Citadel FI&M Central Bank Challenge

Navigating through the uncertainties

Steven Zeng, Arka Sinha, Victor Mikheev, Patricia Ji
The University of Chicago
April.2nd 2025

Overview

1. Current economic conditions
2. Future economic conditions
3. A discussion around the two potential interest rate decisions
4. Risks and uncertainties of current economic conditions
5. Final policy recommendation

Current Economic Conditions

- Real Economy
    - Strong overall, moderation in consumer spending likely due to the rapid growth in 2024 (3.1% in Q3 and 2.3% in Q4, 2.8% annual growth).
    - Median projection for GDP: rise 1.7% this year, somewhat lower than projected in December, and to rise a bit below 2% over the next two years
    - Consumer Confidence Index fell 7.2 points in March to 92.9, the fourth straight monthly decline and its lowest reading since January of 2021; Conference Board’s measure for future expectations tumbled 9.6 points to 65.2, the lowest reading in 12 years
- Labor Market
    - Unemployment rate sits at 4.1%, which has remained in a narrow range of 4.0 – 4.2% since May 2024
    - The median projection for the unemployment rate is 4.4% at the end of this year and 4.3% over the next two years

Source: Federal Reserve Speeches and Statements, FOMC Materials, CNBC, AP News

Current Economic Conditions (cont.)

- Inflation
  - It has moderated significantly from its 2022 peak but remains above the Federal Reserve’s 2% target; Core inflation hits 2.8% in February, higher than the 2.6% in January.
  - The median projection for inflation is 2.7% this year and 2.2% next year, and eventually reaches the 2% objective in 2027.
  - Income increased by 0.8%, compensation was up by 0.5%, more demand. Core services excluding housing increased by 3.3% over the past year.
- Financial Conditions
  - 10 year treasury bond yield: 4.23%, in the range of 4.15% - 4.25% for the past week.
  - S&P 500 (-10%), Nasdaq (-15%). Fear for bear market & recession.
  - Beginning in April, the monthly cap on Treasury redemptions will be lowered from $25 billion to $5 billion. This supports financial markets by preserving liquidity, creating a modestly bullish environment for stocks. It reinforces a “soft landing” outlook, potentially lifting risk assets like equities, especially in liquidity-sensitive sectors such as tech, real estate, etc.

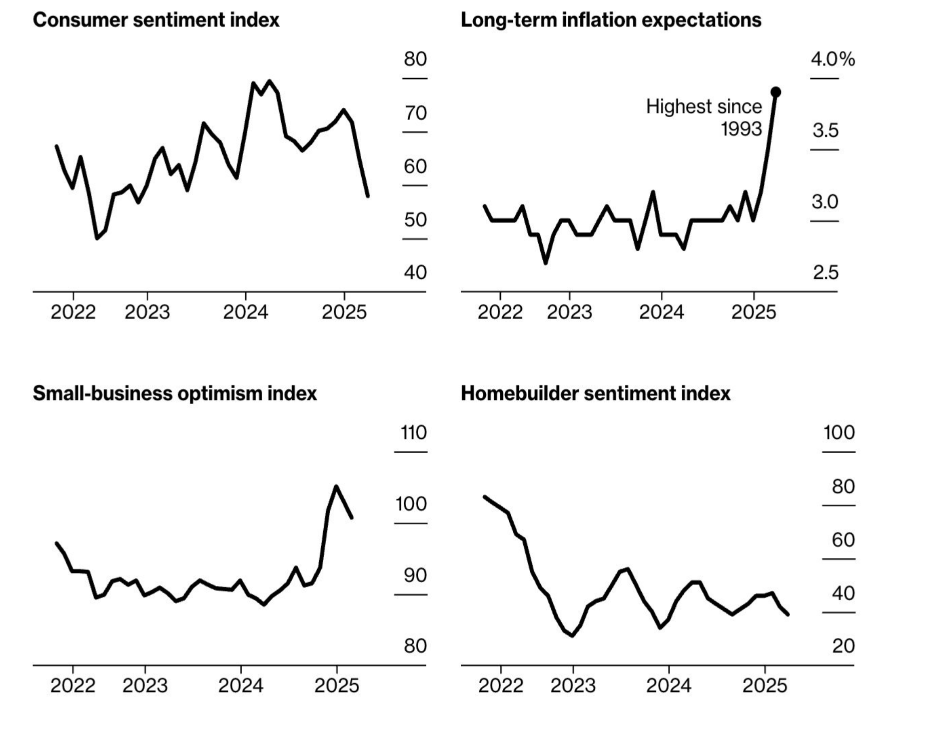
Source: Federal Reserve Speeches and Statements, FOMC Materials, U.S. Bureau of Labor Statistics, The Real Economy Blog, Federal Reserve Bank of St. Louis. CNBC

