Introduction to Investing in Bonds, Options, and Currencies

Lecture 1

Professor Andrea Eisfeldt

UCLA Anderson School of Management

Spring 2026

Outline

Professor Eisfeldt

- Laurence and Lori Fink Endowed Chair in Finance
- University of Chicago PhD 2000
- 10 years at Kellogg School of Management; at Anderson since 2010
- Leaves of absence / consulting:
  - Chief Economist, Structured Portfolio Management (MBS hedge fund)
  - Consultant, AQR
- Currently:
  - Board Member, UCLA Investment Company
  - Academic Advisory Board, Vise, Inc.
  - Launching 2 ETFs with Simplify
- Research: Fixed income, hedge fund strategies, MBS, FinTech, banking
- Office Hours: By advance appointment, Entrepreneur's Hall C4.10

Course Description

This course prepares students to understand and manage investments in non-equity markets, including:

- Bonds and fixed income markets
- Derivatives markets (futures and options)
- International financial markets (currencies and swaps)

We cover each topic from the ground up, starting with the basics and finishing with current investment strategies. Links to current events and what is happening in the real economy and financial markets will be emphasized.

This class can be a jumping off point for full-quarter classes in fixed income, international finance, and/or derivatives, but it is intended to cover the foundational material needed to be proficient in investment management on the buy or sell side of these asset classes.

Deliverables

Component	Weight
Class Participation	10%
Individual HWs (3, equally weighted)	30%
Bond Pricing & Risk Attribution	
Options & Futures Pricing	
FX & Parity Relationships	
Group Strategy Proposals (3, equally weighted)	40%
Fixed Income Strategy	
Derivatives Strategy	
International Strategy	
Weekly Quizzes (8, drop lowest 2)	20%

Course Outline

Module 1: Fixed Income (Weeks 1–3)

Bond overview, pricing, duration, MBS, corporate bonds, FI strategies

Module 2: Derivatives (Weeks 4–6)

Forwards, futures, swaps, options payoffs, Black-Scholes, Greeks, strategies

Module 3: Currencies & International (Weeks 7–9)

FX markets, central banking, parity relations, carry trades, macro bets

Capstone (Week 10)

Best Idea Presentations — groups present their strongest strategy proposal

Bonds Outline

Bonds Part I
(Week 1)

- Current Outlook
- Bond Characteristics
- Risk Attributes
- Risk-Free Rates and the Fed

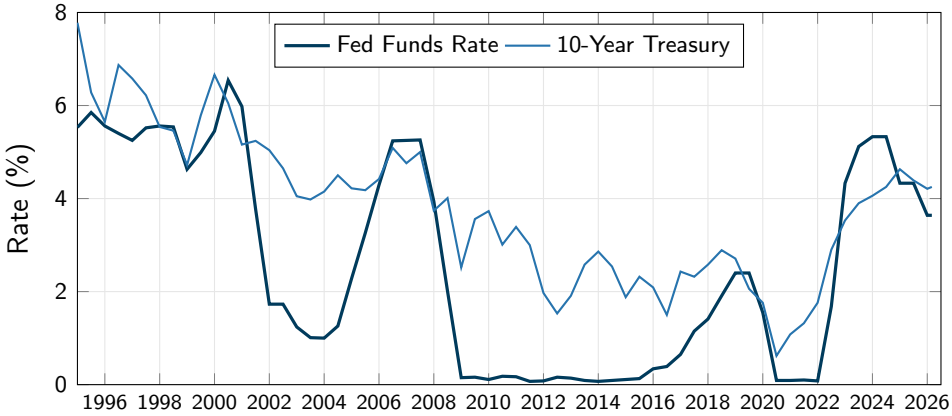
Bonds Part II
(Week 2)

- Bond Pricing
- Duration, Convexity
- Corporate Bonds
- MBS, Muni Bonds

Bonds Part III
(Week 3)

