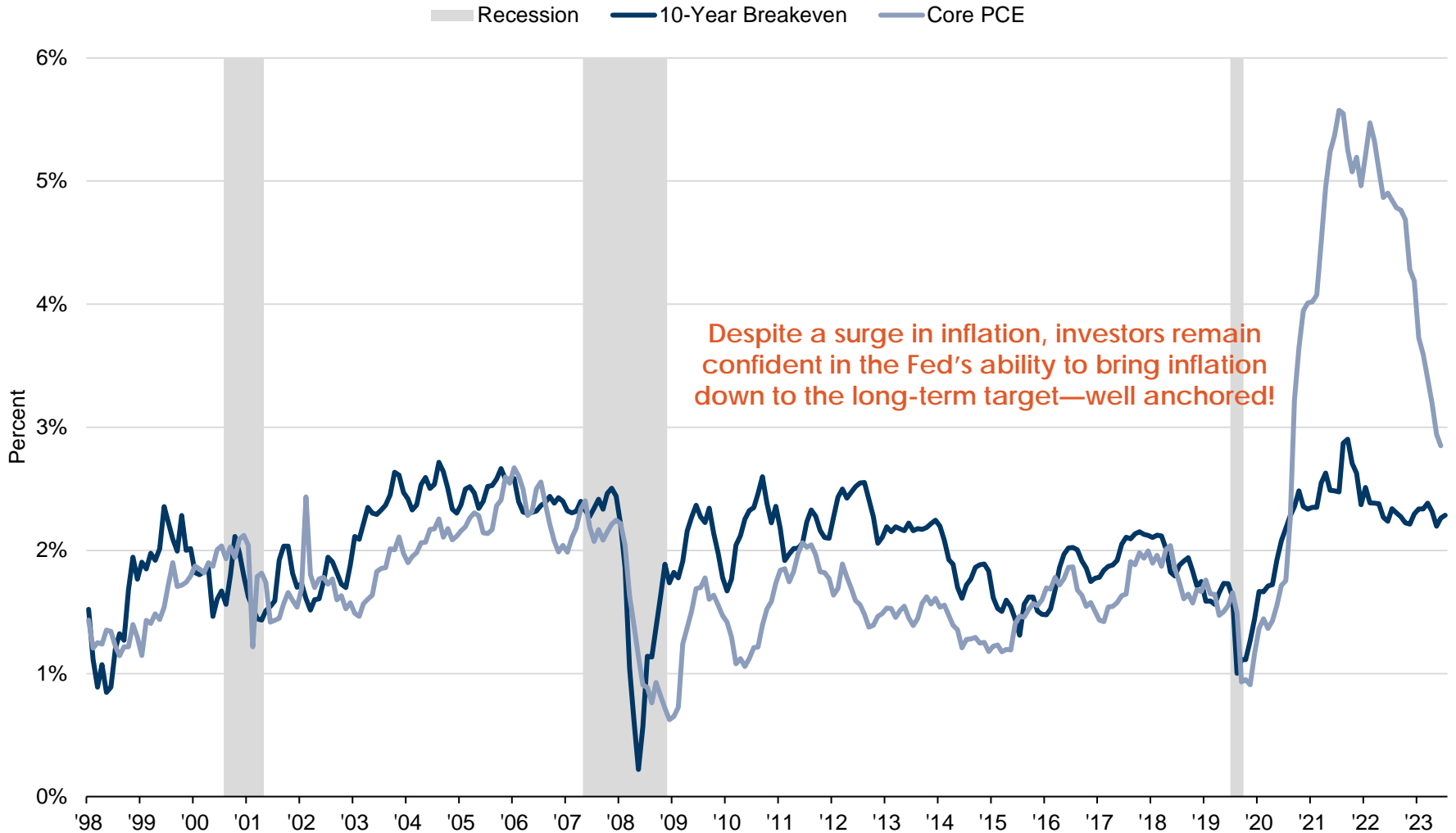


Source: Bloomberg, Payden Calculations



# First, The Obvious One: Investors Would Like to Be Compensated For Inflation

## U.S. 10-Year Breakeven Rate Versus Core Personal Consumption Expenditures (PCE) Price Index

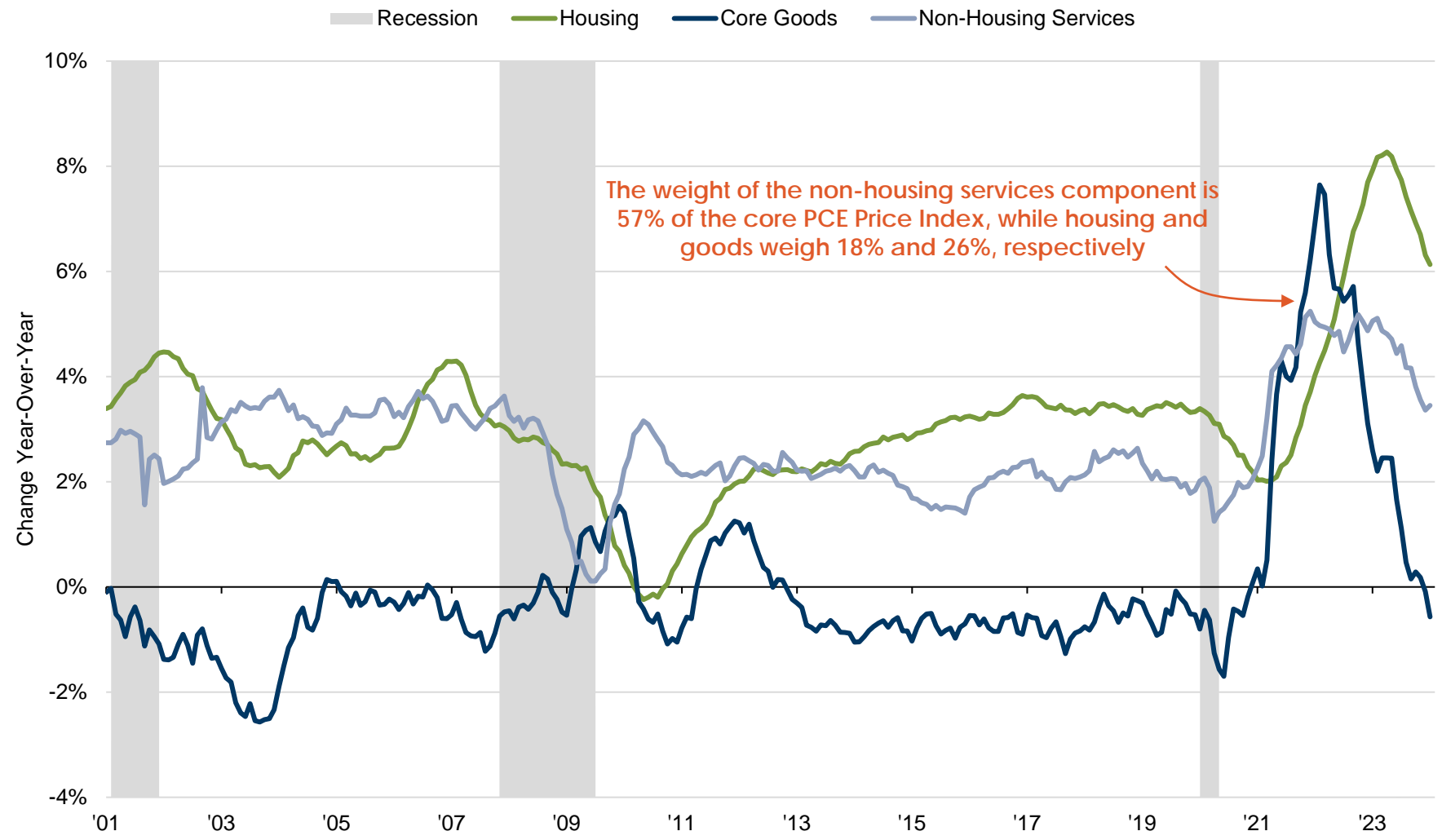


Source: Bloomberg, Bureau of Economic Analysis



# Non-Housing Services: The Key to Slowing Core Inflation

## Contribution of