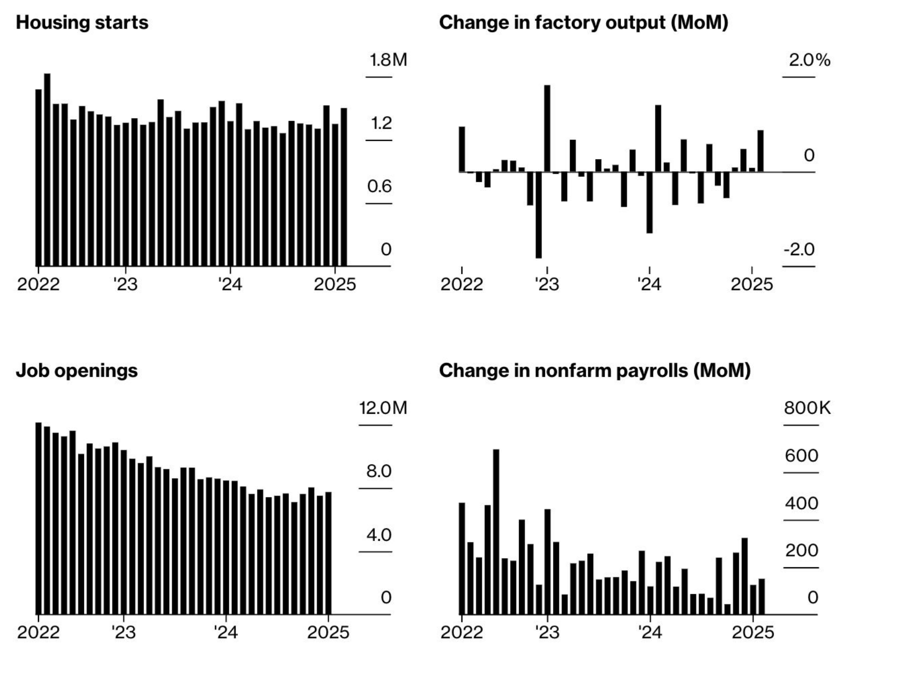
Current Economic Conditions (cont.)

- Trade
    - China: 20% on top of existing 10% duties that went into place during Trump's first term.
    - Canada and Mexico: 25% across-the-board tariffs (paused until April.2nd)
    - Steel and aluminum from all countries: A 25% US tariff, March 12.
    - Imported foreign automobiles and auto parts: 25% tariffs
    - U.S. trade deficit increased to $131.4 billion in January, up from $98.1 billion in December.
    - Why tariffs: reducing trade deficit; protecting American industries & jobs; bargaining tools; political strategy
    - Inflationary pressures; GDP growth impact (long-term drag from retaliatory tariffs on U.S. exports; Employment (losses in export sectors & gains in protected sectors)
    - Uncertainty. Trump referred to April.2nd as the “Liberation Day”. (4pm EST, go into effect immediately)

Source: Bureau of Economic Analysis, Yahoo Finance, New York Times, CNN

Current Economic Conditions (cont.)





Source: Census Bureau, Federal Reserve, Bureau of Labor Statistics

Source: Census Bureau, Federal Reserve, Bureau of Labor Statistics, Bloomberg

Future Economic Conditions

Household & Employment Trends

- **Labor Market Cooling:** The unemployment rate ticked up to 4.1% in February (from 4.0%) as the household survey showed a 588K drop in employment. The labor force shrank by 385K, pushing participation down to 62.4% – a two-year low.
- **Labor Force Composition:** Multiple jobholders now account for 5.4% of the employed (highest since 2009).
- **Wages:** Average hourly earnings growth moderated to +4.0% YoY in February, down from 4.2% in January.

Credit Spreads & Financial Conditions

- **Corporate Credit:** Credit spreads have widened. Investment-grade bond spreads are around 94 bps, and high-yield spreads are about 322 bps (widest since Sep 2024).
- **Yield Curve:** The Treasury yield curve is un-inverted – the 10-year yield ~4.23% vs 2-year ~3.89% (spread +34 bps).

GDP & Unemployment Outlook

- **Growth Slowdown:** After robust ~3% real GDP growth in 2024, the economy is losing momentum. Q1 2025 growth is tracking weaker – estimated around –2% (annualized). The Fed see 2025 growth slowing to roughly 1.5–1.7%.
- **Unemployment Forecasts:** Unemployment is currently 4.1%. Baseline Fed projections assume a modest rise – reaching about 4.4% by Q4 2025 and stabilizing around 4.3–4.5% by mid-2026.