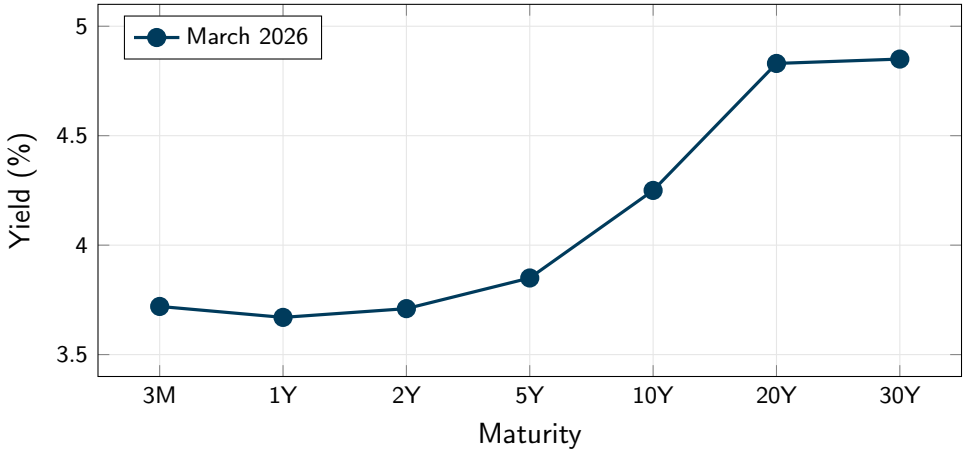
- Fixed Income Arbitrage
- Basis Trades
- Carry Trades
- Value Trades
- Event Trades
- Macro / Firm-Level

Fed Funds Rate vs. 10-Year Treasury (1995–2026)



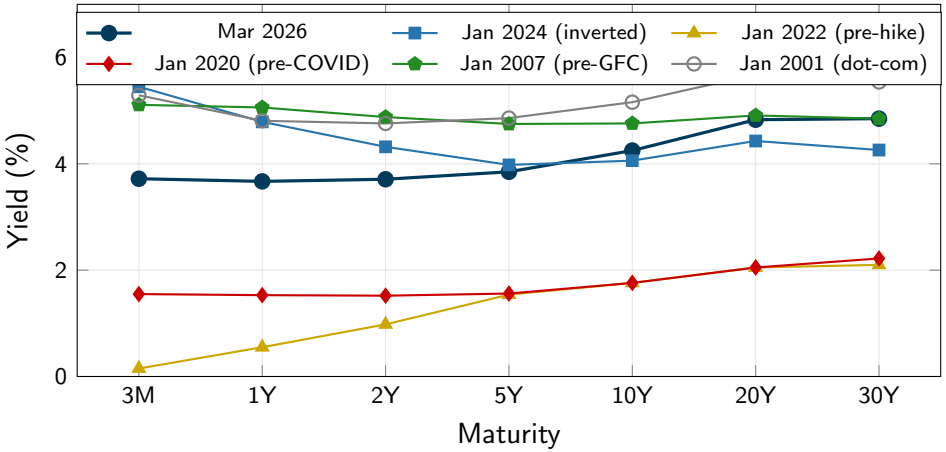
Source: Federal Reserve H.15 Release. Semi-annual data, 1995–2026.

Current Yield Curve (March 2026)



Source: Federal Reserve H.15 Release. Curve is upward sloping again after extended inversion.

Yield Curves at Selected Dates



Source: Federal Reserve H.15 Release. Monthly data for selected months.

FOMC Projections: GDP, Unemployment, Inflation (March 2026)

For release at 2:00 p.m., EDT, March 18, 2026

Table 1. Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents, under their individual assumptions of projected appropriate monetary policy, March 2026