Goods, Housing, And Non-Housing Services in Core (Ex. Food & Energy) PCE\* Index



Source: Bureau of Economic Analysis, Bloomberg, NBER, Payden Calculations

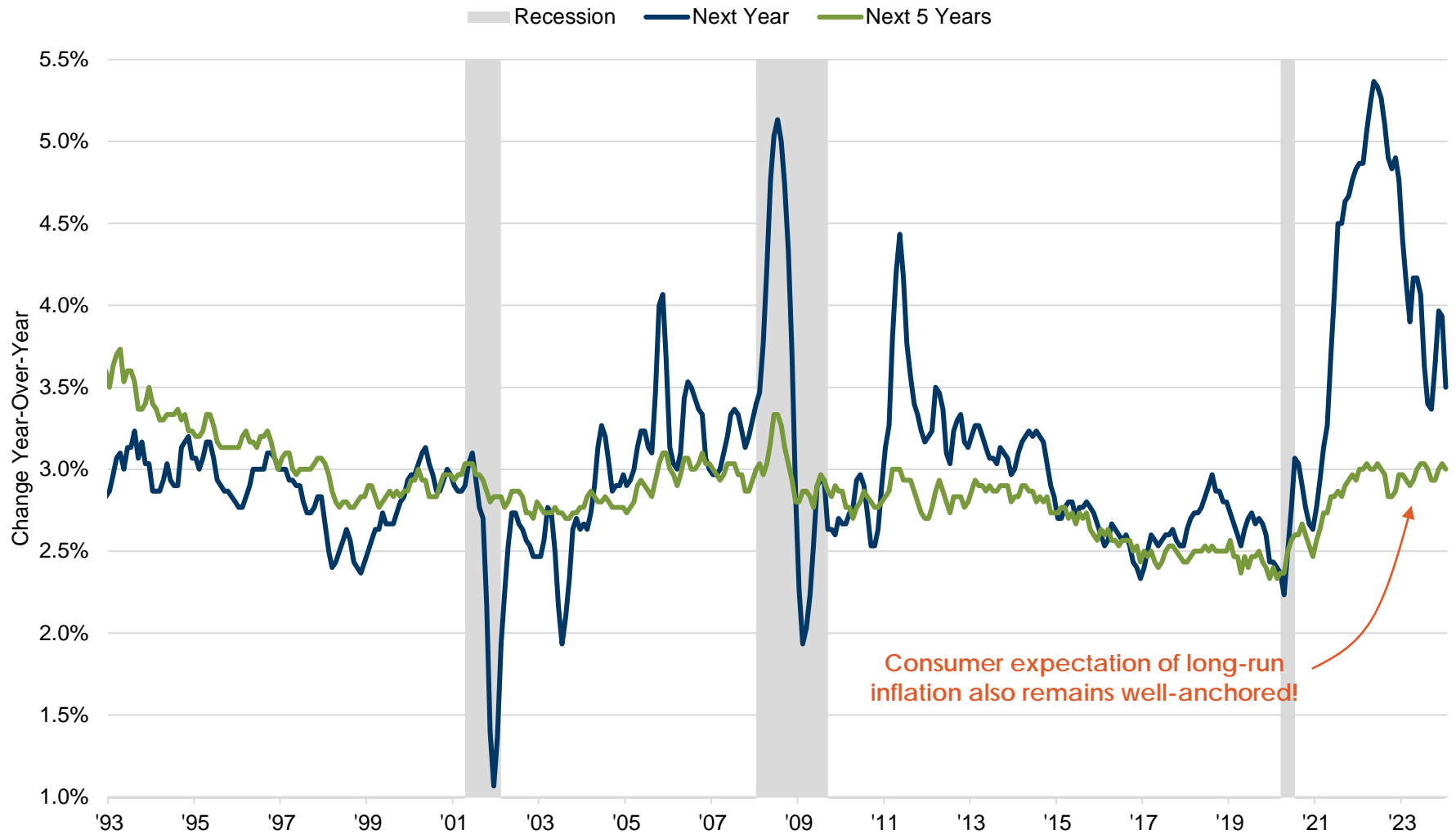
\*Personal Consumption Expenditures (PCE)





# Consumers Expect Volatile Inflation In The Near Term, But Stable In The Long Run

University of Michigan Consumer Expectation Of Inflation In Short And Long Run, 3-Month Moving Average