Source: Federal Reserve Speeches and Statements, FOMC Materials, U.S. Bureau of Labor Statistics, BLS Household Survey, FRED data, Reuters

Future Economic Conditions

Inflation Snapshot

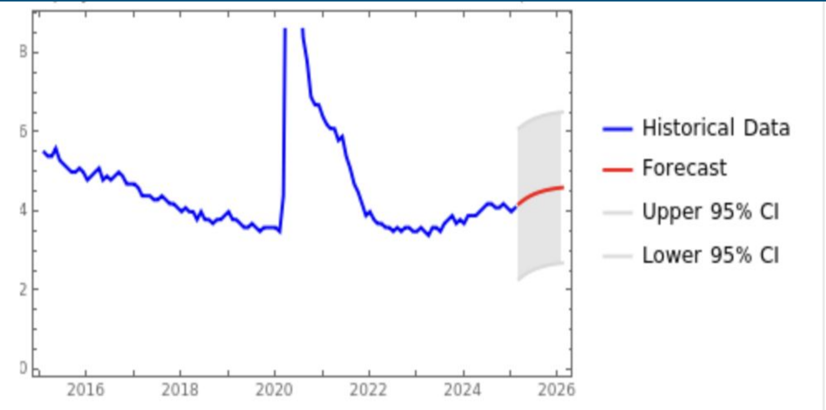
- **Recent Inflation:** Headline PCE came in at +2.5% YoY (Feb 2025) with Core PCE at +2.8% YoY – both an increase from January. Shelter costs have remained sticky, as well as recreational goods and vehicles. Personal saving rate also increased to 4.6%.
- **Forward Expectations:** Inflation is expected to gradually trend back toward the 2% target. The Fed projects core PCE inflation around 2.8% at end-2025, while market-derived measures suggest a moderate outlook (e.g., 5-year breakeven ~2.6%, 10-year ~2.4%).

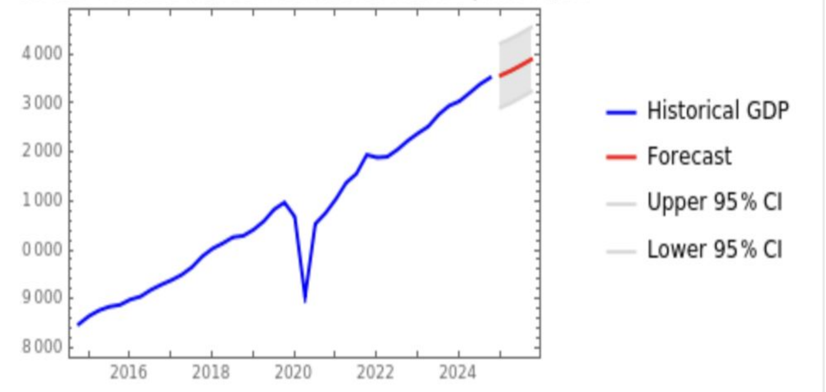
Scenario Analysis

1. **Base Case:** A soft landing with continued expansion at a subdued pace. GDP grows ~1.5–2% in 2025, inflation slowly recedes towards ~2%, and unemployment edges up only slightly (to ~4.5% by end-2025).
2. **Optimistic:** A stronger growth scenario (2.5–3% GDP growth) with faster disinflation. Productivity gains hold down prices, allowing the Fed to achieve disinflation without stalling growth. Unemployment remains at or below ~4%.
3. **Pessimistic:** An adverse scenario where escalating trade conflicts induce stagflation. New tariffs (~18%) could raise import costs, adding ~1% to inflation and eroding business confidence. A technical recession by late 2025 becomes likely, with GDP growth near 0% to –1% and unemployment rising toward 5–5.5% by mid-2026.