Percent

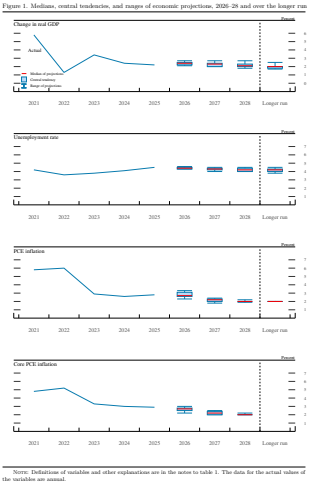
Variable	Median[1]				Central Tendency[2]				Range[3]			
	2026	2027	2028	Longer run	2026	2027	2028	Longer run	2026	2027	2028	Longer run
Change in real GDP	2.4	2.3	2.1	2.0	2.2–2.5	2.0–2.4	2.0–2.3	1.8–2.0	2.1–2.7	2.0–2.7	1.8–2.7	1.7–2.5
December projection	2.3	2.0	1.9	1.8	2.1–2.5	1.9–2.3	1.8–2.1	1.8–2.0	2.0–2.6	1.8–2.6	1.7–2.6	1.7–2.5
Unemployment rate	4.4	4.3	4.2	4.2	4.3–4.5	4.2–4.4	4.0–4.4	4.0–4.3	4.3–4.6	4.0–4.5	4.0–4.5	3.8–4.5
December projection	4.4	4.2	4.2	4.2	4.3–4.4	4.2–4.3	4.0–4.3	4.0–4.3	4.2–4.6	4.0–4.5	4.0–4.5	3.8–4.5
PCE inflation	2.7	2.2	2.0	2.0	2.6–3.1	2.0–2.3	2.0	2.0	2.3–3.3	1.8–2.4	1.9–2.2	2.0
December projection	2.4	2.1	2.0	2.0	2.3–2.5	2.0–2.2	2.0	2.0	2.2–2.7	2.0–2.3	2.0	2.0
Core PCE inflation[4]	2.7	2.2	2.0		2.5–2.8	2.0–2.4	2.0		2.2–3.0	2.0–2.5	2.0–2.2	
December projection	2.5	2.1	2.0		2.4–2.6	2.0–2.2	2.0		2.2–2.7	2.0–2.5	2.0	
Memo: Projected appropriate policy path												
Federal funds rate	3.4	3.1	3.1	3.1	3.1–3.6	2.9–3.6	2.9–3.6	2.9–3.5	2.6–3.6	2.4–3.9	2.6–3.9	2.6–3.9
December projection	3.4	3.1	3.1	3.0	2.9–3.6	2.9–3.6	2.8–3.6	2.8–3.5	2.1–3.9	2.4–3.9	2.6–3.9	2.6–3.9

NOTE: Projections of change in real gross domestic product (GDP) and projections for both measures of inflation are percent changes from the fourth quarter of the previous year to the fourth quarter of the year indicated. PCE inflation and core PCE inflation are the percentage rates of change in, respectively, the price index for personal consumption expenditures (PCE) and the price index for PCE excluding food and energy. Projections for the unemployment rate are for the average civilian unemployment rate in the fourth quarter of the year indicated. Each participant's projections are based on his or her assessment of appropriate monetary policy. Longer-run projections represent each participant's assessment of the rate to which each variable would be expected to converge under appropriate monetary policy and in the absence of further shocks to the economy. The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year or over the longer run. The December projections were made in conjunction with the meeting of the Federal Open Market Committee on December 9–10, 2025.

1. For each period, the median is the middle projection when the projections are arranged from lowest to highest. When the number of projections is even, the median is the average of the two middle projections.
2. The central tendency excludes the three highest and three lowest projections for each variable in each year.
3. The range for a variable in a given year includes all participants' projections, from lowest to highest, for that variable in that year.
4. Longer-run projections for core PCE inflation are not collected.

Source: FOMC Summary of Economic Projections, March 18, 2026.

FOMC "Dot Plot": Federal Funds Rate Projections (March 2026)



Source: FOMC Summary of Economic Projections, March 18, 2026.

Current Fixed Income Yields (Spring 2026)

US Treasuries

3-Month T-Bill	3.72%
2-Year Note	3.71%
5-Year Note	3.85%
10-Year Note	4.25%
30-Year Bond	4.85%

Corporate Credit (OAS)

Investment Grade	$\sim$90bp
BBB	$\sim$130bp
High Yield	$\sim$330bp

Mortgages & Securitized

30-Yr Fixed Mortgage	$\sim$6.7%

Foreign Sovereign (10-Yr)