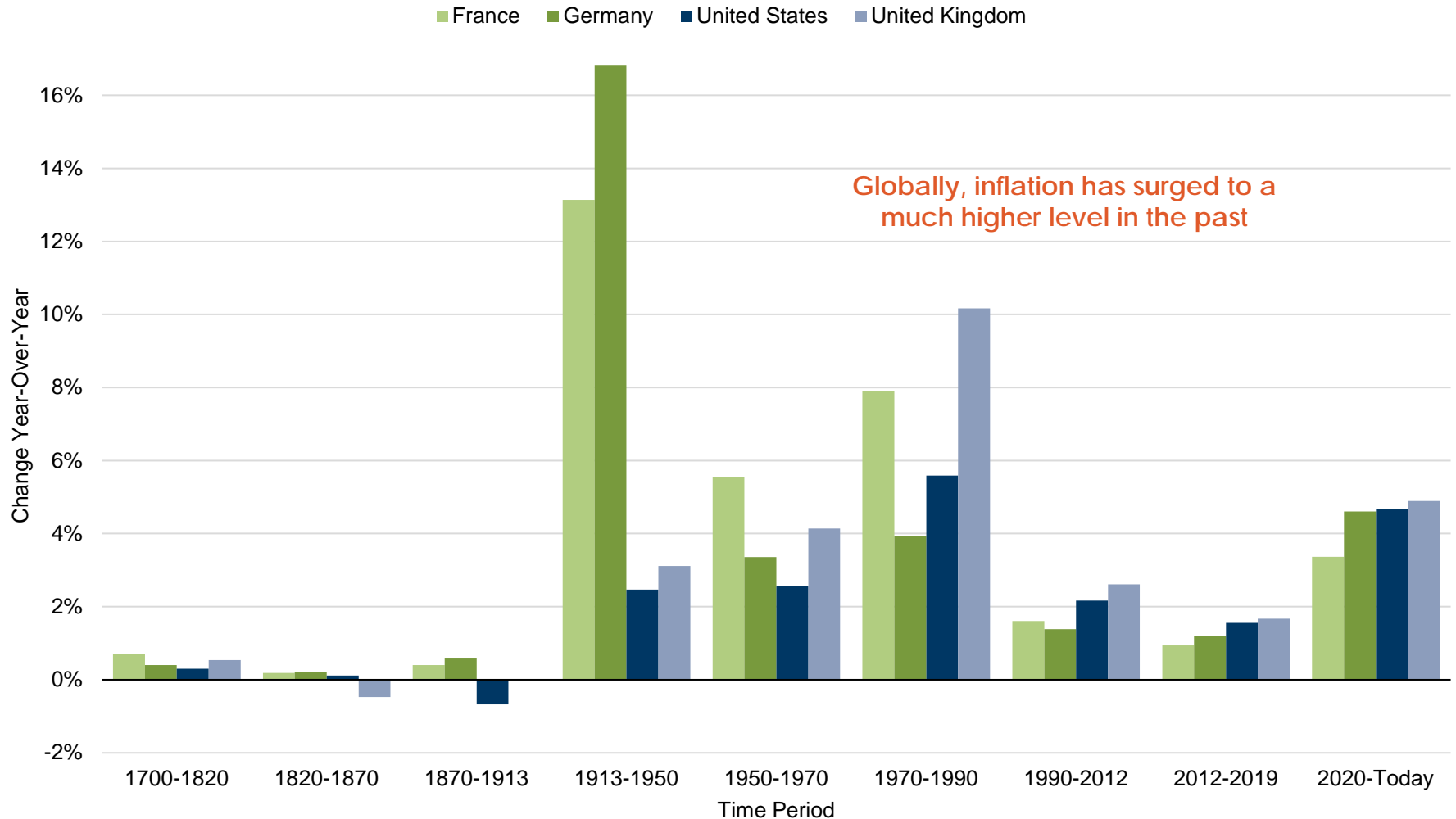


Source: University of Michigan



# Instead Of A New Regime, We Might Just Be Returning To Normal

## Inflation During Different Time Periods In the United States, United Kingdom, France and Germany

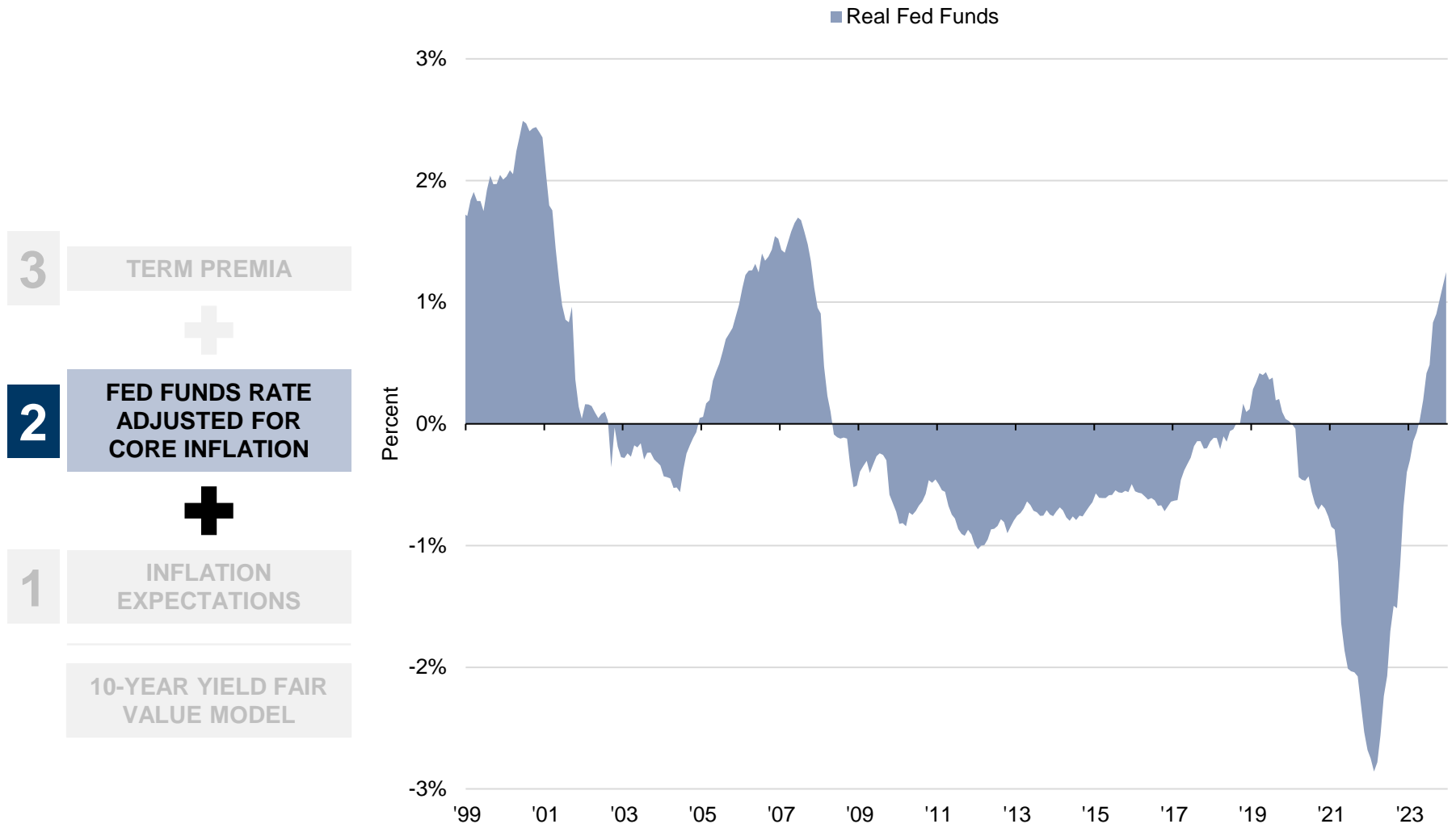


Source: Thomas Piketty, Eurostat, Bureau of Labor Statistics, Payden Calculations



# Building Block 2: The Path Of Real Fed Funds Rates

## Decomposition of the 10-Year Yield – Fed Trajectory, Real Output Growth



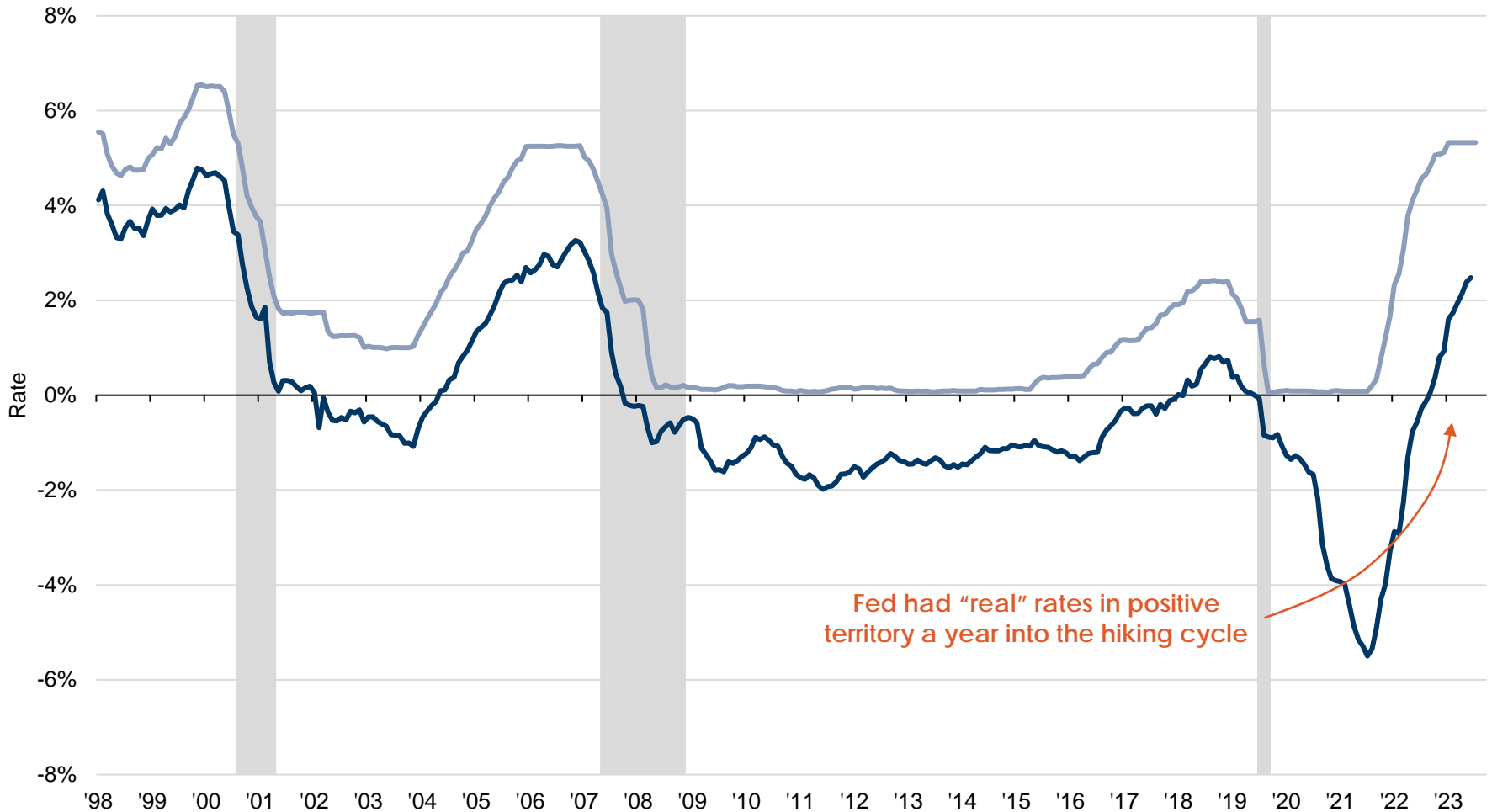
Source: Federal Reserve, Bureau of Economic Analysis, Bloomberg, Payden Calculations