Source: Federal Reserve Speeches and Statements, FOMC Materials, U.S. Bureau of Labor Statistics, BLS Household Survey, Reuters

Unemployment & Real GDP Forecast





Date	Forecast	95% CI Low	95% CI High
2025-03	4.20	2.29	6.11
2025-04	4.28	2.37	6.19
2025-05	4.35	2.45	6.26
2025-06	4.40	2.50	6.31
2025-07	4.45	2.55	6.35
2025-08	4.49	2.59	6.39
2025-09	4.52	2.62	6.43
2025-10	4.54	2.64	6.45
2025-11	4.56	2.66	6.47
2025-12	4.58	2.68	6.48
2026-01	4.60	2.69	6.50
2026-02	4.61	2.71	6.52

Quarter	% Growth
2025 Q1	0.19%
2025 Q2	0.40%
2025 Q3	0.48%
2025 Q4	0.51%

Interest Rate Decision Alternatives — Introduction

Cut 25 Basis Points:

- **Rising recession risk:** Consumer and business confidence has deteriorated sharply under new trade tariffs, and recession odds are climbing. Goldman now has a 35% chance of a US recession.
- **Jobs data:** Job gains came in weaker than forecast, with the Unemployment rate rising to 4.1%, and non farm payroll coming in below expectations.
- **"Insurance" rate cut:** Growing downside risks have led some economists to urge a precautionary 25 bps cut now as an *insurance* measure. In particular there are parallels to 2019's mid-cycle cuts – easing early could cushion the economy against a sharper downturn. Moreover Jerome Powell reiterated that policy would be "relaxed if unemployment starts to rise," which has occurred.
- **Financial Conditions:** The S&P 500 is down 4% since the start of 2025, US high yield spreads have also been steadily climbing in 2025. Moreover US manufacturing decreased in March, with ISM manufacturing PMI going to 49 in March, below consensus of 49.5.

Hold Interest Rates:

- **Inflation still above target:** Core inflation remains elevated (Fed officials project ~2.8% Core PCE by year-end, above the 2% goal). Currently Core PCE is +2.8% YOY and Headline PCE is at +2.5% YOY.
- **No premature easing:** Fed officials have insisted on no premature easing especially if as Austan Goolsbee said US Bond market investors become used to inflation. They also emphasize a wait and see approach amid unusually high uncertainty with tariffs and fiscal shifts.
- **Solid economy (for now):** There is little evidence of immediate economic contraction. Growth to date has been "very solid" with a still-healthy labor market and ~4% unemployment.
- **Tariffs:** Recent analysis done at Aston University, suggested that if the US levies 25% tariff on all countries and these countries retaliate with 25% tariffs back on the US, then there would be a long term 5.5% increase in inflation.
- **Consensus favors a pause:** Virtually all Fed watchers and major institutions expect no rate change at the upcoming meeting. This aligns with the Fed's own guidance – policy makers collectively still foresee any rate cuts happening later in 2025, not at this meeting.

Source: Federal Reserve Speeches and Statements, FOMC Materials, U.S. Bureau of Labor Statistics, BLS Household Survey, Reuters

Trade Offs and Dual Mandate Implications

Cut 25 Basis Points:

- Unemployment slowly rising from low of 3.4% in 2023 to 4.1% in Feb 2025. Moreover the U-6 unemployment rate rose from 7.5% to 8.%, its highest point since October 2021.
- Due in part to number of people employed part-time due to economic reasons rising by 460,000 in February 2025.
- Moreover most job gains occurring nowadays are from acyclical sectors, with little from cyclical sectors(apart from construction). Leisure and Hospitality employment has been declining in 2025.
- US 10yr treasury yield rising since September, hitting 4.23% March 31 2025. CBO projects net interest payments to total $952 billion in 2025. A rate cut would help contain government borrowing costs and ease financial conditions.
- Weaker dollar, supporting export growth, leading to increased employment in export-driven industries such as manufacturing and agriculture, fulfilling Fed mandate.

Hold Interest Rates:

- Inflation still above 2% target, and in February came in above expectations
- 5 year consumer inflation expectations reached 4.9% according to Michigan Survey.
- Trump immigration policies are leading to a tightening labour market.
- Out of 11 million undocumented immigrants, 8 million are in the workforce. 14% of construction workers are undocumented and 1 in 8 agricultural workers.
- This deportation could push prices up by 9% in a worst case scenario (Peterson Institute for International Economics)
- Unemployment rate still below Fed's estimate of NAIRU(4.3%). Non farm payroll came in at +151K in February with median expectations of +160K.
- Moreover recent increase in unemployment is partly due to DOGE and trade policy uncertainty. May reverse.