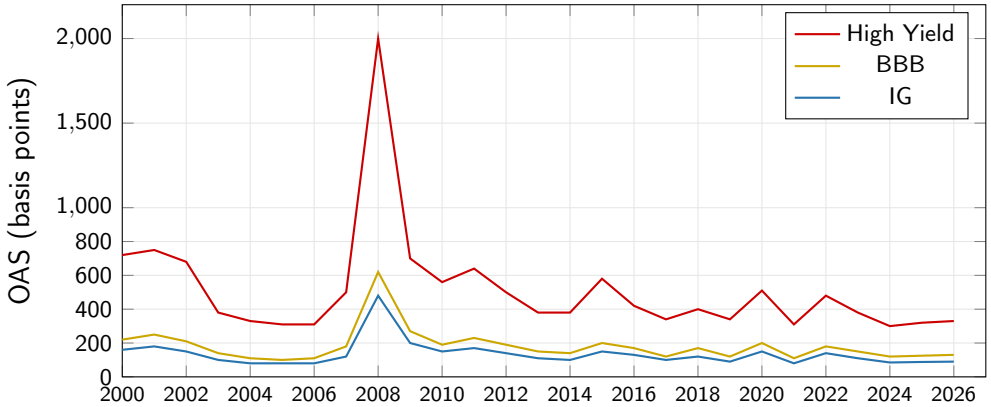
German Bund	$\sim$2.7%
Japan JGB	$\sim$1.5%
UK Gilt	$\sim$4.7%

Private Credit

BDC / Direct Lending	9–11%

Sources: Fed H.15, ICE BofA, Bloomberg, VanEck. Data as of March 2026.

Credit Spreads: Historical (2000–2026)



Source: ICE BofA indices via FRED. Annual snapshots.

Investor Letters: Howard Marks (Oaktree)

"Easy Money" (2024) — Marks' key thesis on the rate regime:

- The period from 1980 to 2021 saw declining and ultra-low interest rates
- This had significant effects on investment strategies and outcomes
- In March 2022, the Fed began raising rates to combat inflation
- The investment environment in coming years is likely to feature higher rates
- Different strategies will outperform in this new environment
- Low interest rates were like a "moving walkway" — contributing to faster pace but not solely responsible for returns

Update (Spring 2026): Fed Funds now at 3.50–3.75%, down from 5.25–5.50% peak. But 10-year yields remain above 4%. The "Easy Money" era is over.

`https://www.oaktreecapital.com/insights`

Market Outlook: JPM Guide to the Markets

See JPM Guide to the Markets — Fixed Income Section

`https://am.jpmorgan.com/us/en/asset-management/adv/insights/market-insights/guide-to-the-markets/`

Key themes from the latest edition:

- Yields across fixed income offer attractive income after a decade of near-zero
- Investment-grade credit spreads remain tight by historical standards
- Treasury supply from large deficits continues to pressure long-end yields
- The Fed has cut rates but long rates have not followed — the curve has steepened

Market Outlook: Jeff Gundlach (DoubleLine)

"Just Markets: Clue" — 2026 Annual Webcast

- Long-term rates have remained elevated despite aggressive Fed rate cuts
- Why? Expanding government issuance and persistent deficits
- Inflation likely to remain structurally above 2%
- The dollar could be entering a weaker phase
- Recommended allocation:
  - ∼40% Equities
  - ∼30% Fixed Income (high quality)
  - ∼15% Real Assets (gold, commodities)
  - ∼15% Income-Oriented "Dry Powder"

`https://doubleline.com/markets-insights/`

Market Outlook: Nancy Davis (Quadratic / IVOL ETF)

IVOL: A fixed income ETF that hedges against interest rate movements and benefits from market stress.

- Invests ∼80% in US Treasury TIPS, plus fixed income options
- Designed to profit from yield curve steepening and rate volatility
- Has paid at least 30bps/month (∼3.6%/year) for over 4 years

Davis on 2026:

- "The yield curve normalizing is what's good for IVOL. But IVOL can also perform well if the Fed cuts more than expected or if stagflation takes hold."
- Low expectations for curve steepening and volatility = opportunity

`https://www.ivoletf.com/`

Market Outlook: Bill Gross

The "Bond King" on the new regime:

- Historical research: 10-year Treasury typically trades at CPI + 175bp
- With inflation at 2.4%, fair value for 10-year $\approx$ 4.15–4.25%
- Current 10-year yield: 4.25% — roughly at fair value
- Budget deficits and resulting bond supply keep yields elevated
- A weak dollar adds to inflation pressure
- Gross declared the "total return" bond fund concept he helped originate "is dead"
- Prefers low/medium PE stocks with attractive 4%+ dividend yields

`https://williamhgross.com/`

Famous Bond Trades and Traders

Bill Gross — Co-founded PIMCO (1971), managed it until 2014.

- Most profitable trade: bet against MBS during the 2008 crisis
- Correctly anticipated severity of housing collapse and Fed's aggressive response
- In 2011, famously called US Treasuries "The Crock of Gold at the End of the Rainbow"

Jeff Gundlach — Founder and CEO of DoubleLine Capital.