# The 'Real' Fed Funds Rate Becomes Restrictive After More Than a Year of Rate Hikes

## Fed Funds Rate Versus "Real" Fed Funds (Adjusted with Core PCE Inflation)

Recession Real Fed Funds Eff. Fed Funds



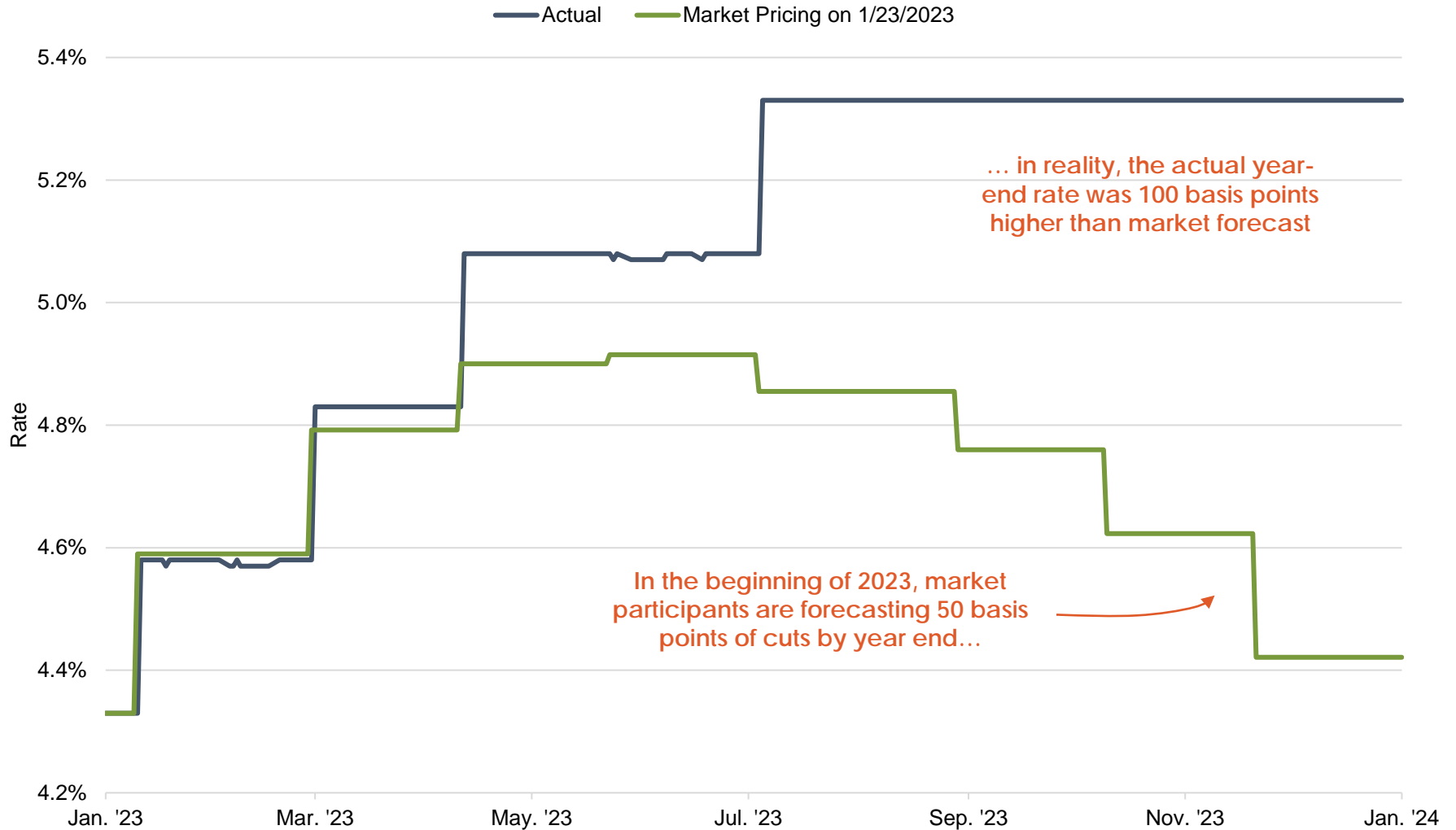
Fed had "real" rates in positive territory a year into the hiking cycle

Source: Bloomberg, Bureau of Economic Analysis



# Bond Investors: Often Wrong, But Never In Doubt!

## Actual Effective Fed Funds Rate Versus OIS\* Market Implied Rate



Source: Bloomberg

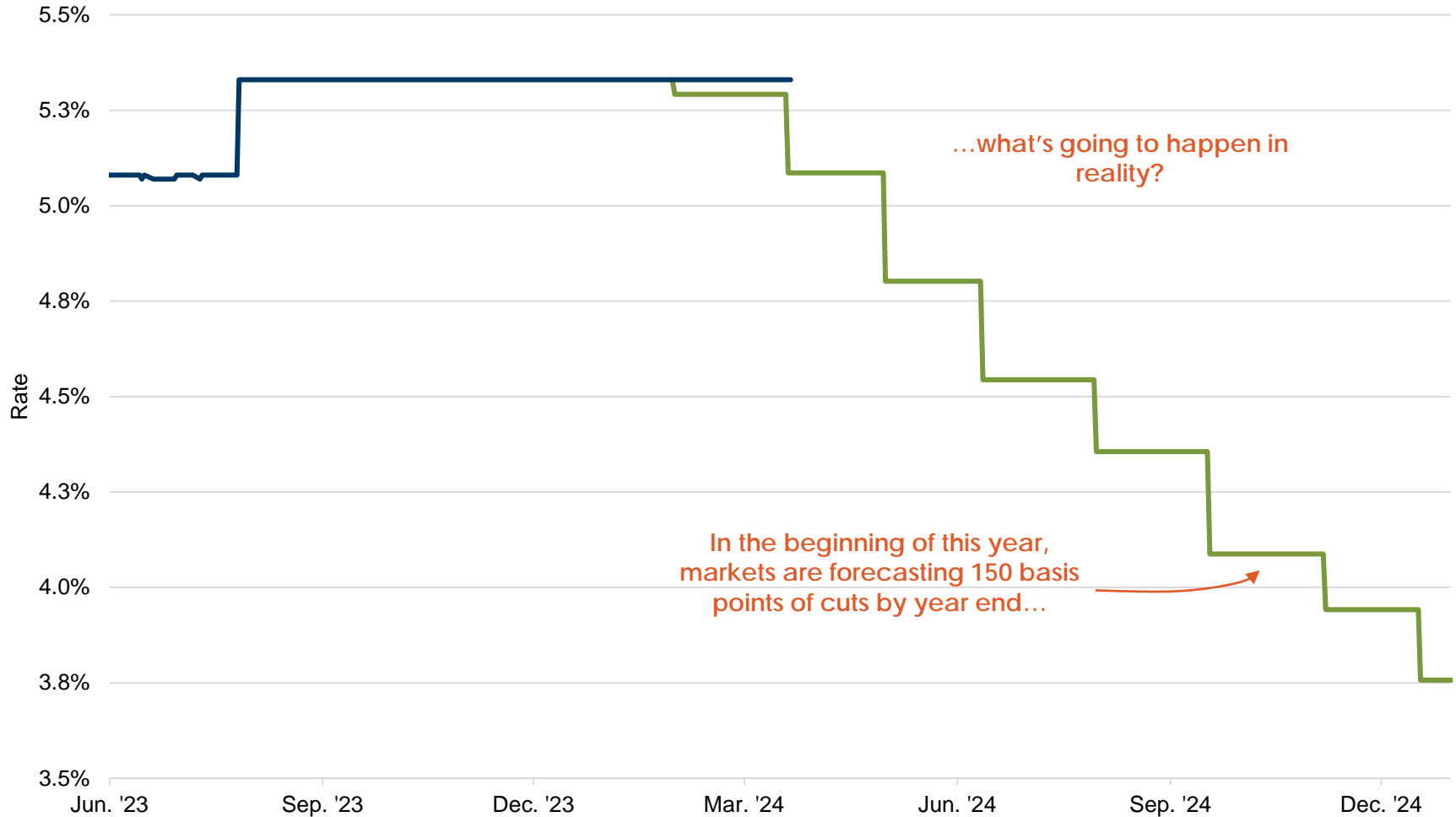
\*Overnight Index Swap (OIS) market



# Will 2024 Be Different? Market Pricing Began Aggressively Predicting Cuts

## Actual Effective Fed Funds Rate Versus OIS\* Market Implied Rate

— Market Pricing on 2/7/2024 — Actual



...what's going to happen in reality?

In the beginning of this year, markets are forecasting 150 basis points of cuts by year end...