Source: Federal Reserve Speeches and Statements, FOMC Materials, U.S. Bureau of Labor Statistics, BLS Household Survey, Reuters, Employ America, Peterson Institute for International Economics, Committee for a Responsible Federal Budget

Quantitative Analysis

- Time Series:
  $r_t = a + \beta r_{t-1} + \epsilon_t$

- Taylor Rule:
  $r_t = 1 + 1.5p_t + 0.5(u_{t-1} - 4.3)$

- Combining the two:
  $R_t = a + pr_{t-1} + \beta(p_{t-1} - 2) + \lambda(u_{t-1} - 4.3) + \epsilon_t$

- Expected Target Rate: 4.34%

Variable	Symbol	Value	Description
Alpha	a	0.047	Constant
Persistence	p	0.994	Lagged Interest Rate Coefficient
Beta	β	-0.007	Sensitivity to Inflation
Lambda	λ	−0.024	Sensitivity to Unemployment
Previous Interest Rate	r_{t-1}	4.33%	Last Period's Interest Rate
Previous Inflation	p_{t-1}	2.5%	Last Period's Inflation Rate
Previous Unemployment	u_{t-1}	4.1%	Last Period's Unemployment Rate

Further Quantitative Analysis

- Demand IS Curve:
  $y = E_t[y_{t+1}] - 1/\sigma\,(r_t - E_t[\pi_{t+1}] - r^n$
- New Keynesian Phillips Curve:
  $\pi_t = \beta E_t[\pi_{t+1}] + ky_t$
- Okun's Law:
  $u_t = u_{natural} - y_t a_{okun}$

Period	Real GDP Gap (%)	Inflation (%)	Unemployment (%)
0	1.86	2.50	4.10
1	2.75/ 1.86	2.63/2.53	4.00/4.10
2	3.73/1.87	2.78/2.56	3.88/4.09
3	4.80/1.89	2.96/2.59	3.75/4.09
4	5.98/1.91	3.17/2.63	3.60/4.08
5	7.29/1.94	3.41/2.66	3.43/4.07

Risks and Uncertainties of Current Economic Conditions

Amid escalating Trump-era tariffs, the U.S. economy faces a structural shift from inflation concerns to mounting growth risks, compounded by exogenous shocks that are tightening financial conditions and undermining global market stability.

Purchasing activity is weakening as **elevated import costs**, **front-loaded inventory accumulation**; rising price uncertainty suppress consumer and corporate spending

- Q1 2025 durable goods orders down 2.4%
- Consumer spending initially rose ahead of tariff, PCE rose 2.5% in February

The U.S. **trade deficit has surged** as companies expedite imports ahead of the April tariff implementations, highlighting **escalating trade imbalances** and **supply chain disruptions**

- 50% year-over-year increase in the goods deficit
- Export volume vs import volume
- Supply chain reconfiguration

While employment remains resilient, **cooling job creation** and **rising layoff** signal labor market approaching an **inflection point** amid tightening financial and trade conditions

- Temp and gig job growth slowing: 7.7% decline temporary employment
- Predicted modest job losses by Q3 2025, particularly in manufacturing-heavy regions

Oil price volatility and **global policy divergence** amplifies uncertainty, with spillover risks from China's slowdown and declining corporate earnings posing threats to **U.S. asset valuations**

- Brent crude to flirt with $74.79/barrel
- The ECB and BoJ maintain loose policy
- S&P 500's EPS estimate for 2025 is at $269.91, a 10% increase from the previous year

These risks reinforce a weakening growth outlook and elevated uncertainty, strengthening the case for the FOMC to adopt a cautious stance - most likely holding rates steady, with a growing possibility of a 25 bps cut should conditions deteriorate further

Source: MarketWatch, Fed Beige Book, European Central Bank, Reuters, Bloomberg, WSJ, KPMG

Policy Recommendation –

Hold interest rate due to elevated inflation and ongoing uncertainty

Qualitatively	Quantitatively
Solid Economy for Now Economic growth forecasted by the Fed to be around 1.5-1.7% for 2025, with business investment and consumer spending still increasing.	**Inflation remains above target** Core PCE inflation is projected at ~2.8% by year 2025 end, still above the Fed's 2% goal. Holding rates avoids fueling price pressures.
Premature cuts risk price instability Officials emphasize the danger of cutting rates before disinflation is firmly established, referencing 1970s policy errors.	**Upside price risks** From new tariffs could halt disinflation and delay progress toward the Fed's inflation goals.
Policy clarity requires patience With high global uncertainty (e.g., trade shifts, fiscal outlook), the Fed adopts a "wait-and-see" stance.	**Consensus among Fed watchers** Most expect a pause until at least late 2025, consistent with data-dependent policy.
Solid labor market supports pause No signs of immediate contraction; unemployment remains near 4% and wage growth remains strong.	**4.1% unemployment rate** Indicates a still-healthy job market, reducing urgency to ease rates.

Source: Federal Reserve Speeches and Statements, FOMC Materials, WSJ, MarketWatch