- Gained prominence during 2008 crisis for prescient housing market views
- In 2011, recommended shorting long-term Treasuries at the Ira Sohn Conference
- Argued low yields were unsustainable — a bold contrarian call at the time

Current Events: What Is Driving Rates in Spring 2026?

- **Fed on hold:** Fed Funds at 3.50–3.75% after cutting from 5.25–5.50% peak
- **Inflation sticky:** CPI at 2.4% YoY, Core CPI at 2.5% — above 2% target
- **FOMC dot plot:** Median projects one more cut this year (to $\sim$3.4%)
- **Markets skeptical:** Fed funds futures price $\sim$95% chance of hold in April; only $\sim$36% chance of a cut by December
- **Long rates stubbornly high:** 10-year at 4.25%, 30-year at 4.85%
- **Fiscal deficits:** Treasury supply continues to weigh on long end
- **Geopolitical risk:** Middle East tensions (Iran, Persian Gulf) adding uncertainty

Discussion: What do you think is most important for the future path of rates?

Types of Bonds

- US Treasury / Government
- States, municipalities, and agencies (munis, Fannie/Freddie)
- Corporate bonds (investment grade and high yield)
- Foreign governments (sovereign bonds)
- Asset-backed securities (MBS, ABS, CLOs)

Bloomberg US Aggregate Bond Index

Broad market benchmark covering Treasuries, agencies, MBS, and investment-grade corporates.
`https://www.blackrock.com/us/individual/literature/fact-sheet/bmopx-ishares-u-s-aggregate-bond-index-fund-factsheet-us0669232284-us-en-individual.pdf`

Key Features of Bonds

1. **Issuer:** US Treasury, states/munis/agencies, corporates, foreign governments
2. **Term (maturity):**
   - Short (<1yr): T-bills, CDs, commercial paper
   - Long (>1yr): T-bonds, corporate bonds
   - Perpetual: consols
3. **Price vs. par value** (face value)
   - Par bond, discount bond, premium bond
4. **Coupon:** Coupon rate, period (usually semi-annual), fixed or variable (floaters/inverse floaters), nominal or inflation-indexed (TIPS)
5. **Currency and trading venue:** Yankee bonds, Eurobonds, Samurai bonds
6. **Credit risk:** Risk-free vs. defaultable, seniority, covenants, option provisions

Key Bond Risks

- **Interest rate risk:** Bond prices fall when rates rise (more on this in duration)
- **Credit / default risk:** Issuer may fail to pay coupons or principal
- **Inflation risk:** Fixed coupons lose purchasing power
- **Liquidity risk:** Some bonds trade infrequently, wide bid-ask spreads
- **Reinvestment risk:** Coupon payments may be reinvested at lower rates
- **Call / prepayment risk:** Issuer may redeem early (corporates, MBS)
- **Currency risk:** For foreign-denominated bonds

Discussion: What do you hope to learn in this course?

Review of Bond Returns: Coupon Rate (r_c)

What is it?
The interest payments stated in the bond prospectus.

How do we calculate it given a bond price?
We don't. The coupon rate is contractual — it does not depend on the price.

Example

A bond with face value \$1,000 and annual coupon of \$80 has $r_c = 8\%$.

Review of Bond Returns: Promised Return / Yield (y)

What is it?
The return investors would earn if the bond made all of its promised interest and principal payments.

How do we calculate it given a bond price?
Take the *promised* payments and impute the return which justifies the price:

$$P = \frac{C}{1+y} + \frac{C}{(1+y)^2} + \cdots + \frac{C+FV}{(1+y)^n}$$

The yield y is the single discount rate that equates the price to the PV of all promised cash flows.

Review of Bond Returns: Expected Return (r_{exp})

What is it?
The return expected from holding the bond, accounting for the risk of default.

How do we calculate it given a bond price?
Take the *expected* payments and impute the return which justifies the price:

$$P = \frac{E[\text{CF}_1]}{1 + r_{\text{exp}}} + \frac{E[\text{CF}_2]}{(1 + r_{\text{exp}})^2} + \cdots + \frac{E[\text{CF}_n]}{(1 + r_{\text{exp}})^n}$$

For risky bonds: $y > r_{\text{exp}} > r_f$

The gap between y and r_{exp} reflects the **expected loss from default**.