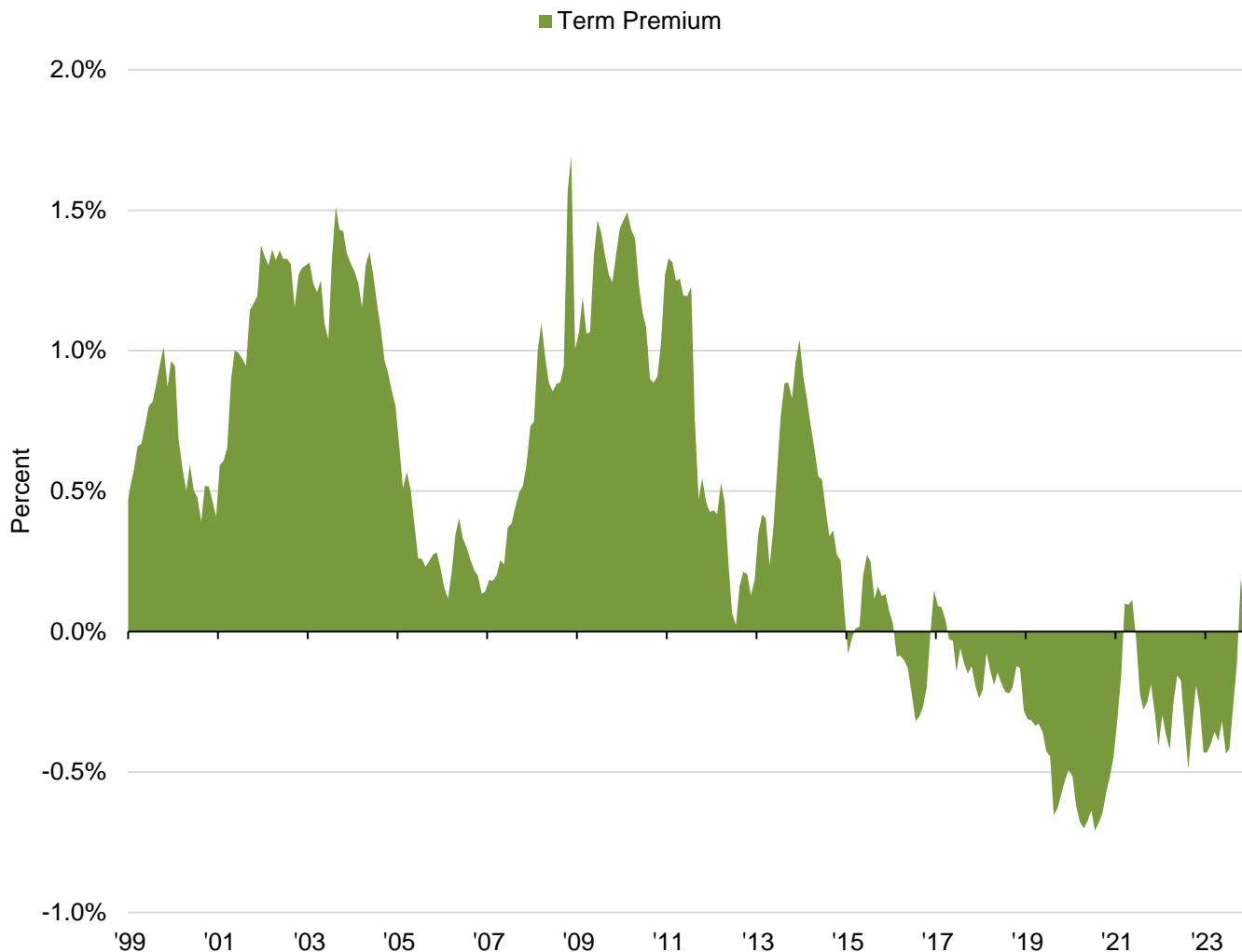
Source: Bloomberg

\*Overnight Index Swap (OIS) market



# Building Block 3: Term Premium

## Decomposition of the 10-Year Yield Fair Value Model

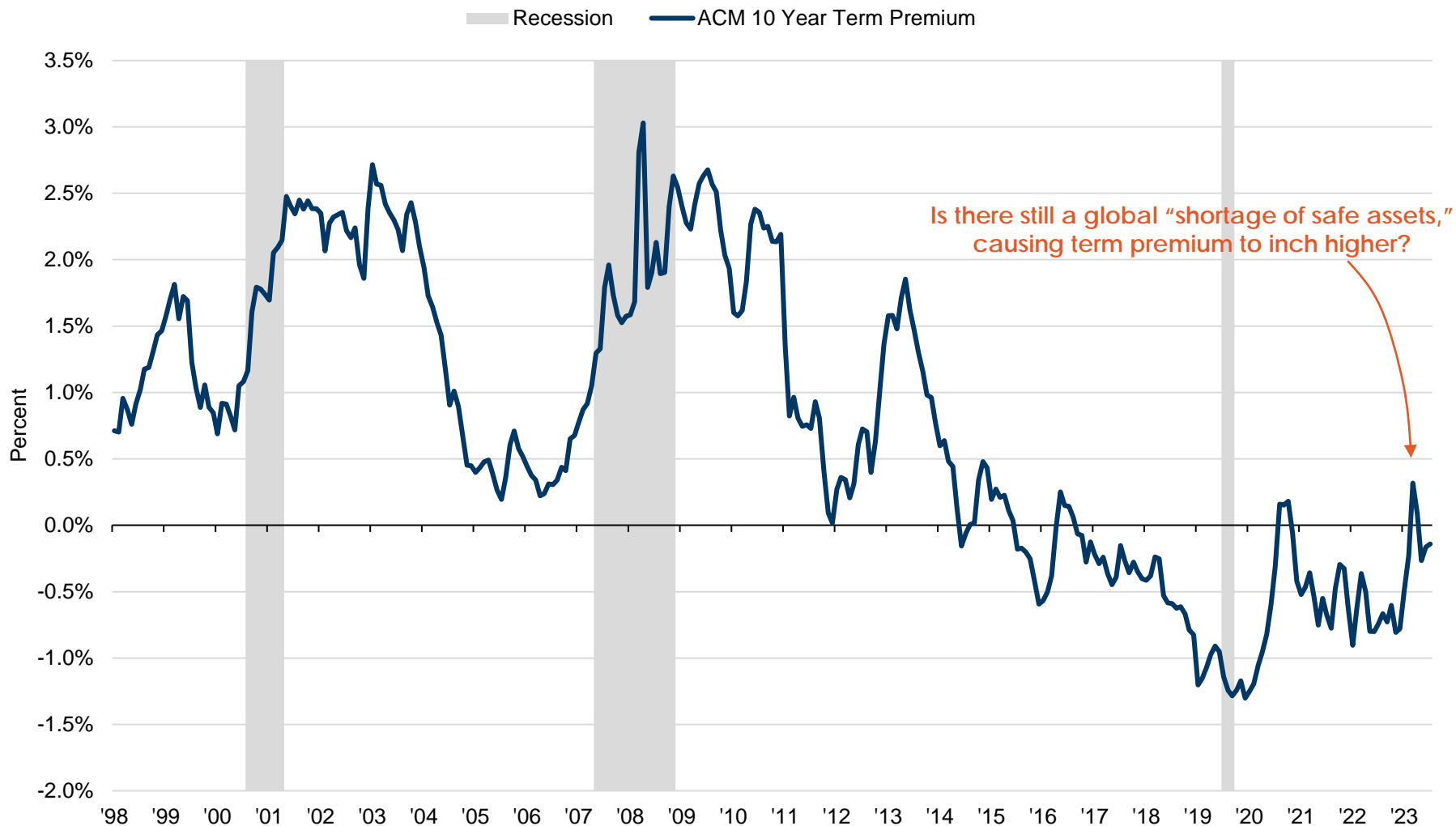


Source: Federal Reserve Bank of New York



# How Investors Feel About Locking Up Their Money In U.S. Treasuries

## Adrian, Crump, and Moench (ACM) Model of Treasury Term Premia



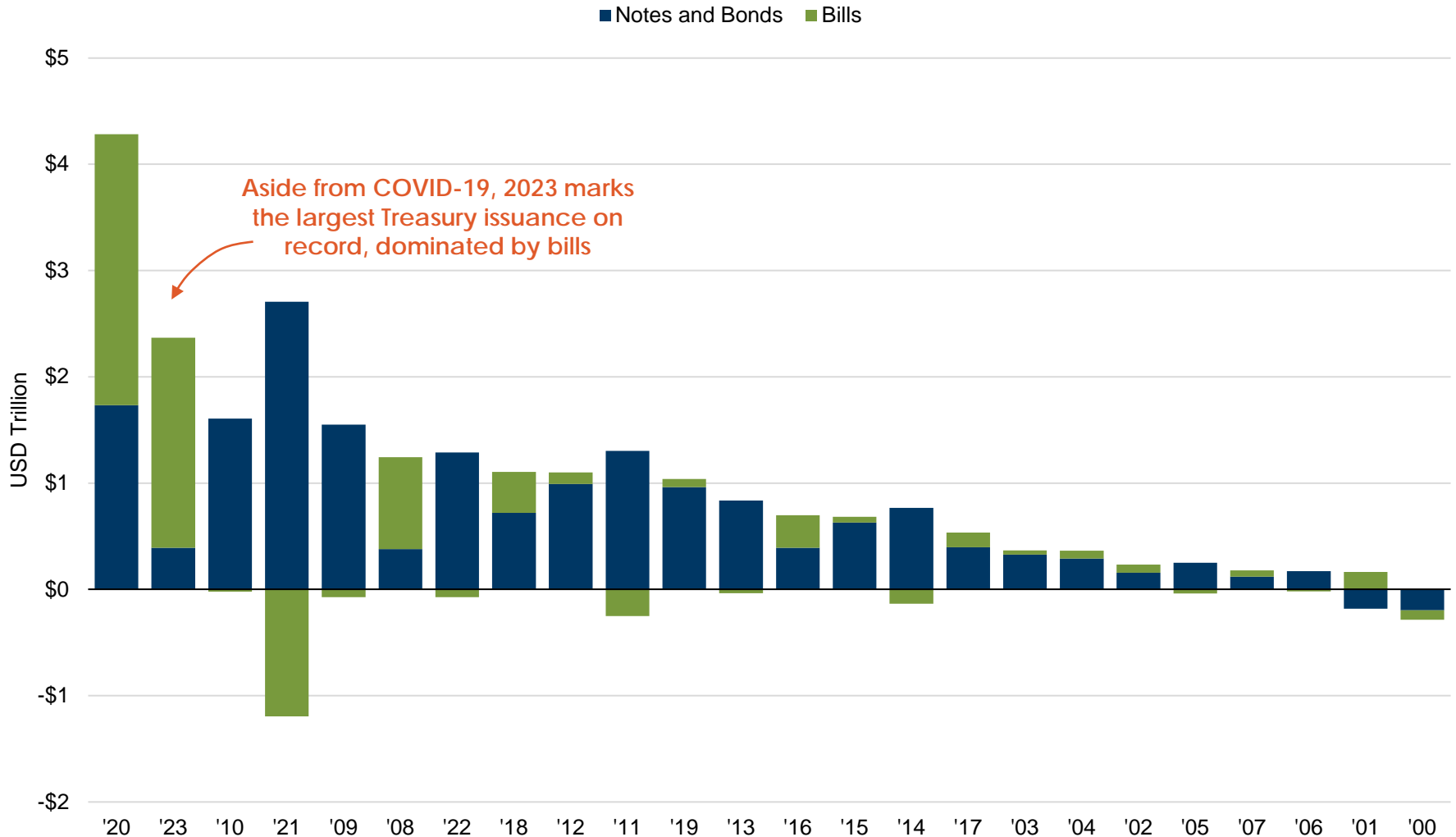
Source: Federal Reserve Bank of New York