Bond Returns: Golden Sachs Example

The return on one-year government bonds is 5%. Golden Sachs one-year corporate bonds pay a 10% coupon (face value 1000, so they pay 1100 next year if no default).

The beta on Golden Sachs bonds is 0.33 and the market risk premium is 7.6%.

Probability of default is 20%. If default, bonds return principal but no interest.

Step 1: Expected return (CAPM):

$$r_{\text{exp}} = r_f + \beta(E[r_m] - r_f) = 5\% + 0.33 \times 7.6\% = 7.5\%$$

Step 2: Price the bond using expected cash flows discounted at expected return:

$$P = \frac{0.80 \times 1100 + 0.20 \times 1000}{1.075} = \frac{1080}{1.075} \approx 1004.65$$

Bond Returns: Promised vs. Expected

From the Golden Sachs example, the bond sells for ∼\$1005 (approximately par).

Promised yield: Given the price, what return justifies the price assuming all payments are made?

$$1005 = \frac{1100}{1+y} \quad \Rightarrow \quad y \approx 9.5\%$$

Summary of the three returns:

Measure	Rate	Uses
Coupon rate r_c	10%	Contractual
Promised return y	9.5%	Promised cash flows
Expected return r_{exp}	7.5%	Expected cash flows (CAPM)
Risk-free rate r_f	5%	Benchmark

Is the promised return greater or less than the expected return? Always greater for risky bonds. Why?

Prices and Yields Are Inversely Related

Prices and yields are inversely related
(just like discount rates / expected returns and prices!)

Headlines that say "Bond yields are up because bond prices are down" are **tautological**.

The real question is always: **Why did the discount rate change?**

- Change in expected short rates (monetary policy)?
- Change in term premium?
- Change in credit risk?
- Change in inflation expectations?

The US Yield Curve

Government yield curve: Government yields plotted against time to maturity.

Typical (normal) yield curve: Upward sloping — longer maturities earn higher yields (term premia).

Inverted yield curve: Short rates exceed long rates — historically predicts recessions.

Economist joke: "An inverted yield curve predicted 10 of the last 5 recessions."

Why might an inverted yield curve predict a recession?

Term Premia and the Expectations Hypothesis

Expectations Hypothesis:
Long rates = average of expected future short rates + term premium.

If forward rates were unbiased forecasts of expected future spot rates, we could read the market's rate expectations directly from the curve.

But: Forward rates are *not* unbiased forecasts. There is a **term premium** — compensation for bearing the risk of holding longer-duration bonds.

Sources of risk in long bonds:

1. **Inflation risk:** Nominal rate does not lock in real rate
2. **Real interest rate risk:** Locked into a rate when rates change

As a result, forward rates are not unbiased predictors of expected future spot rates.

See Cochrane (2005), *Asset Pricing*, Ch. 20.

The Fed's Dual Mandate

In 1977, Congress amended the Federal Reserve Act:

> *"The Board of Governors . . . shall maintain long run growth of the monetary and credit aggregates commensurate with the economy's long run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices and moderate long-term interest rates."*

In 2020, the Fed added:

- Inflation target of 2% (PCE), with **average inflation targeting**
- Maximum employment is "broad-based and inclusive"
- Following periods of below-2% inflation, policy may aim for moderately above 2%

`https://www.federalreserve.gov/monetarypolicy/` (Longer-Run Goals Statement)

The Taylor Rule

A **descriptive** model of how the Fed sets rates:

$$i = r^* + \pi + 0.5(\pi - \pi^*) + 0.5(y - y^*)$$

where:

- r^* = real equilibrium rate ($\sim$2%)
- π = current inflation
- π^* = target inflation (2%)
- $y - y^*$ = output gap

Spring 2026 back-of-envelope:
$i = 2 + 2.4 + 0.5(2.4 - 2) + 0.5(0) = 4.6\%$

Current Fed Funds: 3.50–3.75%. The Taylor Rule suggests the Fed may be slightly accommodative.

`https://www.brookings.edu/articles/the-taylor-rule-a-benchmark-for-monetary-policy/`

Inflation (February 2026)

- **CPI:** 2.4% YoY (unchanged from January)
- **Core CPI:** 2.5% YoY (matched forecasts)
- **Shelter:** +3.0% YoY (still elevated, but cooling)
- **Food:** +3.1% YoY (accelerated 0.4% for the month)

Key takeaway: Inflation is down substantially from 9%+ peak in mid-2022, but remains above the Fed's 2% target.