# 2023: The Year With the Biggest Net Treasury Issuance, Aside from During COVID

## U.S. Treasury Net Issuance By Year From Largest To Smallest

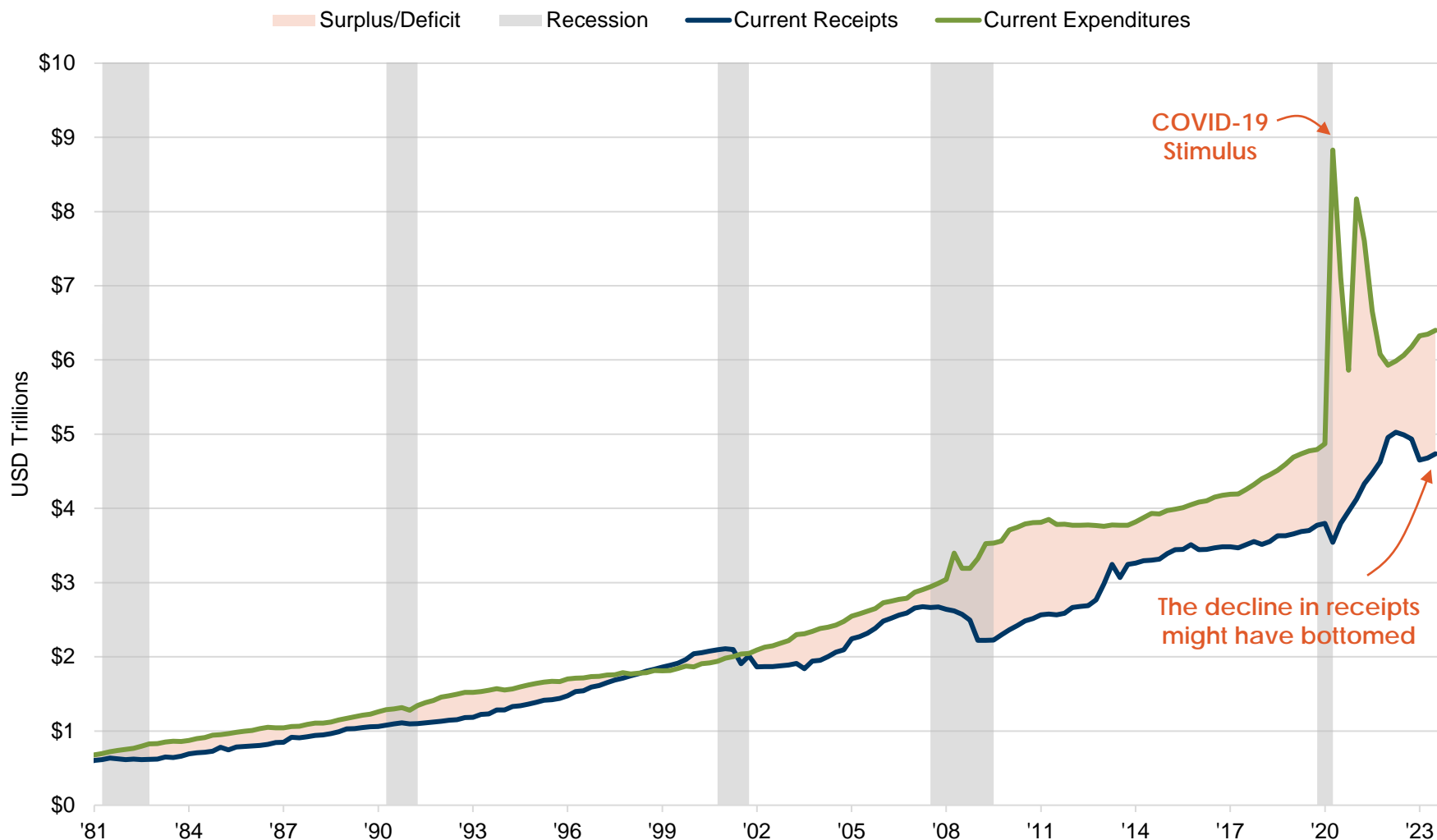


Source: Securities Industry And Financial Markets Association



# Widening Deficit Means That Treasury Issuance Will Remain High In 2024

## Federal Government Current Expenditures And Current Receipts

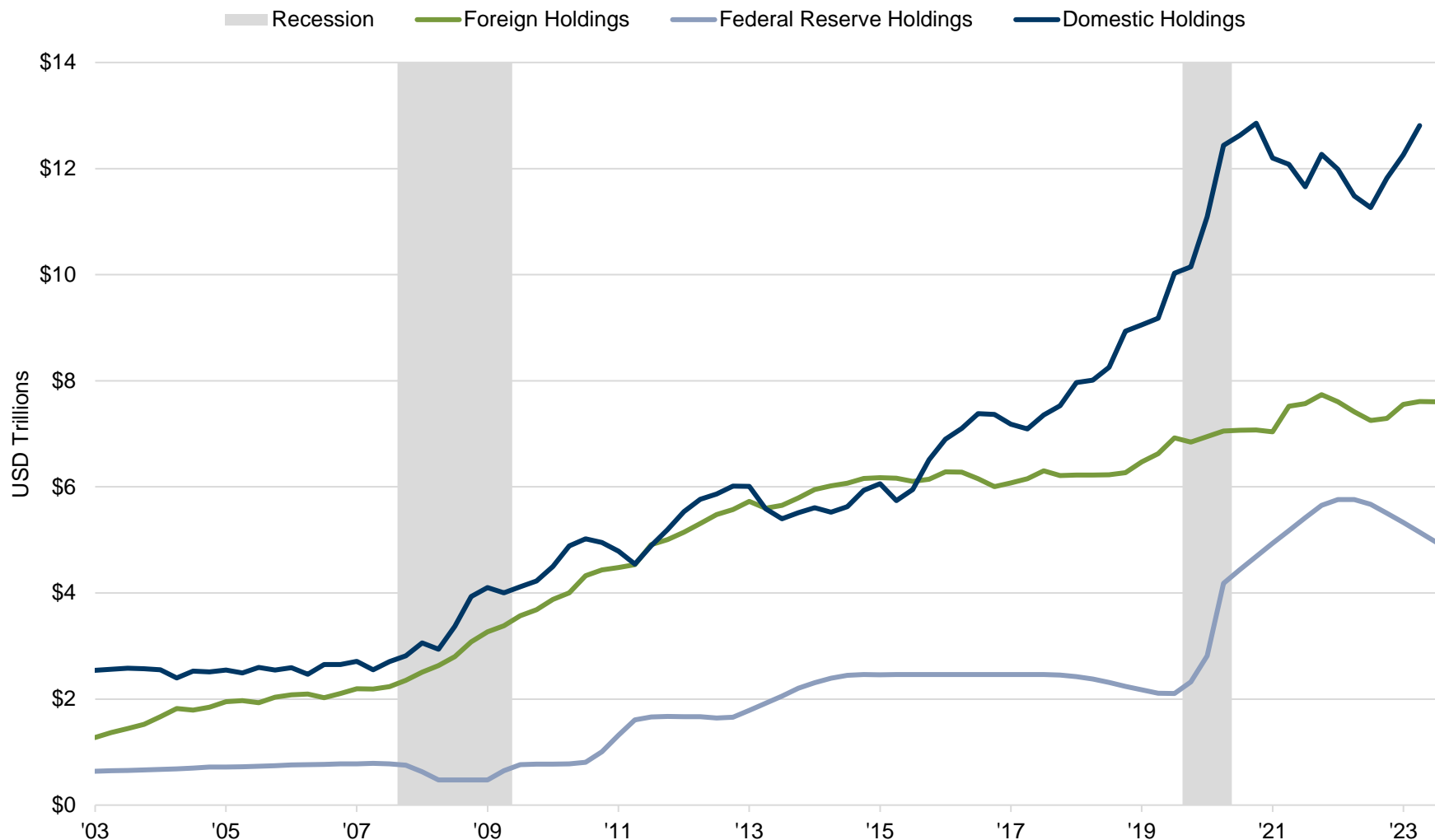


Source: Bureau of Economic Analysis



# The Treasury Is The World's Safe Asset—Held By Foreign Central Banks And The Fed

## U.S. Treasury Holdings – Foreign Holders, Federal Reserve, and Domestically In The U.S.

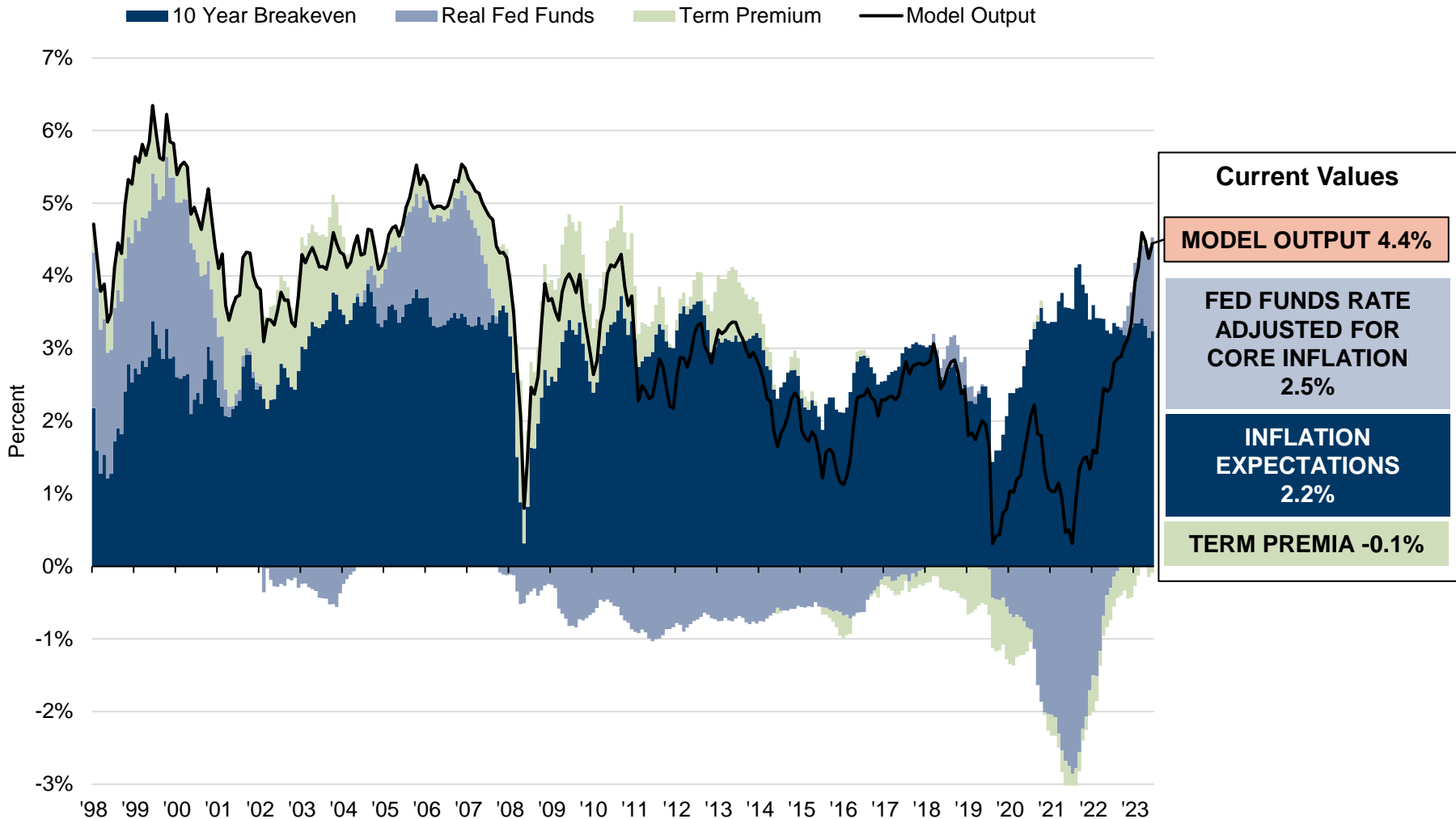


Source: U.S. Treasury, Federal Reserve



# Now That You Understand The Building Blocks, Let's Put Them Together!

## Decomposition of the 10-Year Yield Fair Value Model

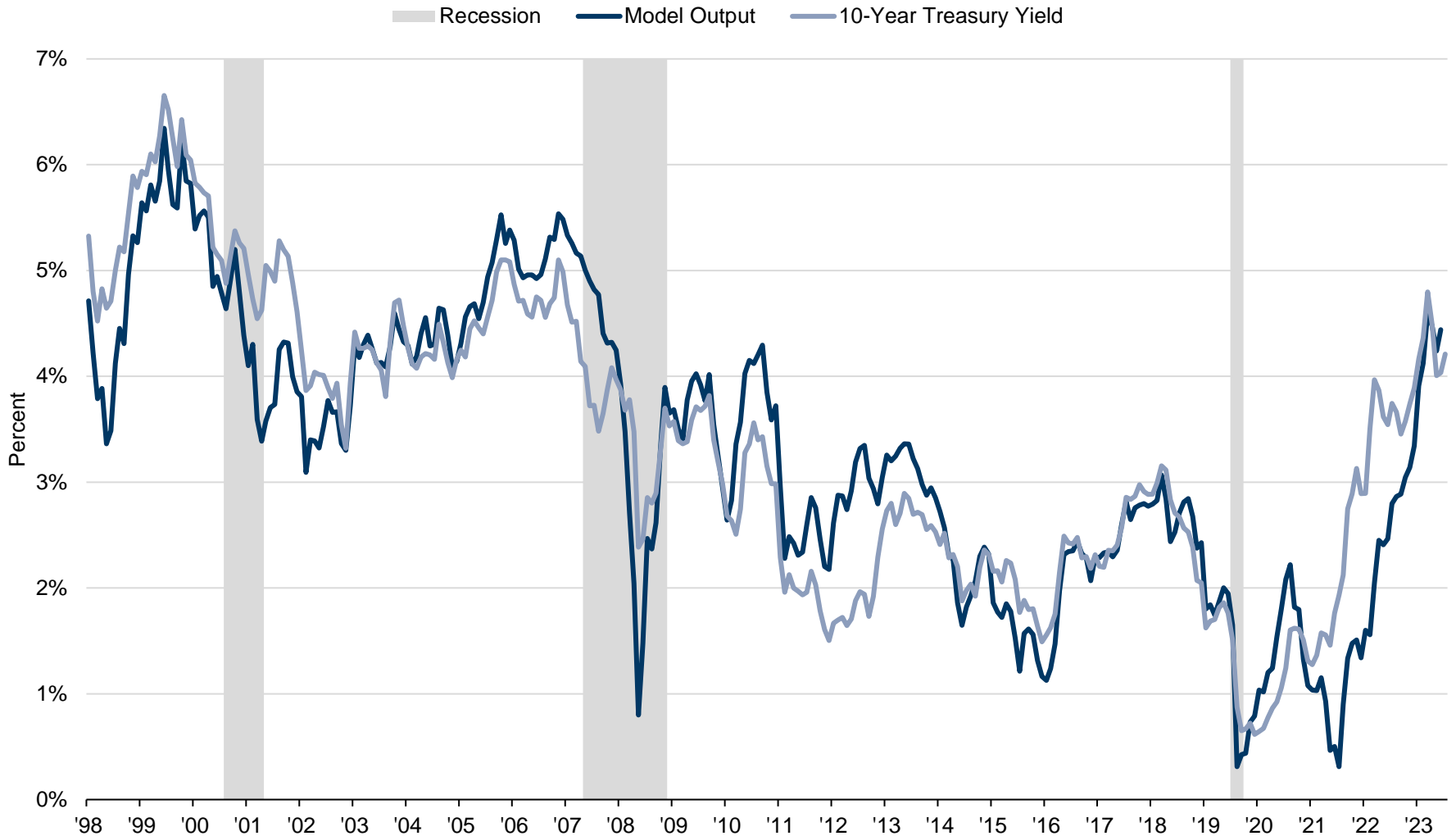


Source: Federal Reserve, Bureau of Economic Analysis, Bloomberg, Payden Calculations



# Historically, Our Framework Has Worked Well!

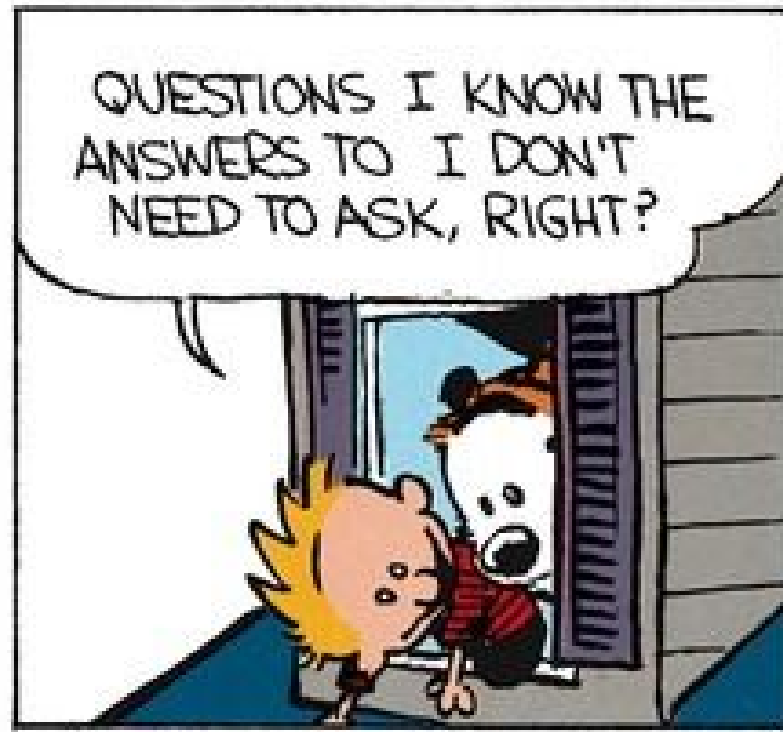
## 10-Year Yield Versus Fair Value Model



Source: Federal Reserve Bank of San Francisco, Bloomberg, Payden Calculations



# Any Questions?





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SUMMER 2017  
Our Perspective on Issues Affecting Global Financial Markets

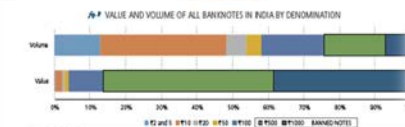
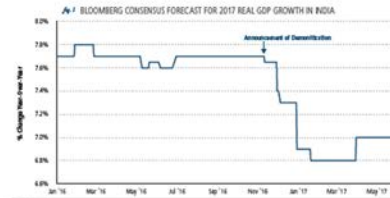
### India Undergoing Modifications: putting "demonetization" in perspective

It is just like any other Tuesday morning in New Delhi, the capital of India. The work week begins during the official observation, the holiday city is quiet, then usual as people seek refuge in their homes. On this cold night, November 8th, Prime Minister of India, calls into the cameras to make a real and meaningful announcement. With the demonetization of a bank of notes announcing that his country is going to be a more developed nation, bank money and currencies are being used, holding (old) bank in the new world development, and government that the new larger denomination notes (the 500 rupee and 1000 rupee, equivalent to \$7.71 and \$15.67) in use will no longer be legal tender from midnight tonight.