This is why the Fed is on hold — inflation is "somewhat elevated" per the FOMC statement.

Source: BLS, CPI Summary, March 11, 2026. `https://www.bls.gov/news.release/cpi.nr0.htm`

Monetary Policy: The FOMC (March 18, 2026)

- **Decision:** Hold at 3.50–3.75% (down from 5.25–5.50% peak)
- "Economic activity has been expanding at a solid pace"
- "Inflation remains somewhat elevated"
- "Uncertainty about the economic outlook remains elevated"
- **Dot plot:** Median projects one cut this year (to ∼3.4%), another in 2027 (to ∼3.1%)
- **Dissent:** One member preferred a 25bp cut

Fed Funds Futures (CME FedWatch):

- 95% probability of hold at April meeting
- ∼51% chance rates stay unchanged through December
- ∼36% chance of one 25bp cut by December

`https://www.federalreserve.gov/newsevents/pressreleases/monetary20260318a.htm`

Fed vs. Markets: What Else Drives Rates?

- The Fed can influence real rates through the reserve market
- However, real rates are also driven by supply and demand from firms, consumers, and financial intermediaries
- The Fed can "lean against the wind," but it cannot change its direction
- It is (possibly) easier for the Fed to control nominal rates by influencing inflation expectations (subject to fiscal policy)

Spring 2026 puzzle: The Fed cut rates 175bp from the peak, yet the 10-year yield is *higher* than when cuts began. Why?

- Fiscal deficits $\rightarrow$ more Treasury supply
- Inflation expectations remain above 2%
- Term premium has increased
- Geopolitical uncertainty (Middle East)

Fed Funds Rate, SOFR, LIBOR

Federal Funds Rate (FF):

- Rate at which banks lend reserve balances overnight (uncollateralized)
- Target set by FOMC; effective rate determined by market
- Current effective rate: 3.64%

LIBOR (London Interbank Offered Rate):

- Was the most widely used benchmark for short-term rates globally
- Phased out after 2023 due to manipulation scandal
- See: *The Spider Network* (book)

SOFR (Secured Overnight Financing Rate):

- Based on actual Treasury repo market transactions
- More robust and transparent than LIBOR
- Selected by ARRC as the preferred USD alternative to LIBOR

The Quantity Theory of Money

$$MV = PQ$$

- M = money supply
- V = velocity of money
- P = price level
- Q = real output

The quantity theory says that changing M by X will not change Q (in the long run), but will increase P by X.

Example: Doubling the money supply doubles prices. A gallon of milk costs \$6 instead of \$3.

Caveat: Works well over long horizons. In the short run, changes in velocity impede transmission of monetary policy to inflation.

Fiscal Theory of the Price Level

Uses the Gordon Growth Model idea to value money like any other security.

Money is simply very short-term government debt.

$$\frac{\text{Nominal Debt}_t}{\text{Price Level}_t} = E_t \sum_{j=0}^{\infty} \frac{\text{Real Primary Surplus}_{t+j}}{\text{Discount Rate}_{t,t+j}}$$

- Total value of US government debt = PV of future tax revenues
- Value of a unit of debt = tax revenues / total debt
- A higher discount rate makes future surpluses worth less → price level rises
- For the US, a key input is the "special status" of US Treasuries globally
- The US enjoys low discount rates due to perceived high quality

See Cochrane, `https://faculty.chicagobooth.edu/john.cochrane/research/papers/cochrane_fiscal_theory_panel_bfi.pdf`

US Sovereign Risk

- Federal debt has grown substantially relative to GDP
- Rising interest expenses consume a growing share of the budget
- Primary deficits are projected to persist
- Higher rates $\rightarrow$ higher debt service $\rightarrow$ more issuance $\rightarrow$ higher rates?

Spring 2026: The fiscal outlook remains a key driver of long-term yields. Treasury supply from large deficits is one reason the 10-year yield stays above 4% despite Fed cuts.

Discussion: Is the US fiscal path sustainable? What would change your view?

Next Week

Bond Pricing, Spreads & Duration

Individual HW 1 will be posted on BruinLearn