Once seen in action, demonetization is a bit in India's economic history. Demonetization is merely the halfway point on the path to the real change someone should be focused on: digitization. The Modi government retained the process of digitization as having four responsibilities: banking infrastructure, digital records, and ultimately, making common sense. We will continue to work in terms. The primary target with the Aadhaar Act of 2016 and, we think, ends with the implementation.

**"ON THIS COLD NIGHT, NARENDRA MODI, PRIME MINISTER OF INDIA, TAKES OVER THE AIRWAYS TO MAKE A SUDDEN AND STUNNING ANNOUNCEMENT"**

vision of India's. If India can achieve the substantial benefits along the way, it will enjoy the fruits of being a truly digital economy.



### INDIA BEFORE 2009: FINDING AN IDENTITY

Most citizens in the developed world contemplate their identity in values and deeper rights.

In India, before 2009, nearly 50% of the population lacked an official identity. Millions of babies were born every year without a birth certificate, which prohibits their inclusion from basic services such as driving licenses, bank accounts and mobile phones.

To remedy this problem, India launched a project called Aadhaar, a nationwide biometric database based on a unique digital identity. Enrollment and retention were high across India. Aadhaar is the largest

system with just their Aadhaar identification number. The proliferation of new bank accounts as a result of the initiative brought to mind. Over 270 million new bank accounts were opened in the span of three years.

One of the primary incentives used to convince the previously unbanked to open an account was the linkage to social welfare programs. The rural population finally had an efficient and secure method of receiving an social welfare program provided by the state and government with less leakage. One people could instantly open a mobile phone account with their Aadhaar numbers, mobile phone services equally increased as well. In March 2017, the government made Aadhaar verification mandatory for all mobile phone services.

### "MOST CITIZENS IN THE DEVELOPED WORLD CONTEMPLATE THEIR IDENTITY IN SELFIES AND SLEEPLESS NIGHTS. IN INDIA, BEFORE 2009, NEARLY 50% OF THE POPULATION LACKED AN OFFICIAL IDENTITY"

Biometric databases in the world and has achieved a similar participation rate of 90% for those over the age of 18. To ease the scale of this massive data's register, the number of "identifiers" Indians now require to roughly 10% of the world's population.

### ERECTING A DIGITAL BANKING INFRASTRUCTURE

The next phase of India's digital infrastructure overhaul was the banking and mobile phone industry. Building on the identification infrastructure, digital banking now allows Indian citizens to open an

### THE WAR ON CASH

This brings us to another cornerstone: once bank accounts and mobile banking digital and linked to biometric, cash is no longer needed.

In his initial speech (the one quoted at the beginning of this article), Modi gave the country until the end of 2016 to deposit their cash in a bank account. The idea is to curb the circulation of money in the shadow economy, the so-called "black" money, thereby making counterfeit notes used by nefarious elements in society worthless.

However, in an economy where cash transactions make up 50% of all consumer transactions, "printing out" 50% of the country's circulation was disruptive, to say the least (see Figure 2).

Working people across India skipped work for days or weeks at a time to make sure their cash was properly deposited into banks. The same citizens spent additional days or weeks waiting in line at ATMs to withdraw new notes, a natural difficulty to overcome in a rural or daily business. The subsequent cash shortage affected millions. Without cash, the economy temporarily froze.

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# Payden & Rygel

LOS ANGELES | BOSTON | LONDON | MILAN



## Los Angeles

333 South Grand Ave.  
Los Angeles,  
CA 90071  
USA

Tel +1 213 625 1900

## Boston

265 Franklin Street  
Boston,  
MA 02110  
USA

Tel +1 617 807 1990

## London

1 Bartholomew Lane  
London  
EC2N 2AX  
UK

Tel +44 20 7621 3000

## Milan

Corso Matteotti, 1  
20121  
Milan  
Italy

Tel +39 02 7606 7111

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**[MOlander@FloridaTrustOnline.com](mailto:MOlander@FloridaTrustOnline.com)**



**3544 Maclay Blvd. Tallahassee**

